

FIGURE 1—T-DISTRIBUTION VALUES FOR CERTIFICATION TESTING—Continued [One-Sided]

Degrees of freedom (from Appendix A)	Confidence Interval			
	90%	95%	97.5%	99%
5	1.476	2.015	2.571	3.365
6	1.440	1.943	2.447	3.143
7	1.415	1.895	2.365	2.998
8	1.397	1.860	2.306	2.896
9	1.383	1.833	2.262	2.821
10	1.372	1.812	2.228	2.764
11	1.363	1.796	2.201	2.718
12	1.356	1.782	2.179	2.681
13	1.350	1.771	2.160	2.650
14	1.345	1.761	2.145	2.624
15	1.341	1.753	2.131	2.602
16	1.337	1.746	2.120	2.583
17	1.333	1.740	2.110	2.567
18	1.330	1.734	2.101	2.552
19	1.328	1.729	2.093	2.539
20	1.325	1.725	2.086	2.528

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Subpart C—Enforcement

§ 429.100 Purpose and scope.

This subpart describes the enforcement authority of DOE to ensure compliance with the conservation standards and regulations.

§ 429.102 Prohibited acts subjecting persons to enforcement action.

(a) Each of the following actions is prohibited:

(1) Failure of a manufacturer to provide, maintain, permit access to, or copying of records required to be supplied under the Act and this part or failure to make reports or provide other information required to be supplied under the Act and this part, including but not limited to failure to properly certify covered products and covered equipment in accordance with § 429.12 and §§ 429.14 through 429.54;

(2) Failure to test any covered product or covered equipment subject to an applicable energy conservation standard in conformance with the applicable test requirements prescribed in 10 CFR parts 430 or 431;

(3) Deliberate use of controls or features in a covered product or covered equipment to circumvent the requirements of a test procedure and produce test results that are unrepresentative of a product's energy or water con-

sumption if measured pursuant to DOE's required test procedure;

(4) Failure of a manufacturer to supply at the manufacturer's expense a requested number of covered products or covered equipment to a designated test laboratory in accordance with a test notice issued by DOE;

(5) Failure of a manufacturer to permit a DOE representative to observe any testing required by the Act and this part and inspect the results of such testing;

(6) Distribution in commerce by a manufacturer or private labeler of any new covered product or covered equipment that is not in compliance with an applicable energy conservation standard prescribed under the Act;

(7) Distribution in commerce by a manufacturer or private labeler of a basic model of covered product or covered equipment after a notice of non-compliance determination has been issued to the manufacturer or private labeler;

(8) Knowing misrepresentation by a manufacturer or private labeler by certifying an energy use or efficiency rating of any covered product or covered equipment distributed in commerce in a manner that is not supported by test data;

(9) For any manufacturer, distributor, retailer, or private labeler to distribute in commerce an adapter that—

(i) Is designed to allow an incandescent lamp that does not have a medium screw base to be installed into a fixture or lamp holder with a medium screw base socket; and

(ii) Is capable of being operated at a voltage range at least partially within 110 and 130 volts; or

(10) For any manufacturer or private labeler to knowingly sell a product to a distributor, contractor, or dealer with knowledge that the entity routinely violates any regional standard applicable to the product.

(b) When DOE has reason to believe that a manufacturer or private labeler has undertaken a prohibited act listed in paragraph (a) of this section, DOE may:

(1) Issue a notice of noncompliance determination;

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- (2) Impose additional certification testing requirements;
- (3) Seek injunctive relief;
- (4) Assess a civil penalty for knowing violations; or
- (5) Undertake any combination of the above.

§ 429.104 Assessment testing.

DOE may, at any time, test a basic model to assess whether the basic model is in compliance with the applicable energy conservation standard(s).

§ 429.106 Investigation of compliance.

(a) DOE may initiate an investigation that a basic model may not be compliant with an applicable conservation standard, certification requirement or other regulation at any time.

(b) DOE may, at any time, request any information relevant to determining compliance with any requirement under parts 429, 430 and 431, including the data underlying certification of a basic model. Such data may be used by DOE to make a determination of compliance or noncompliance with an applicable standard.

§ 429.110 Enforcement testing.

(a) *General provisions.* (1) If DOE has reason to believe that a basic model is not in compliance it may test for enforcement.

(2) DOE will select and test units pursuant to paragraphs (c) and (e) of this section.

(3) Testing will be conducted at a lab accredited to the International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC), "General requirements for the competence of testing and calibration laboratories," ISO/IEC 17025:2005(E) (incorporated by reference; see § 429.4). If testing cannot be completed at an independent lab, DOE, at its discretion, may allow enforcement testing at a manufacturer's lab, so long as the lab is accredited to ISO/IEC 17025:2005(E) and DOE representatives witness the testing.

(b) *Test notice.* (1) To obtain units for enforcement testing to determine compliance with an applicable standard, DOE will issue a test notice addressed to the manufacturer in accordance with the following requirements:

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(i) DOE will send the test notice to the manufacturer's certifying official or other company official.

(ii) The test notice will specify the basic model that will be selected for testing, the method of selecting the test sample, the maximum size of the sample and the size of the initial test sample, the dates at which testing is scheduled to be started and completed, and the facility at which testing will be conducted. The test notice may also provide for situations in which the selected basic model is unavailable for testing and may include alternative models or basic models.

(iii) DOE will state in the test notice that it will select the units of a basic model to be tested from the manufacturer, from one or more distributors, and/or from one or more retailers. If any unit is selected from a distributor or retailer, the manufacturer shall make arrangements with the distributor or retailer for compensation for or replacement of any such units.

(iv) DOE may require in the test notice that the manufacturer of a basic model ship or cause to be shipped from a retailer or distributor at its expense the requested number of units of a basic model specified in such test notice to the testing laboratory specified in the test notice. The manufacturer shall ship the specified initial test unit(s) of the basic model to the testing laboratory within 5 working days from the time units are selected.

(v) If DOE determines that the units identified are low-volume or built-to-order products, DOE will contact the manufacturer to develop a plan for enforcement testing in lieu of paragraphs (ii)–(iv) of this section.

(2) [Reserved]

(c) *Test unit selection.* (1) To select units for testing from a:

(i) Manufacturer's warehouse, distributor, or other facility affiliated with the manufacturer. DOE will select a batch sample at random in accordance with the provisions in paragraph (e) of this section and the conditions specified in the test notice. DOE will randomly select an initial test sample of units from the batch sample for testing in accordance with appendices A through C of this subpart. DOE will

make a determination whether an alternative sample size will be used in accordance with the provisions in paragraph (e)(1)(iv) of this section.

(ii) Retailer or other facility not affiliated with the manufacturer. DOE will select an initial test sample of units at random that satisfies the minimum units necessary for testing in accordance with the provisions in appendices A through C of this subpart and the conditions specified in the test notice. Depending on the results of the testing, DOE may select additional units for testing from a retailer in accordance with appendices A through C of this subpart. If the full sample is not available from a retailer, DOE will make a determination whether an alternative sample size will be used in accordance with the provisions in paragraph (e)(1)(iv) of this section.

(2) Units tested in accordance with the applicable test procedure under this part by DOE or another Federal agency, pursuant to other provisions or programs, may count toward units in the test sample.

(3) The resulting test data shall constitute official test data for the basic model. Such test data will be used by DOE to make a determination of compliance or noncompliance if a sufficient number of tests have been conducted to satisfy the requirements of paragraph (e) of this section and appendices A through C of this subpart.

(d) *Test unit preparation.* (1) Prior to and during testing, a test unit selected for enforcement testing shall not be prepared, modified, or adjusted in any manner unless such preparation, modification, or adjustment is allowed by the applicable DOE test procedure. One test shall be conducted for each test unit in accordance with the applicable test procedures prescribed in parts 430 and 431.

(2) No quality control, testing or assembly procedures shall be performed on a test unit, or any parts and sub-assemblies thereof, that is not performed during the production and assembly of all other units included in the basic model.

(3) A test unit shall be considered defective if such unit is inoperative or is found to be in noncompliance due to failure of the unit to operate according

to the manufacturer's design and operating instructions. Defective units, including those damaged due to shipping or handling, shall be reported immediately to DOE. DOE may authorize testing of an additional unit on a case-by-case basis.

(e) *Basic model compliance.* (1) DOE will evaluate whether a basic model complies with the applicable energy conservation standard(s) based on testing conducted in accordance with the applicable test procedures specified in parts 430 and 431, and with the following statistical sampling procedures:

(i) For products with applicable energy conservation standard(s) in § 430.32, and commercial pre-rinse spray valves, illuminated exit signs, traffic signal modules and pedestrian modules, commercial clothes washers, and metal halide lamp ballasts, DOE will use a sample size of not more than 21 units and follow the sampling plans in appendix A of this subpart (Sampling for Enforcement Testing of Covered Consumer Products and Certain High-Volume Commercial Equipment).

(ii) For automatic commercial ice makers; commercial refrigerators, freezers, and refrigerator-freezers; refrigerated bottled or canned vending machines; and commercial HVAC and WH equipment, DOE will use an initial sample size of not more than four units and follow the sampling plans in appendix B of this subpart (Sampling Plan for Enforcement Testing of Covered Equipment and Certain Low-Volume Covered Products). If fewer than four units of a basic model are available for testing when the manufacturer receives the notice, then:

(A) DOE will test the available unit(s); or

(B) If one or more other units of the basic model are expected to become available within 30 calendar days, DOE may instead, at its discretion, test either:

(1) The available unit(s) and one or more of the other units that subsequently become available (up to a maximum of four); or

(2) Up to four of the other units that subsequently become available.

(iii) For distribution transformers, DOE will use an initial sample size of not more than five units and follow the

sampling plans in appendix C of this subpart (Sampling Plan for Enforcement Testing of Distribution Transformers). If fewer than five units of a basic model are available for testing when the manufacturer receives the test notice, then:

(A) DOE will test the available unit(s); or

(B) If one or more other units of the basic model are expected to become available within 30 calendar days, the Department may instead, at its discretion, test either:

(1) The available unit(s) and one or more of the other units that subsequently become available (up to a maximum of five); or

(2) Up to five of the other units that subsequently become available.

(iv) Notwithstanding paragraphs (e)(1)(i) through (e)(1)(iii) of this section, if testing of the available or subsequently available units of a basic model would be impractical, as for example when a basic model has unusual testing requirements or has limited production, DOE may in its discretion decide to base the determination of compliance on the testing of fewer than the otherwise required number of units.

(v) When DOE makes a determination in accordance with section (e)(1)(iv) to test less than the number of units specified in parts (d)(1)(i) through (d)(1)(iii) of this section, DOE will base the compliance determination on the results of such testing in accordance with appendix B of this subpart (Sampling Plan for Enforcement Testing of Covered Equipment and Certain Low-Volume Covered Products) using a sample size (n_1) equal to the number of units tested.

(vi) For the purposes of paragraphs (e)(1)(i) through (e)(1)(v) of this section, available units are those that are available for distribution in commerce within the United States.

§ 429.114 Notice of noncompliance and notice to cease distribution of a basic model.

(a) In the event that DOE determines a basic model is noncompliant with an applicable energy conservation standard, or if a manufacturer or private labeler determines a basic model to be in

noncompliance, DOE may issue a notice of noncompliance determination to the manufacturer or private labeler. This notice of noncompliance determination will notify the manufacturer or private labeler of its obligation to:

(1) Immediately cease distribution in commerce of the basic model;

(2) Give immediate written notification of the determination of noncompliance to all persons to whom the manufacturer has distributed units of the basic model manufactured since the date of the last determination of compliance; and

(3) Provide DOE, within 30 calendar days of the request, records, reports and other documentation pertaining to the acquisition, ordering, storage, shipment, or sale of a basic model determined to be in noncompliance.

(b) In the event that DOE determines a manufacturer has failed to comply with an applicable certification requirement with respect to a particular basic model, DOE may issue a notice of noncompliance determination to the manufacturer or private labeler. This notice of noncompliance determination will notify the manufacturer or private labeler of its obligation to:

(1) Immediately cease distribution in commerce of the basic model;

(2) Immediately comply with the applicable certification requirement; and/or

(3) Provide DOE within 30 days of the request, records, reports and other documentation pertaining to the acquisition, ordering, storage, shipment, or sale of the basic model.

(c) If a manufacturer or private labeler fails to comply with the required actions in the notice of noncompliance determination as set forth in paragraphs (a) or (b) of this section, the General Counsel (or delegate) may seek, among other remedies, injunctive action and civil penalties, where appropriate.

(d) The manufacturer may modify a basic model determined to be noncompliant with an applicable energy conservation standard in such manner as to make it comply with the applicable standard. Such modified basic model shall then be treated as a new basic model and must be certified in accordance with the provisions of this

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part; except that in addition to satisfying all requirements of this part, any models within the basic model must be assigned new model numbers and the manufacturer shall also maintain, and provide upon request to DOE, records that demonstrate that modifications have been made to all units of the new basic model prior to distribution in commerce.

§ 429.116 Additional certification testing requirements.

Pursuant to § 429.102(b)(2), if DOE determines that independent, third-party testing is necessary to ensure a manufacturer's compliance with the rules of this part, part 430, or part 431, a manufacturer must base its certification of a basic model under subpart B of this part on independent, third-party laboratory testing.

§ 429.118 Injunctions.

If DOE has reason to seek an injunction under the Act:

(a) DOE will notify the manufacturer, private labeler or any other person as required, of the prohibited act at issue and DOE's intent to seek a judicial order enjoining the prohibited act unless the manufacturer, private labeler or other person, delivers to DOE within 15 calendar days a corrective action and compliance plan, satisfactory to DOE, of the steps it will take to ensure that the prohibited act ceases. DOE will monitor the implementation of such plan.

(b) If the manufacturer, private labeler or any other person as required, fails to cease engaging in the prohibited act or fails to provide a satisfactory corrective action and compliance plan, DOE may seek an injunction.

§ 429.120 Maximum civil penalty.

Any person who knowingly violates any provision of § 429.102(a) of this part may be subject to assessment of a civil penalty of no more than \$200 for each violation. As to § 429.102(a)(1) with respect to failure to certify, and as to § 429.102(a)(2), (5) through (9), each unit of a covered product or covered equipment distributed in violation of such paragraph shall constitute a separate violation. For violations of § 429.102(a)(1), (3), and (4), each day of

noncompliance shall constitute a separate violation for each basic model at issue.

§ 429.122 Notice of proposed civil penalty.

(a) The General Counsel (or delegee) shall provide notice of any proposed civil penalty.

(b) The notice of proposed penalty shall:

(1) Include the amount of the proposed penalty;

(2) Include a statement of the material facts constituting the alleged violation; and

(3) Inform the person of the opportunity to elect in writing within 30 calendar days of receipt of the notice to have the procedures of § 429.128 (in lieu of those of § 429.126) apply with respect to the penalty.

§ 429.124 Election of procedures.

(a) In responding to a notice of proposed civil penalty, the respondent may request:

(1) An administrative hearing before an Administrative Law Judge (ALJ) under § 429.126 of this part; or

(2) Elect to have the procedures of § 429.128 apply.

(b) Any election to have the procedures of § 429.128 apply may not be revoked except with the consent of the General Counsel (or delegee).

(c) If the respondent fails to respond to a notice issued under § 429.120 or otherwise fails to indicate its election of procedures, DOE shall refer the civil penalty action to an ALJ for a hearing under § 429.126.

§ 429.126 Administrative law judge hearing and appeal.

(a) When elected pursuant to § 429.124, DOE shall refer a civil penalty action brought under § 429.122 of this part to an ALJ, who shall afford the respondent an opportunity for an agency hearing on the record.

(b) After consideration of all matters of record in the proceeding, the ALJ will issue a recommended decision, if appropriate, recommending a civil penalty. The decision will include a statement of the findings and conclusions, and the reasons therefore, on all material issues of fact, law, and discretion.

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(c)(1) The General Counsel (or delegee) shall adopt, modify, or set aside the conclusions of law or discretion contained in the ALJ's recommended decision and shall set forth a final order assessing a civil penalty. The General Counsel (or delegee) shall include in the final order the ALJ's findings of fact and the reasons for the final agency actions.

(2) Any person against whom a penalty is assessed under this section may, within 60 calendar days after the date of the final order assessing such penalty, institute an action in the United States Court of Appeals for the appropriate judicial circuit for judicial review of such order in accordance with chapter 7 of title 5, United States Code. The court shall have jurisdiction to enter a judgment affirming, modifying, or setting aside in whole or in part, the final order, or the court may remand the proceeding to the Department for such further action as the court may direct.

§ 429.128 Immediate issuance of order assessing civil penalty.

(a) If the respondent elects to forgo an agency hearing pursuant to § 429.124, the General Counsel (or delegee) shall issue an order assessing the civil penalty proposed in the notice of proposed penalty under § 429.122, 30 calendar days after the respondent's receipt of the notice of proposed penalty.

(b) If within 60 calendar days of receiving the assessment order in paragraph (a) of this section the respondent does not pay the civil penalty amount, DOE shall institute an action in the appropriate United States District Court for an order affirming the assessment of the civil penalty. The court shall have authority to review de novo the law and the facts involved and shall have jurisdiction to enter a judgment enforcing, modifying, and enforcing as so modified, or setting aside in whole or in part, such assessment.

§ 429.130 Collection of civil penalties.

If any person fails to pay an assessment of a civil penalty after it has be-

come a final and unappealable order under § 429.126 or after the appropriate District Court has entered final judgment in favor of the Department under § 429.128, the General Counsel (or delegee) shall institute an action to recover the amount of such penalty in any appropriate District Court of the United States. In such action, the validity and appropriateness of such final assessment order or judgment shall not be subject to review.

§ 429.132 Compromise and settlement.

(a) DOE may compromise, modify, or remit, with or without conditions, any civil penalty (with leave of court if necessary).

(b) In exercising its authority under paragraph (a) of this section, DOE may consider the nature and seriousness of the violation, the efforts of the respondent to remedy the violation in a timely manner, and other factors as justice may require.

(c) DOE's authority to compromise, modify or remit a civil penalty may be exercised at any time prior to a final decision by the United States Court of Appeals if § 429.126 procedures are utilized, or prior to a final decision by the United States District Court, if § 429.128 procedures are utilized.

(d) Notwithstanding paragraph (a) of this section, DOE or the respondent may propose to settle the case. If a settlement is agreed to by the parties, the respondent is notified and the case is closed in accordance with the terms of the settlement.

APPENDIX A TO SUBPART C OF PART 429—SAMPLING PLAN FOR ENFORCEMENT TESTING OF COVERED CONSUMER PRODUCTS AND CERTAIN HIGH-VOLUME COMMERCIAL EQUIPMENT

(a) The first sample size (n_1) for enforcement testing must be four or more units, except as provided by § 429.57(e)(1)(i).

(b) Compute the mean of the measured energy performance (x_1) for all tests as follows:

$$x_1 = \frac{1}{n_1} \left(\sum_{i=1}^{n_1} x_i \right) \tag{1}$$

where x_i is the measured energy or water efficiency or consumption from test i , and n_1 is the total number of tests.

(c) Compute the standard deviation (s_1) of the measured energy performance from the n_1 tests as follows:

$$s_1 = \sqrt{\frac{\sum_{i=1}^{n_1} (x_i - x_1)^2}{n_1 - 1}} \tag{2}$$

(d) Compute the standard error (s_{x_1}) of the measured energy performance from the n_1 tests as follows:

$$s_{x_1} = \frac{s_1}{\sqrt{n_1}} \tag{3}$$

(e)(1) Compute the upper control limit (UCL_1) and lower control limit (LCL_1) for the mean of the first sample using the applicable DOE energy efficiency standard (EES) as the

desired mean and a probability level of 95 percent (two-tailed test) as follows:

$$LCL_1 = EES - t s_{x_1}$$

$$LCL_1 = EES - t s_{x_1} \tag{4} \text{ and } UCL_1 = EES + t s_{x_1} \tag{5}$$

where t is the statistic based on a 95 percent two-tailed probability level with degrees of freedom ($n_1 - 1$).

then the basic model is in compliance and testing is at an end. (Do not go on to any of the steps below.)

(2) For an energy efficiency or water efficiency standard, compare the mean of the first sample (x_1) with the upper and lower control limits (UCL_1 and LCL_1) to determine one of the following:

(iii) If the sample mean is equal to or greater than the lower control limit but less than the upper control limit, then no determination of compliance or noncompliance can be made and a second sample size is determined by Step (e)(3).

(i) If the mean of the first sample is below the lower control limit, then the basic model is in noncompliance and testing is at an end. (Do not go on to any of the steps below.)

(3) For an energy efficiency or water efficiency standard, determine the second sample size (n_2) as follows:

(ii) If the mean of the first sample is equal to or greater than the upper control limit,

$$n_2 = \left(\frac{ts_1}{0.05EES} \right)^2 - n_1 \quad [6]$$

where s_1 and t have the values used in equations 2 and 4, respectively. The term "0.05 EES" is the difference between the applicable energy efficiency or water efficiency standard and 95 percent of the standard, where 95 percent of the standard is taken as the lower control limit. This procedure yields a sufficient combined sample size (n_1+n_2) to give an estimated 97.5 percent probability of obtaining a determination of compliance when the true mean efficiency is equal to the applicable standard. Given the solution value of n_2 , determine one of the following:

(i) If the value of n_2 is less than or equal to zero and if the mean energy or water efficiency of the first sample (x_1) is either equal to or greater than the lower control limit (LCL_1) or equal to or greater than 95 percent of the applicable energy efficiency or water efficiency standard (EES), whichever is greater, *i.e.*, if $n_2 \leq 0$ and $x_1 \geq \max(LCL_1, 0.95 EES)$

EES), the basic model is in compliance and testing is at an end.

(ii) If the value of n_2 is less than or equal to zero and the mean energy efficiency of the first sample (x_1) is less than the lower control limit (LCL_1) or less than 95 percent of the applicable energy or water efficiency standard (EES), whichever is greater, *i.e.*, if $n_2 \leq 0$ and $x_1 \leq \max(LCL_1, 0.95 EES)$, the basic model is not in compliance and testing is at an end.

(iii) If the value of n_2 is greater than zero, then, the value of the second sample size is determined to be the smallest integer equal to or greater than the solution value of n_2 for equation (6). If the value of n_2 so calculated is greater than $21 - n_1$, set n_2 equal to $21 - n_1$.

(4) Compute the combined mean (x_2) of the measured energy or water efficiency of the n_1 and n_2 units of the combined first and second samples as follows:

$$\bar{x}_2 = \frac{1}{n_1 + n_2} \left(\sum_{i=1}^{n_1+n_2} x_i \right) \quad [7]$$

(5) Compute the standard error (S_{x_2}) of the measured energy or water performance of

the n_1 and n_2 units in the combined first and second samples as follows:

$$s_{x_2} = \frac{s^1}{\sqrt{n_1 + n_2}} \quad [8]$$

NOTE: s_1 is the value obtained in Step (c).

(6) For an energy efficiency standard (EES), compute the lower control limit (LCL_2) for the mean of the combined first and second samples using the DOE EES as

the desired mean and a one-tailed probability level of 97.5 percent (equivalent to the two-tailed probability level of 95 percent used in Step (e)(1)) as follows:

$$LCL_2 = EES - ts_{x_2} \quad [9]$$

where the t -statistic has the value obtained in Step (e)(1) and s_{x_2} is the value obtained in Step (e)(5).

(7) For an energy efficiency standard (EES), compare the combined sample mean (x_2) to the lower control limit (LCL_2) to determine one of the following:

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(i) If the mean of the combined sample (x_2) is less than the lower control limit (LCL_2) or 95 percent of the applicable energy efficiency standard (EES), whichever is greater, *i.e.*, if $x_2 < \max(LCL_2, 0.95 \text{ EES})$, the basic model is not compliant and testing is at an end.

(iii) If the mean of the combined sample (x_2) is equal to or greater than the lower control limit (LCL_2) or 95 percent of the applicable energy efficiency standard (EES), which-

ever is greater, *i.e.*, if $x_2 \geq \max(LCL_2, 0.95 \text{ EES})$, the basic model is in compliance and testing is at an end.

(f)(1) Compute the upper control limit (UCL_1) and lower control limit (LCL_1) for the mean of the first sample using the applicable DOE energy consumption standard (ECS) as the desired mean and a probability level of 95 percent (two-tailed test) as follows:

$$LCL_1 = ECS - ts_{x_1} \quad \text{and} \quad UCL_1 = ECS + ts_{x_1} \quad [10]$$

where t is the statistic based on a 95 percent two-tailed probability level with degrees of freedom ($n_1 - 1$).

(2) For an energy or water consumption standard, compare the mean of the first sample (x_1) with the upper and lower control limits (UCL_1 and LCL_1) to determine one of the following:

(i) If the mean of the first sample is above the upper control limit, then the basic model is in noncompliance and testing is at an end. (Do not go on to any of the steps below.)

(ii) If the mean of the first sample is equal to or less than the lower control limit, then

the basic model is in compliance and testing is at an end. (Do not go on to any of the steps below.)

(iii) If the sample mean is equal to or less than the upper control limit but greater than the lower control limit, then no determination of compliance or noncompliance can be made and a second sample size is determined by Step (f)(3).

(3) For an Energy or Water Consumption Standard, determine the second sample size (n_2) as follows:

$$n_2 = \left(\frac{ts_1}{0.05ECS} \right)^2 - n_1 \quad [11]$$

where s_1 and t have the values used in equations (2) and (10), respectively. The term "0.05 ECS" is the difference between the applicable energy or water consumption standard and 105 percent of the standard, where 105 percent of the standard is taken as the upper control limit. This procedure yields a sufficient combined sample size ($n_1 + n_2$) to give an estimated 97.5 percent probability of obtaining a determination of compliance when the true mean consumption is equal to the applicable standard. Given the solution value of n_2 , determine one of the following:

(i) If the value of n_2 is less than or equal to zero and if the mean energy or water consumption of the first sample (x_1) is either equal to or less than the upper control limit (UCL_1) or equal to or less than 105 percent of the applicable energy or water consumption standard (ECS), whichever is less, *i.e.*, if $n_2 \leq 0$ and $x_1 \leq \min(UCL_1, 1.05 \text{ ECS})$, the basic

model is in compliance and testing is at an end.

(ii) If the value of n_2 is less than or equal to zero and the mean energy or water consumption of the first sample (x_1) is greater than the upper control limit (UCL_1) or more than 105 percent of the applicable energy or water consumption standard (ECS), whichever is less, *i.e.*, if $n_2 \leq 0$ and $x_1 > \min(UCL_1, 1.05 \text{ ECS})$, the basic model is not compliant and testing is at an end.

(iii) If the value of n_2 is greater than zero, then the value of the second sample size is determined to be the smallest integer equal to or greater than the solution value of n_2 for equation (11). If the value of n_2 so calculated is greater than $21 - n_1$, set n_2 equal to $21 - n_1$.

(4) Compute the combined mean (x_2) of the measured energy or water consumption of the n_1 and n_2 units of the combined first and second samples as follows:

$$\bar{x}_2 = \frac{1}{n_1 + n_2} \left(\sum_{i=1}^{n_1+n_2} x_i \right) \quad [12]$$

(5) Compute the standard error (S_{x_2}) of the measured energy or water consumption of the n_1 and n_2 units in the combined first and second samples as follows:

$$S_{x_2} = \frac{s_1}{\sqrt{n_1 + n_2}} \quad [13]$$

NOTE: s_1 is the value obtained in Step (c).
(6) For an energy or water consumption standard (ECS), compute the upper control limit (UCL_2) for the mean of the combined first and second samples using the DOE ECS

as the desired mean and a one-tailed probability level of 97.5 percent (equivalent to the two-tailed probability level of 95 percent used in Step (f)(1)) as follows:

$$UCL_1 = ECS + t_{s_{x_1}} \quad [14]$$

where the t-statistic has the value obtained in (f)(1).

(7) For an energy or water consumption standard (ECS), compare the combined sample mean (\bar{x}_2) to the upper control limit (UCL_2) to determine one of the following:

(i) If the mean of the combined sample (\bar{x}_2) is greater than the upper control limit (UCL_2) or 105 percent of the ECS whichever is less, *i.e.*, if $\bar{x}_2 > \min(UCL_2, 1.05 \text{ ECS})$, the basic model is not compliant and testing is at an end.

(ii) If the mean of the combined sample (\bar{x}_2) is equal to or less than the upper control limit (UCL_2) or 105 percent of the applicable energy or water performance standard (ECS), whichever is less, *i.e.*, if $\bar{x}_2 \leq \min(UCL_2, 1.05$

ECS), the basic model is in compliance and testing is at an end.

APPENDIX B TO SUBPART C OF PART 429—SAMPLING PLAN FOR ENFORCEMENT TESTING OF COVERED EQUIPMENT AND CERTAIN LOW-VOLUME COVERED PRODUCTS

The Department will determine compliance as follows:

(a) The first sample size (n_1) must be four or more units, except as provided by § 429.57(e)(1)(ii).

(b) Compute the mean of the measured energy performance (\bar{x}_1) for all tests as follows:

$$\bar{x}_1 = \frac{1}{n_1} \left(\sum_{i=1}^{n_1} x_i \right) \quad [1]$$

where x_i is the measured energy efficiency or consumption from test i , and n_1 is the total number of tests.

(c) Compute the standard deviation (s_1) of the measured energy performance from the n_1 tests as follows:

$$s_1 = \sqrt{\frac{\sum_{i=1}^{n_1} (x_i - \bar{x}_1)^2}{n_1 - 1}} \quad [2]$$

(d) Compute the standard error (s_{x_1}) of the measured energy performance from the n_1 tests as follows:

$$s_{x_1} = \frac{s_1}{\sqrt{n_1}} \quad [3]$$

(e)(1) For an energy efficiency standard (EES), determine the appropriate lower control limit (LCL_1) according to:

$$LCL_1 = EES - ts_{x_1} \quad [4a]$$

or

$$LCL_1 = 0.95EES, \quad [4b]$$

And use whichever is greater. Where EES is the energy efficiency standard and t is a statistic based on a 97.5 percent, one-sided confidence limit and a sample size of n_1 .

(2) For an energy consumption standard (ECS), determine the appropriate upper control limit (UCL_1) according to:

$$UCL_1 = ECS + ts_{x_1} \quad [5a]$$

or

$$UCL_1 = 1.05ECS, \quad [5b]$$

And use whichever is less, where ECS is the energy consumption standard and t is a statistic based on a 97.5 percent, one-sided confidence limit and a sample size of n_1 .

(f)(1) Compare the sample mean to the control limit.

(i) The basic model is in compliance and testing is at an end if:

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(A) For an energy or water efficiency standard, the sample mean is equal to or greater than the lower control limit, or

(B) For an energy or water consumption standard, the sample mean is equal to or less than the upper control limit.

APPENDIX C TO SUBPART C OF PART 429—SAMPLING PLAN FOR ENFORCEMENT TESTING OF DISTRIBUTION TRANSFORMERS

(a) When testing distribution transformers, the number of units in the sample (m_1) shall

be in accordance with §429.47(a) and DOE shall perform the following number of tests:

- (1) If DOE tests four or more units, it will test each unit once;
- (2) If DOE tests two or three units, it will test each unit twice; or
- (3) If DOE tests one unit, it will test that unit four times.

(b) DOE shall determine compliance as follows:

- (1) Compute the mean (X_1) of the measured energy performance of the n_1 tests in the first sample as follows:

$$X_1 = \frac{1}{n_1} \sum_{i=1}^{n_1} X_i \quad [1]$$

where X_i is the measured efficiency of test i .

- (2) Compute the sample standard deviation (S_1) of the measured efficiency of the n_1 tests in the first sample as follows:

$$S_1 = \sqrt{\frac{\sum_{i=1}^{n_1} (X_i - X_1)^2}{n_1 - 1}} \quad [2]$$

- (3) Compute the standard error ($SE(X_1)$) of the mean efficiency of the first sample as follows:

$$SE(X_1) = \frac{S_1}{\sqrt{n_1}} \quad [3]$$

- (4) Compute the sample size discount ($SSD(m_1)$) as follows:

$$SSD(m_1) = \frac{100}{1 + \left(1 + \frac{0.08}{\sqrt{m_1}}\right) \left(\frac{100}{RE} - 1\right)} \quad [4]$$

where m_1 is the number of units in the sample, and RE is the applicable DOE efficiency when the test is to determine compliance with the applicable energy conservation

standard, or is the labeled efficiency when the test is to determine compliance with the labeled efficiency value.

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(5) Compute the lower control limit (LCL₁) for the mean of

$$LCL_1 = SSD(m_1) - tSE(\bar{X}_1) \quad [5]$$

Where t is statistic based on a 97.5 percent one-tailed t test with degrees of freedom (from Appendix A) n₁ - 1.

(6) Compare the mean of the first sample (X₁) with the lower control limit (LCL₁) to determine one of the following:

(i) If the mean of the first sample is below the lower control limit, then the basic model is not compliant and testing is at an end.

(ii) If the mean is equal to or greater than the lower control limit, no final determination of compliance or noncompliance can be made; proceed to Step (7).

(7) Determine the recommended sample size (n) as follows:

$$n = \left[\frac{tS_1(108 - 0.08RE)}{RE(8 - 0.08RE)} \right]^2 \quad [6]$$

Given the value of n, determine one of the following:

(i) If the value of n is less than or equal to n₁ and if the mean energy efficiency of the first sample (X₁) is equal to or greater than the lower control limit (LCL₁), the basic model is in compliance and testing is at an end.

(ii) If the value of n is greater than n₁, the basic model is not compliant. The size of a

second sample n₂ is determined to be the smallest integer equal to or greater than the difference n - n₁. If the value of n₂ so calculated is greater than 21 - n₁, set n₂ equal to 21 - n₁.

(8) Compute the combined (X₂) mean of the measured energy performance of the n₁ and n₂ units of the combined first and second samples as follows:

$$\bar{X}_2 = \frac{1}{n_1 + n_2} \sum_{i=1}^{n_1+n_2} X_i \quad [7]$$

(9) Compute the standard error (SE(X₂)) of the mean full-load efficiency of the n₁ and n₂

units in the combined first and second samples as follows:

$$SE(\bar{X}_2) = \frac{S_1}{\sqrt{n_1 + n_2}} \quad [8]$$

(Note that S₁ is the value obtained above in (2).)

(10) Set the lower control limit (LCL₂) to,

$$LCL_2 = SSD(m_1) - tSE(\bar{X}_2) \quad [9]$$

where t has the value obtained in (5) and $SSD(m_1)$ is sample size discount determined in (4), and compare the combined sample mean (\bar{X}_2) to the lower control limit (LCL_2) to determine one of the following:

(i) If the mean of the combined sample (\bar{X}_2) is less than the lower control limit (LCL_2), the basic model is not compliant and testing is at an end.

(ii) If the mean of the combined sample (\bar{X}_2) is equal to or greater than the lower control limit (LCL_2), the basic model is in compliance and testing is at an end.

[76 FR 12451, Mar. 7, 2011; 76 FR 24781, May 2, 2011]

PART 430—ENERGY CONSERVATION PROGRAM FOR CONSUMER PRODUCTS

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- 430.1 Purpose and scope.
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Subpart B—Test Procedures

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APPENDIX A1 TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF ELECTRIC REFRIGERATORS AND ELECTRIC REFRIGERATOR-FREEZERS

APPENDIX B TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF FREEZERS

APPENDIX B1 (ALTERNATIVE) TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF FREEZERS

APPENDIX C TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF DISHWASHERS

APPENDIX D TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE

ENERGY CONSUMPTION OF CLOTHES DRYERS

APPENDIX D1 TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF CLOTHES DRYERS

APPENDIX E TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF WATER HEATERS

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APPENDIX G TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF UNVENTED HOME HEATING EQUIPMENT

APPENDIX H TO SUBPART B OF PART 430 [RESERVED]

APPENDIX I TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF CONVENTIONAL RANGES, CONVENTIONAL COOKING TOPS, CONVENTIONAL OVENS, AND MICROWAVE OVENS

APPENDIX J TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF AUTOMATIC AND SEMI-AUTOMATIC CLOTHES WASHERS

APPENDIX J1 TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF AUTOMATIC AND SEMI-AUTOMATIC CLOTHES WASHERS

APPENDIXES K–L TO SUBPART B OF PART 430 [RESERVED]

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APPENDIX N TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF FURNACES AND BOILERS

APPENDIX O TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF VENTED HOME HEATING EQUIPMENT

APPENDIX P TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF POOL HEATERS

APPENDIX Q TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF FLUORESCENT LAMP BALLASTS

APPENDIX Q1 TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF FLUORESCENT LAMP BALLASTS

APPENDIX R TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING AVERAGE LAMP EFFICACY (LE), COLOR RENDERING INDEX (CRI), AND CORRELATED