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10 CFR Parts 429 and 431
Energy Conservation Program: Test Procedure for Commercial Refrigeration Equipment; Proposed Rule

DEPARTMENT OF ENERGY

10 CFR Parts 429 and 431

[Docket No. EERE–2013–BT–TP–0025]

RIN 1904–AC99

Energy Conservation Program: Test Procedure for Commercial Refrigeration Equipment

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Notice of proposed rulemaking (NOPR).

SUMMARY: The U.S. Department of Energy (DOE) proposes to revise and reorganize its test procedure for commercial refrigeration equipment (CRE) in order to clarify certain terms, procedures, and compliance dates. Specifically, in this notice of proposed rulemaking, DOE addresses several inquiries it has received from interested parties regarding the applicability of DOE's test procedure and current Federal energy conservation standards, the definition of certain terms pertinent to commercial refrigeration equipment, the proper configuration and use of certain components and features of commercial refrigeration equipment when testing according to the DOE test procedure, the proper application of certain test procedure provisions, and the compliance date of certain provisions specified in the DOE test procedure final rule published on February 21, 2012 (hereafter referred to as 2012 test procedure final rule). DOE also proposes a number of test procedure clarifications which have arisen as a result of the negotiated rulemaking process for certification of commercial heating, ventilation, air conditioning, refrigeration, and water heating equipment. These provisions are addressed below in more detail. DOE will hold a public meeting to receive and discuss comments on this NOPR.

DATES: DOE will hold a public meeting on Thursday, December 5, 2013, from 9 a.m. to 1 p.m., in Washington, DC. The meeting will also be broadcast as a webinar. See section V, ''Public Participation,'' for webinar registration information, participant instructions, and information about the capabilities available to webinar participants.

DOE will accept comments, data, and information regarding this notice of proposed rulemaking (NOPR) before and after the public meeting, but no later than January 13, 2014. See section V, ''Public Participation,'' for details.

DOE expects that any final rule in this proceeding would be effective 30 days after the date of publication of that final rule.

ADDRESSES: The public meeting will be held at the U.S. Department of Energy, Forrestal Building, Room 1E–245, 1000 Independence Avenue SW., Washington, DC 20585. To attend, please notify Ms. Brenda Edwards at (202) 586–2945. Persons can attend the public meeting via webinar. For more information, refer to Section V, ''Public Participation,'' near the end of this notice of proposed rulemaking.

Comments may be submitted using any of the following methods:

1. *Federal eRulemaking Portal: www.regulations.gov*. Follow the instructions for submitting comments.

2. *Email: CRE2013TP0025@ee.doe.gov*. Include the docket number and/or RIN in the subject line of the message.

3. *Mail:* Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Mailstop EE–2J, 1000 Independence Avenue SW., Washington, DC 20585–0121. If possible, please submit all items on a CD. It is not necessary to include printed copies.

4. *Hand Delivery/Courier:* Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, 950 L'Enfant Plaza SW., Suite 600, Washington, DC 20024. Telephone: (202) 586–2945. If possible, please submit all items on a CD. It is not necessary to include printed copies.

For detailed instructions on submitting comments and additional information on the rulemaking process, see section V of this document (''Public Participation'').

Docket: The docket, which includes **Federal Register** notices, public meeting attendee lists and transcripts, comments, and other supporting documents/materials, is available for review at regulations.gov. All documents in the docket are listed in the regulations.gov index. However, some documents listed in the index, such as those containing information that is exempt from public disclosure, may not be publicly available.

A link to the docket Web page can be found at: *http://www.regulations.gov/#!docketDetail;D=EERE-2013-BT-TP-0025*. This Web page will contain a link to the docket for this notice of proposed rulemaking on the regulations.gov site. The regulations.gov Web page will contain simple instructions on how to access all documents, including **Federal Register** notices, public meeting attendee lists and transcripts, comments, and other supporting documents/materials. See section V, ''Public Participation,'' for information on how to submit comments through regulations.gov.

For further information on how to submit a comment, review other public comments and the docket, or participate in the public meeting, contact Ms. Brenda Edwards at (202) 586–2945 or by email: *Brenda.Edwards@ee.doe.gov*.

FOR FURTHER INFORMATION CONTACT:

Mr. Charles Llenza, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE–2J, 1000 Independence Avenue SW., Washington, DC 20585–0121. Telephone: (202) 586–2192. Email: *commercial_refrigeration_equipment@ee.doe.gov*.

Ms. Jennifer Tiedeman, U.S. Department of Energy, Office of the General Counsel, GC–71, 1000 Independence Avenue SW., Washington, DC 20585–0121. Telephone: (202) 586–8145. Email: *Jennifer.Tiedeman@hq.doe.gov*.

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I. Authority and Background

A. Authority

Title III, Part C of the Energy Policy and Conservation Act of 1975 (EPCA), Public Law 94–163 (42 U.S.C. 6311–6317, as codified), added by Public Law 95–619, Title IV, Sec. 441(a), established the Energy Conservation Program for Certain Industrial Equipment, a program covering certain industrial equipment, which includes the commercial refrigeration equipment that is the focus of this notice of proposed rulemaking.[1] All references to EPCA refer to the statute as amended through the American Energy Manufacturing Technical Corrections Act (AEMTCA), Public Law 112–210 (Dec. 18, 2012).

Under EPCA, the energy conservation program consists essentially of four parts: (1) Testing, (2) labeling, (3) Federal energy conservation standards, and (4) certification and enforcement procedures. The testing requirements consist of test procedures that manufacturers of covered equipment must use as the basis for (1) certifying to DOE that their equipment complies with the applicable energy conservation standards adopted under EPCA, (42 U.S.C. 6316(e)(1)), and (2) making representations about the efficiency of that equipment. (42 U.S.C. 6314(d)) Similarly, DOE must use these test procedures to determine whether the equipment complies with relevant standards promulgated under EPCA. (42 U.S.C. 6316(e)(1))

General Test Procedure Rulemaking Process

Under 42 U.S.C. 6314, EPCA sets forth the criteria and procedures DOE must follow when prescribing or amending test procedures for covered equipment. EPCA provides, in relevant part, that any test procedures prescribed or amended under this section shall be reasonably designed to produce test results which measure energy efficiency, energy use or estimated annual operating cost of a covered product during a representative average use cycle or period of use and shall not be unduly burdensome to conduct. (42 U.S.C. 6314(a)(2))

In addition, if DOE determines that a test procedure amendment is warranted, it must publish proposed test procedures and offer the public an opportunity to present oral and written comments on them. (42 U.S.C. 6314(b)(2)) Finally, in any rulemaking to amend a test procedure, DOE must determine to what extent, if any, the proposed test procedure would alter the measured energy efficiency of any covered product or equipment[2] as determined under the existing test procedure. If DOE determines that the amended test procedure would alter the measured efficiency of a covered product, DOE must amend the applicable energy conservation standard accordingly. (42 U.S.C. 6314(a)(6)(D))

Under 42 U.S.C. 6314(c)(1), no later than 3 years after the date of prescribing a test procedure pursuant to 42 U.S.C. 6314, and from time to time thereafter, DOE is required to conduct a reevaluation and determine whether to amend the test procedure. If DOE determines a test procedure should be amended, it shall promptly publish in the **Federal Register** proposed test procedures, incorporating such amendments and affording interested persons an opportunity to present oral and written data, views and arguments. (42 U.S.C. 6314(c)(2))

On February 21, 2012, DOE published a final rule (2012 test procedure final rule) prescribing new amendments to the test procedure for commercial refrigeration equipment. 77 FR 10292, 10318–21. Pursuant to EPCA's requirement in 42 U.S.C. 6314(c), DOE has conducted a reevaluation of the CRE test procedure and concluded that it should be amended to clarify a number of provisions regarding how aspects of the test are conducted and to provide more explicit definitions of some terms. DOE's proposed amendments to the test procedure are presented in this NOPR.

B. Background

EPCA mandates that the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standard 117–2002, ''Method of Testing Closed Refrigerators,'' shall be the initial test procedure for the types of equipment to which standards are applicable under 42 U.S.C. 6313(c)(2)–(3). (U.S.C. 6314(a)(6)(A)(ii)) EPCA requires DOE to address whether to amend its test procedures if ASHRAE amends this standard. (42 U.S.C. 6314(a)(6)(E)–(F)) In 2005, ASHRAE combined Standard 72–1998, ''Method of Testing Open Refrigerators,'' and Standard 117–2002 and published the test method as ASHRAE Standard 72–2005 (ASHRAE 72–2005), ''Method of Testing Commercial Refrigerators and Freezers,'' which was approved by the American National Standards Institute (ANSI) on July 29, 2005. Consistent with EPCA's requirement in 42 U.S.C. 6314(a)(6)(E), DOE reviewed ASHRAE 72–2005, as well as American Refrigeration Institute (ARI) Standard 1200–2006, which was approved by ANSI on August 28, 2006. DOE determined that ARI Standard 1200–2006 included by reference the test procedures in ASHRAE 72–2005 and the rating temperatures prescribed in EPCA. (42 U.S.C. 6314(a)(6)(B)) As a result, DOE published a final rule in December 2006 (2006 test procedure final rule) that adopted ARI Standard 1200–2006 as the DOE test procedure for commercial refrigeration equipment. 71 FR 71340, 71357 (Dec. 8, 2006). The 2006 test procedure final rule specified rating temperatures of 38 °F (±2 °F) for commercial refrigerators and refrigerator compartments, 0 °F (±2 °F) for commercial freezers and freezer compartments, and −15 °F (±2 °F) for commercial ice-cream freezers. 71 FR at 71370 (Dec. 8, 2006). DOE also adopted

[1] For editorial reasons, upon codification in the U.S. Code, Part C was re-designated Part A–1.

[2] The term ''covered product'' broadly refers to all types of appliances and equipment regulated by the Department regardless of whether they are consumer products or commercial and industrial equipment.

Association of Home Appliance Manufacturers (AHAM) Standard HRF–1–2004, ''Energy, Performance and Capacity of Household Refrigerators, Refrigerator-Freezers and Freezers,'' for measuring compartment volumes for equipment covered under the 2006 test procedure final rule. 71 FR at 71370 (Dec. 8, 2006). The test procedure established in the 2006 final rule became effective on January 8, 2007 (71 FR at 71340), and its use has been required to demonstrate compliance with the current energy conservation standards.

More recently, on February 21, 2012, DOE published the aforementioned 2012 test procedure final rule, in which it adopts several amendments to the DOE test procedure for commercial refrigeration equipment. These amendments include updating the standard incorporated by reference in the DOE test procedure in response to the relevant industry organizations issuing updated versions. Specifically, DOE updated the incorporation by reference of Air-Conditioning, Heating, and Refrigeration Institute (AHRI) 1200–2010 as the DOE test procedure for this equipment. 77 FR at 10318–9 (Feb. 21, 2012). The 2012 test procedure final rule also includes an amendment to incorporate by reference the updated ANSI/AHAM Standard HRF–1–2008 (AHAM HRF–1–2008), ''Energy, Performance, and Capacity of Household Refrigerators, Refrigerator-Freezers, and Freezers,'' for determining compartment volumes for this equipment. 77 FR at 10318 and 10321 (Feb. 21, 2012). These updates were primarily editorial in nature and aligned the AHRI test procedure with the nomenclature and methodology used in DOE's 2009 standards rulemaking on commercial refrigeration equipment. The newly updated AHRI Standard 1200–2010 also references the most recent version of the AHAM standard, AHAM HRF–1–2008.

In addition, the 2012 test procedure final rule includes several amendments designed to address certain energy efficiency features that were not accounted for by the previous DOE test procedure, including provisions for measuring the impact of night curtains,[3] lighting occupancy sensors, and scheduled controls. 77 FR at 10296–10298 and 10319–10320 (Feb. 21, 2012). In the 2012 test procedure final rule, DOE also adopts amendments to allow testing of commercial refrigeration equipment that cannot operate at the rating temperature specified in the DOE test procedure. Specifically, the 2012 test procedure final rule allows testing of commercial refrigeration equipment at its lowest application product temperature (LAPT), for equipment that is physically incapable of reaching the prescribed rating temperature. 77 FR at 10320 (Feb. 21, 2012). The 2012 test procedure final rule also allows manufacturers to test and certify equipment at the more-stringent rating temperatures and ambient conditions required by NSF[4] for food safety testing. 77 FR at 10321 (Feb. 21, 2012).

The test procedure amendments established in the 2012 test procedure final rule became effective on March 22, 2012. 77 FR at 10292 (Feb. 21, 2012). The amendments are required to be used in conjunction with any amended standards promulgated as a result of DOE's ongoing energy conservation standards rulemaking (Docket No. EERE–2010–BT–STD–0003).

II. Summary of the Proposed Rule

Since publication of the 2012 test procedure final rule, DOE has received a number of inquiries from interested parties regarding DOE regulations for commercial refrigeration equipment, including how different types of equipment fit into DOE's definitions of commercial refrigeration equipment at 10 CFR 431.62, and questions involving certain provisions of the DOE test procedure at 10 CFR 431.64.

More specifically, DOE has received inquiries and questions regarding the applicability of DOE's test procedure and Federal energy conservation standards to particular models of commercial refrigeration equipment, the proper configuration and use of certain components and features of commercial refrigeration equipment for purposes of testing according to the DOE test procedure, and the compliance date of the amendments specified in the 2012 test procedure final rule. In this NOPR, DOE addresses the questions presented by interested parties and, where appropriate, proposes edits to the regulatory language to add clarity to DOE's existing regulations.

On February 26, 2013, members of the Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) unanimously decided to form a working group to negotiate rulemaking on certification for commercial heating, ventilation, and air-conditioning; commercial water heating; and commercial refrigeration equipment. A notice of intent to form the Commercial Certification Working Group was published in the **Federal Register** on March 12, 2013 (EERE–2013–BT–NOC–0023), to which DOE received 35 nominations. 78 FR 15653. On April 16, 2013 the Department published a notice of open meeting that announced the first meeting and listed the 22 nominations that were selected to serve as members of the Working Group, in addition to two members from ASRAC, and one DOE representative. 78 FR 22431. The members of the Working Group were selected to ensure a broad and balanced array of stakeholder interests and expertise, and include efficiency advocates, manufacturers, a utility representative, and third party laboratory representatives. As part of that rulemaking process, DOE conducted a number of regulatory negotiation sessions over the course of the summer of 2013 involving major stakeholders in the commercial refrigeration equipment market.[5] One outcome of these meetings was an agreement on the need for clarification of aspects of the DOE test procedure with respect to the treatment of specific features of commercial refrigeration equipment. This NOPR contains proposed clarifications of the treatment of those features by the DOE test procedure.

EPCA prescribes that if any final rule amends a test procedure, DOE must determine ''to what extent, if any, the proposed test procedure would alter the measured energy efficiency . . . of any covered product as determined under the existing test procedure.'' (42 U.S.C. 6314(a)(6)) Further, if DOE determines that the amended test procedure would alter the measured efficiency of a covered product, DOE must amend the applicable energy conservation standard accordingly. (42 U.S.C. 6314(a)(6)) In this NOPR, DOE is proposing edits and additional definitions which are applicable to the DOE test procedure that must currently be used to demonstrate compliance with existing standards (reorganized into appendix A to subpart C of 10 CFR part 431), as well as the test procedure established in the 2012 test procedure final rule that are to be used with any future energy conservation standards for commercial refrigeration equipment (reorganized into appendix B to subpart C of 10 CFR

[3] Night curtains are devices made of an insulating material, typically insulated aluminum fabric, designed to be pulled down over the open front of the case to decrease infiltration and heat transfer into the case when the merchandizing establishment is closed.

[4] Founded in 1944 as the National Sanitation Foundation, the organization is now referred to simply as NSF.

[5] All of the details of the negotiation sessions can be found in the public meeting transcripts that are posted to the docket for the Working Group (*http://www.regulations.gov/#!docketDetail;D=EERE-2013-BT-NOC-0023*).

part 431). DOE does not believe that the test procedure clarifications proposed in this notice of proposed rulemaking would affect the measured energy use of any covered commercial refrigeration equipment under the current DOE test procedure. The additional definitions and amendments to the DOE test procedure for commercial refrigeration equipment would serve only to clarify existing nomenclature, testing provisions, and requirements for certain features and types of commercial refrigeration equipment; they would not establish new requirements with regard to testing commercial refrigeration equipment.

DOE notes that certification for commercial refrigeration equipment is currently not required until December 31, 2013, and DOE is negotiating the certification requirements, including the compliance date, with others in the Working Group for these products (Docket No. EERE–2013–BT–NOC–0023).

On or after the compliance date for any amended energy conservation standards adopted as a result of the ongoing energy conservation standards rulemaking for commercial refrigeration equipment (Docket No. EERE–2010–BT–STD–0003), all commercial refrigeration equipment shall be tested in accordance with appendix B to subpart C of part 431.

III. Discussion

In the 2012 test procedure final rule, DOE amends the test procedure for commercial refrigeration equipment at 10 CFR 431.64. 77 FR 10292, 10318–10321 (Feb. 21, 2012). Since publication of the 2012 test procedure final rule, DOE has received inquiries from interested parties regarding DOE's test procedures, definitions, and the applicability of the existing test procedure and standards to different types of commercial refrigeration equipment. In addition, during its testing of numerous basic models of commercial refrigeration equipment, DOE has encountered several test procedure provisions that require clarification. Lastly, as a result of the negotiated rulemaking currently being conducted by DOE to develop amended certification requirements for commercial refrigeration equipment, DOE is also proposing 17 clarifications regarding how different accessories are treated under the existing test procedure.

In considering inquiries from interested parties, DOE noted several opportunities for clarification of the test procedure, involving:

1. the applicability of the test procedure and related energy conservation standards to certain types of equipment;
2. the definitions of hybrid commercial refrigeration equipment, commercial refrigeration equipment with drawers, and commercial refrigeration equipment with solid and/or transparent doors;
3. the relationship among the rating temperature, operating temperature, and integrated average temperature;
4. the proper configuration and use of energy management systems, lighting controls, and test packages in the DOE test procedure for commercial refrigeration equipment;
5. the treatment of various features and components;
6. the rounding requirements for test results and certified ratings;
7. the provision adopted in the 2012 test procedure final rule to allow testing at the lowest application product temperature for equipment that cannot operate at the prescribed rating temperature for its equipment class;
8. clarifications raised by Interpretations 1, 2, 3, 4, and 5 of AHRI Standard 1200–2010;
9. the methodology used to determine total display area; and
10. the compliance date of certain amendments established in the 2012 test procedure final rule.

A. Scope of Coverage

On October 18, 2005, DOE published a final rule adopting EPCA's definition of commercial refrigeration equipment. This definition includes seven provisions stating the requirements that must be met for a piece of equipment to qualify as commercial refrigeration equipment. These include provisions pertaining to the operational, functional, and design characteristics of the equipment. 70 FR 60407, 60414

This definition forms the basis of the scope of coverage of DOE's regulations for commercial refrigeration equipment. While the definition of commercial refrigeration equipment encompasses a broad cross-section of commercial refrigeration equipment types, DOE has only established energy conservation standards for certain types of covered commercial refrigeration equipment specified at 10 CFR 431.66, and these standards apply to all new equipment distributed into U.S. commerce. 76 FR 12422, 12426 and 12437 (Mar. 7, 2011). There are also several types of equipment that meet the definition of commercial refrigeration equipment for which DOE has not yet set energy conservation standards. These include, for example, buffet tables, salad bars, prep tables, and griddle stands.

EPCA and DOE regulations require manufacturers of commercial refrigeration equipment to use the DOE test procedure for commercial refrigeration equipment to evaluate compliance with any applicable energy conservation standards and to support any representations as to the energy use. The DOE test procedure for commercial refrigeration equipment is set forth at 10 CFR 431.64. The test procedure applies to all commercial refrigeration equipment for which DOE has established energy conservation standards, including commercial refrigerators, freezers, and refrigerator-freezers, with and without doors, with remote or self-contained condensing units, with horizontal, vertical, or semi-vertical configurations, and designed for holding temperature or pull-down application.

Since publication of the 2012 test procedure final rule, DOE has received several inquiries from interested parties regarding the applicability of the current DOE energy conservation standards and test procedure. In the following sections, DOE provides details and specific examples to respond to those inquiries.

1. Salad Bars, Buffet Tables, and Other Refrigerated Holding and Serving Equipment

DOE has received several inquiries from interested parties regarding the application of the current DOE test procedure and standards to salad bars, buffet tables, and other refrigerated holding and serving equipment. Salad bars, buffet tables, and other refrigerated holding and serving equipment are types of commercial refrigeration equipment that store and display perishable items temporarily during food preparation or service. These units typically have specific design attributes, such as easily accessible or open bins that allow convenient and unimpeded access to the refrigerated products. As such, this equipment may operate differently from commercial refrigeration equipment designed for storage or retailing. While salad bars, buffet tables and other refrigerated holding and serving equipment are covered equipment types because they meet the definition of commercial refrigeration equipment in EPCA, the DOE test procedure and current Federal standards do not apply due to their unique operation. Should DOE decide to explicitly consider test procedures or energy conservation standards for salad bars, buffet tables, and other refrigerated

holding and serving equipment, it would do so in a future rulemaking.

2. Chef Bases and Griddle Stands

DOE also received inquiries about chef bases and griddle stands, unique equipment types used in commercial kitchens to store food prior to cooking. Specifically, interested parties inquired as to whether this equipment was covered by the DOE test procedure and if there were applicable standards. Chef bases and griddle stands are designed to be placed directly under cooking equipment, such as a commercial grill. Chef bases and griddle stands are also designed to provide food-safe temperatures in extremely hot environments, and thus are designed with uniquely robust refrigeration systems. These higher-capacity refrigeration systems require larger compressors than equipment with compressors that are appropriately sized for more typical ambient temperatures. As a result, this equipment consumes more energy than similarly sized, standard CRE models.

Based on the current definition of commercial refrigeration equipment, chef bases and griddle stands are commercial refrigeration equipment. Further, DOE believes that chef bases and griddle stands can be tested using the DOE test procedure for commercial refrigeration equipment. While manufacturers are not required to make representations of the energy use or energy efficiency of chef bases or griddle stands, a manufacturer must use the DOE test procedure to make such representations. However, DOE has not considered the energy usage of these types of equipment in its previous rulemakings to set standards for commercial refrigeration equipment, thus, the current DOE energy conservation standards do not apply to chef bases or griddle stands. Additionally, DOE is not considering standards for this equipment at this time, as discussed in section III.A (Docket No. EERE–2010–BT–STD–0003). DOE is proposing additions to § 431.66 to make clear that the current energy conservation standards for CRE do not apply to chef bases and griddle stands.

To clearly differentiate ''chef bases'' and ''griddle stands'' for conventional types of commercial refrigeration equipment that are currently covered by energy conservation standards, DOE proposes to establish a definition for ''chef base'' and/or ''griddle stand.'' DOE proposes to define ''chef base or griddle stand'' as follows:

Chef base or griddle stand means commercial refrigeration equipment that is designed and marketed for the express purpose of having a griddle or other cooking equipment placed on top of it that is capable of reaching temperatures hot enough to cook food.

DOE believes this definition captures the unique operation of chef bases and griddle stands, which are designed to provide food-safe temperatures in extremely warm environments in excess of 200 °F, and thus are designed with uniquely robust refrigeration systems. DOE also notes that these additional design features are specifically marketed by manufacturers and sought after in the market, and add considerable cost to this type of commercial refrigeration equipment. Thus a manufacturer could not produce another type of similar commercial refrigeration equipment and market it as a chef base or griddle stand because that model would not meet the performance requirements a consumer would expect.

DOE requests comment on the proposed definition for chef base or griddle stand.

3. Existing Cases Undergoing Refurbishments or Retrofits

DOE received a stakeholder inquiry as to whether DOE's test procedures and energy conservation standards apply to existing equipment undergoing retrofits and refurbishments. Energy conservation standards apply only to new equipment manufactured after the effective date of the applicable standard, and not to equipment undergoing retrofits or refurbishments. As DOE stated in its certification, compliance and enforcement (CCE) final rule, published on March 7, 2011, manufacturers and private labelers must certify to DOE that each basic model of covered equipment meets the applicable standard before distributing that equipment into U.S. commerce. DOE clarified that its authority covers only newly-manufactured equipment and does not extend to rebuilt and refurbished equipment. 76 FR at 12426 and 12437 (Mar. 7, 2011).

4. Case Doors Shipped as After-Market Additions

DOE has received inquiries regarding the appropriate equipment class and test procedure for open commercial refrigerated display cases that may be shipped without doors installed on the unit, but with doors accompanying the unit (perhaps in a separate package) that are intended to be installed in the field. Stakeholders sought guidance on whether equipment that is produced and shipped in this manner would be subject to the standards applicable to an open case or, rather, subject to the standards applicable to a closed case.

A basic model of commercial refrigeration equipment is tested, rated, and subject to specific standards based on the equipment class(es) to which that basic model belongs. For commercial refrigeration equipment, one of the features that distinguishes the current equipment classes is the presence of doors (*i.e.,* open or closed). In applying the standards required for the equipment categories in 10 CFR 431.66, DOE proposes that when a model of commercial refrigeration equipment is offered for sale with doors as an optional accessory, regardless of how the unit is shipped, such unit must be treated as equivalent to a basic model shipped with doors pre-installed. The model should be certified based on the results of testing in this configuration, which includes the doors. DOE seeks comment on whether, if this same model is offered for sale as a model without doors, it should be tested and rated with no doors installed and meet the corresponding energy conservation standards for open case equipment.

B. Definitions Pertinent to Commercial Refrigeration Equipment

DOE currently categorizes commercial refrigeration equipment by equipment classes based on the following general characteristics of a given basic model:

1. geometry of the case (*i.e.,* vertical, horizontal, or semi-vertical);
2. presence of doors (closed equipment) or no doors (open equipment);
3. door type, if applicable (transparent or solid);
4. condensing unit configuration (self-contained or remote condensing);
5. holding temperature application or pull-down temperature application; and
6. operating temperature (refrigerator, freezer, or ice-cream freezer).

10 CFR 431.62 provides definitions that assist manufacturers in determining which equipment class and associated energy conservation standard applies to a given basic model of commercial refrigeration equipment. However, 10 CFR 431.62 does not provide explicit guidance on how to classify commercial refrigeration equipment with drawers or how to differentiate between a unit with transparent doors and a unit with solid doors. Section III.B.1 through III.C provides additional clarification in this regard.

1. Commercial Refrigeration Equipment With Drawers

DOE has received several inquiries from interested parties regarding the coverage of CRE basic models with

drawers. Specifically, interested parties have inquired whether CRE models with drawers are covered under the existing energy conservation standards for commercial refrigeration equipment and, if so, (1) to which equipment families they belong; and (2) what test procedure applies to these models.

DOE's definition of commercial refrigerator, freezer, and refrigerator-freezer specified at 10 CFR 431.62 includes a requirement that the equipment ''[h]as transparent or solid doors, sliding or hinged doors, a combination of hinged, sliding, transparent, or solid doors, or no doors.'' Based on this definition, DOE interprets the term ''door'' to mean any movable component of the CRE unit that:

1. when closed, separates the interior refrigerated space from the ambient air; and

2. when opened, provides access to the refrigerated products inside the CRE unit.

Thus, DOE considers drawers to be doors for purposes of DOE's regulatory program, including compliance with DOE's energy conservation standards. As such, drawers are treated as doors when conducting the DOE test procedure.

To illustrate the comparable operation of models of commercial refrigeration equipment with drawers as compared to similar models with traditional doors, DOE tested several CRE units with drawers from multiple manufacturers using the current DOE test procedure and compared their performance to nearly identical units with hinged doors (belonging to the vertical closed solid, or VCS, equipment family) from the same manufacturer product lines. During the testing, DOE also studied the effect of drawer-opening distances by testing CRE units with drawers at three different drawer-opening distances: 33 percent, 66 percent, and 100 percent (*i.e.,* the drawers were opened to the maximum extent possible during the test but not removed from the tested unit entirely).

In summary, DOE found that he drawered units performed similarly to the hinged-door units to which they were compared. Test results also indicate minimal variation in measured total daily energy consumption (TDEC) when the drawer opening distance is altered and DOE considers this variation insignificant given input tolerances and other factors in the test. Based upon the data, most of the variation in energy consumption apparently is caused by the opening of the drawer, and is not significantly affected by the amount the drawer is opened.

Thus, DOE confirms that the door-opening requirements in the DOE test procedure apply to basic models of commercial refrigeration equipment with drawers, just as they do for CRE units with other types of hinged or sliding doors. That is, as required by the DOE test procedure at 10 CFR 431.64 for basic models with doors, referencing ASHRAE 72–2005 as incorporated, ''Each door shall be in the fully open position for six seconds, six times per hour for eight consecutive hours. Each door shall be opened sequentially, one at a time.'' DOE reaffirms that current energy conservation standards prescribed for commercial refrigeration equipment are applicable to CRE units with drawers. Likewise, any updated standards proposed for commercial refrigeration equipment with doors as part of the ongoing standards rulemaking are applicable to equipment with drawers.

To clarify how DOE's regulatory scheme applies to basic models of CRE units with drawers, DOE proposes to add language to the definition section at 10 CFR 431.62, defining doors as being inclusive of drawers, as follows:

Door means a movable panel that;

(1) separates the interior volume of a unit of commercial refrigeration equipment from the ambient environment,

(2) is designed to facilitate access to the refrigerated space for the purpose of loading and unloading product, and

(3) is affixed such that it is not removable without the use of tools.

This includes hinged doors, sliding doors, and drawers.

DOE notes that this proposed definition only clarifies that CRE units with drawers are currently covered under DOE's existing standards and test procedures for the vertical, semi-vertical, or horizontal closed equipment categories.

DOE requests comment on its proposed definition of ''door,'' and, in particular, its specification that the term is inclusive of drawers.

2. Transparent and Solid Doors

In reviewing the CRE test procedures for commercial refrigeration equipment, DOE identified certain opportunities for clarification within the definitions and classifications of commercial refrigeration equipment with solid doors versus those with transparent doors. Specifically, DOE identified the following issues in its regulations:

1. The word 'transparent' is not defined,

2. When a door is part transparent and part solid, there is no clear guidance that allows for the door's classification as either a transparent or solid door, and

3. When a commercial refrigerator, freezer or refrigerator-freezer has more than one door such that one or more doors are solid and the remainder of the doors are transparent, there is no clear guidance for the determination of the maximum daily energy consumption of that particular model of commercial refrigerator, freezer or refrigerator-freezer.

As a result of inquiries from stakeholders regarding the characterization of certain types of commercial refrigeration equipment, DOE proposes to establish several new definitions and to clarify the test procedure requirements at 10 CFR 431.64 to ensure appropriate application.

a. Definition of Transparent

The DOE test procedure for commercial refrigeration equipment, as amended by the 2012 test procedure final rule, incorporates by reference AHRI Standard 1200–2010. 77 FR at 10318 (Feb. 21, 2012). AHRI Standard 1200–2010 defines total display area (TDA) as ''the sum of the projected area(s) for visible product expressed in [square feet]'' and provides procedures for calculating the TDA of commercial refrigeration equipment with panels, end enclosures, doors, or other envelope components that have some transparent area(s). Appendix D of AHRI Standard 1200–2010 provides further guidance and examples to clarify the calculation of TDA. The appendix also defines a transparent material as that which allows at least 65 percent light transmittance. Therefore, based on AHRI Standard 1200–2010, a transparent door would be one partially or entirely composed of a material that allows greater than or equal to 65 percent light transmittance.

In adopting a definition for transparent that is applicable to commercial refrigeration equipment, DOE has reviewed the definition of transparent presented in AHRI Standard 1200–2010, as well as other potential definitions. Light transmittance is a measurable property of a material, and a definition of transparent based on light transmittance would be unambiguous. Also, defining a transparent material based on light transmittance is an industry-accepted practice. However, the light transmittance of commercial refrigeration doors is not typically provided when the door is purchased, and requiring this evaluation may add unnecessary burden to the test procedure.

Alternatively, DOE could consider referencing the purpose of a transparent door in commercial refrigeration equipment, which is to view refrigerated product through the closed door. While the alternate definition avoids imposition of additional test burden and addresses the plain language utility of including a transparent material in the construction of commercial refrigeration equipment, the interpretation of ''allows for viewing'' is subjective. For example, doors with special decals or colored glass may be difficult to unambiguously categorize as ''transparent'' or ''solid.''

For this reason, DOE believes that adopting a quantifiable, unambiguous definition is the most effective method for determining transparency of materials for the purposes of categorizing commercial refrigeration equipment. Therefore, in this NOPR, DOE proposes to establish a definition of ''transparent'' based on 65% light transmittance, as follows:

Transparent means greater than or equal to 65 percent light transmittance, as determined in accordance with ASTM Standard E 1084–86 (Reapproved 2009), ''Standard Test Method for Solar Transmittance (Terrestrial) of Sheet Materials Using Sunlight'' at normal incidence.

DOE is proposing to incorporate by reference the ASTM E 1084–86 (Reapproved 2009) as the method for determining light transmittance. In selecting this test method, DOE reviewed available test procedures for measuring light transmittance through translucent materials, including methods from ASTM International and the NFRC. DOE determined ASTM E 1084–86 (Reapproved 2009) to be the most widely applicable test method for measuring visible transmittance of transparent doors installed on commercial refrigeration equipment compared to the other ASTM and NFRC standards considered. Namely, DOE also considered ASTM 972–96 (Reapproved 2007), ''Standard test method for solar photometric transmittance of sheet materials using sunlight,'' and NFRC 202–2012, ''Procedure for Determining Translucent Fenestration Product Visible Transmittance at Normal Incidence.''

DOE found that ASTM E 1084–86 (Reapproved 2009) serves as the basis for the ASTM E 972–96 (Reapproved 2007) and NFRC 202–1012, the primary standards for determining visible transmittance through fenestration products. Thus, ASTM E 1084–86 (Reapproved 2009) includes all the methods referenced in ASTM E 972–96 (Reapproved 2007) and NFRC 202–2012, in addition to some products and procedures for which ASTM 972–96 (Reapproved 2007) and NFRC 202–2012 do not apply. ASTM E 1084–86 (Reapproved 2009) is applicable to glass, which is the transparent material commonly used in commercial refrigeration equipment, as well as translucent fiberglass and multicell plastic panels, which cannot be tested with a traditional methods using a spectrophotometer as required by ASTM E 972–96 (Reapproved 2007). Also, ASTM E 1084–86 (Reapproved 2009) applies to textured panels or materials with similar non-flat characteristics, while NFRC 202–2012 is limited to translucent panels that do not have printed patterns or non-flat characteristics. Thus, DOE determined that ASTM E 1084–86 (Reapproved 2009) is widely applicable to transparent materials that would be used to construct commercial refrigeration equipment.

ASTM E 1084–86 (Reapproved 2009) can be used to test the light transmittance of materials at angles up to 60° off normal incidence. For the purposes of determining transparency for materials used in the construction of commercial refrigeration equipment, DOE proposes to specify that materials be tested at normal incidence. This is consistent with the definition of TDA, which references the projected area(s) for visible product where the projection is normal to the plane of the door, and the way customers typically view products through the door of a commercial refrigeration unit.

DOE notes that determination of the light transmittance of a transparent material is not required in all cases to classify a basic model of commercial refrigeration equipment as equipment with transparent doors. Manufacturers may continue to specify equipment as belonging to a transparent equipment class (e.g., vertical closed transparent or horizontal closed transparent) or a solid without testing. In most cases, it will be obvious whether a material is transparent or not, so testing is not required to verify the classification of a material as transparent or not. However, in cases in which the amount of light transmittance is not obviously at least 65%, such as basic models with special decals or opaque glass, the referenced test procedure must be used to determine if a material is transparent or not. Because use of this additional test procedure would not be required to determine the energy consumption of covered equipment in all cases, DOE does not believe this proposed amendment would add additional burden for most manufacturers conducting the DOE test procedure.

DOE requests comments from interested parties on the proposal to define ''transparent'' based on the optical properties of the material, as determined by ASTM E 1084–86 (Reapproved 2009) as incorporated by reference.

b. Definition of Equipment With Transparent Doors Versus Solid Doors

DOE received questions regarding what factors differentiate a CRE basic model as a transparent-door model or a solid-door model. In the energy conservation standards specified at 10 CFR 431.66, DOE refers to equipment families using the terms ''closed solid'' and ''closed transparent'' (for example vertical closed solid (VCS) and vertical closed transparent (VCT)). DOE believes defining terms that are used directly in the description of equipment classes for commercial refrigeration equipment is an appropriate way to differentiate basic models with solid doors from basic models with transparent doors. DOE proposes to add new definitions for ''closed solid'' and ''closed transparent'' to the regulatory text at 10 CFR 431.62 as follows:

Closed transparent means equipment with doors, and in which 75 percent or more of the outer surface area of all doors on the unit are transparent.

Closed solid means equipment with doors, and in which more than 75 percent of the outer surface area of all doors on a unit are not transparent.

These definitions would be used in conjunction with the proposed definition of transparent, as presented in section III.B.2.a, to categorize different basic models of commercial refrigeration equipment.

In determining the fraction of transparent door surface area to qualify a basic model of commercial refrigeration equipment as equipment with transparent doors under the proposal, DOE established a level higher than 50 percent to ensure that only transparent doors with a majority of transparent surface area were considered transparent doors. DOE reviewed the definitions in the ENERGY STAR® [6] ''Version 2.1 Program Requirements for Commercial Refrigerators and Freezers'' [7] (Version

[6] ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and DOE that establishes a voluntary rating, certification, and labeling program for highly energy efficient consumer products and commercial equipment. Information on the program is available at *www.energystar.gov/index.cfm?c=home.index.*

[7] U.S. Environmental Protection Agency. *ENERGY STAR® Program Requirements for Commercial Refrigerators and Freezers: Eligibility Criteria; Version 2.1.* Effective January 1, 2010. (Last accessed August 15, 2013.) *http://*

2.1 Program Requirements), as well as associated stakeholder comments received during the development of the ENERGY STAR Version 2.1 Program Requirements.[8] In response to stakeholder comments, the ENERGY STAR Version 2.1 Program Requirements adopted definitions of ''solid door'' and ''transparent door'' based on a threshold of greater than or equal to 75 percent of front surface. Based on these comments and consistent with the ENERGY STAR requirements, DOE proposes to adopt the 75-percent criterion for differentiating a transparent door from a solid door. DOE believes that 75 percent is a reasonable cutoff to differentiate between a transparent door and a solid door, as it would ensure that only cases, in which a door on at least one side where the majority of the surface area is transparent, would be treated as cases with transparent doors and subject to applicable standards for transparent cases based on TDA.

As an example of how these definitions would apply to a basic model of commercial refrigeration equipment, consider a vertical closed refrigerator with three transparent doors on the front, with a surface area of 9 ft^2 each, and one solid door on the back, with an outer surface area of 9 ft^2. This case's doors have a surface area of 36 ft^2, 75 percent of which is transparent. Thus, this basic model would be treated as a part of the vertical closed transparent equipment family under DOE's proposed definition. On the other hand, if the bottom third of each door were covered by an opaque mullion or covering, this would reduce the transparent surface area of each door to 6 ft^2, or 18 ft^2 in total and increase the solid surface area to 18 ft^2 in total. In this case, the basic model would be treated as part of the vertical closed solid equipment family.

DOE requests comment on its proposed definitions of the terms ''closed transparent'' and ''closed solid.''

3. Hybrid Equipment and Commercial Refrigerator-Freezers

DOE also received a question about the definition of a commercial hybrid refrigerator-freezer and appropriate standards for covered equipment in that class.

At 10 CFR 431.62, DOE defines a commercial hybrid refrigerator, freezer, or refrigerator-freezer as having two or more chilled and/or frozen compartments that are in two or more different equipment families, contained in one cabinet, and sold as a single unit.

In other words, DOE currently defines a commercial hybrid refrigerator, freezer, or refrigerator-freezer as a single unit consisting of two or more distinct refrigerated compartments that do not belong to the same equipment family. For the sake of greater clarity, DOE proposes to replace the definition of ''commercial hybrid refrigerator, freezer, and refrigerator-freezer'' with a definition of ''commercial hybrid,'' and introduce a new definition of ''commercial refrigerator-freezer.'' Currently, there is no definition for commercial refrigerator-freezer at 10 CFR 431.62, and thus DOE proposes one here.

DOE proposes definitions for ''commercial hybrid,'' and ''commercial refrigerator-freezer'' as set out in the proposed amendments to 10 CFR 431.62 in this NOPR.

According to these proposed definitions, a commercial hybrid refrigerator-freezer would be a unit that satisfies the definition of ''commercial hybrid'' and the definition of ''commercial refrigerator-freezer.'' A commercial (non-hybrid) refrigerator-freezer is a unit that satisfies the definition of commercial refrigerator-freezer but does not satisfy the definition of commercial hybrid refrigeration unit.

An example of a commercial hybrid refrigerator, freezer, or refrigerator-freezer is a self-contained CRE basic model with two compartments, one belonging to the vertical closed transparent (VCT) equipment family and the other belonging to the horizontal open (HZO) equipment family. If one compartment (of the VCT–HZO hybrid unit) is designed to operate in the freezer temperature range and the other in the refrigerator temperature range, then the basic model is a commercial hybrid refrigerator-freezer. By contrast, if a basic model of commercial refrigeration equipment contains two compartments, both of them belonging to the VCT equipment family, but one operates in the refrigerator temperature range and the other in the freezer temperature range, the basic model is a commercial (non-hybrid) refrigerator-freezer.

The method to calculate the maximum daily energy consumption of commercial hybrid refrigerators, freezers, and refrigerator-freezers other than (non-hybrid) refrigerator-freezers with solid doors is described at 10 CFR 431.66(d)(2). For (non-hybrid) refrigerator-freezers with solid doors, the standard is specified at 10 CFR 431.66(b).

DOE requests comment on the clarity and sufficiency of the proposed definitions for ''commercial hybrid'' and ''commercial refrigerator-freezer.''

C. Relationship Among Rating Temperature, Operating Temperature, and Integrated Average Temperature

Since publication of the 2012 test procedure final rule, DOE has received inquiries from interested parties regarding the terminology used to describe the operating temperatures and appropriate rating temperatures for commercial refrigeration equipment for which standards have been specified in 10 CFR 431.66. Currently, the table at 10 CFR 431.66(d)(1) describing the energy conservation standards for equipment other than hybrid equipment, refrigerator-freezers, and wedge cases refers to the ''rating temperature'' and ''operating temperature'' of equipment.

The table describing the applicable test procedure for covered equipment at 10 CFR 431.64(b)(3) refers to the term ''integrated average temperature.'' DOE defines ''integrated average temperature'' as ''the average temperature of all the test package measurements taken during the test.'' 10 CFR 431.62 ''[R]ating temperature'' is the integrated average temperature at which a model of commercial refrigeration equipment should be evaluated in accordance with the DOE test procedure. ''[O]perating temperature'' refers to the range of integrated average temperatures at which the unit of commercial refrigeration equipment is capable of operating. The operating temperature provides a means for differentiating among refrigerators, freezers, and ice-cream freezers. For example, a commercial refrigerator has an operating temperature range at or above 32 °F and should be tested, in accordance with the

www.energystar.gov/ia/partners/product_specs/program_reqs/Commercial_Refrigerator_and_Freezer_Program_Requirements.pdf?dae6-ef7c.

[8] *See* Continental Refrigerator, Comments on Specification for Commercial Refrigerators and Freezers, Version 2.0 Draft 3. Dated January 7. 2009. Available at: *https://www.energystar.gov/ia/partners/prod_development/revisions/downloads/refrig/Continental_Comments.pdf?f45c-2369;* Beverage-Air Corporation, Beverage-Air Comments re: ENERGY VERSION 2.0—DRAFT 3, Dated January 8, 2009. Available at: *https://www.energystar.gov/ia/partners/prod_development/revisions/downloads/refrig/Beverage-Air_Comments.pdf?f45c-2369* Anonymous, Comments on Draft 2. Dated September 15, 2008. Available at: *https://www.energystar.gov/ia/partners/prod_development/revisions/downloads/refrig/Anonymous_Comments.pdf?f45c-2369* True Manufacturing, Comments on Draft 2. Dated September 17, 2008. Available at: *https://www.energystar.gov/ia/partners/prod_development/revisions/downloads/refrig/True_Comments.pdf?f45c-2369* Traulsen, Comments on Draft 1. Dated April 18, 2008. Available at: *https://www.energystar.gov/ia/partners/prod_development/revisions/downloads/refrig/Traulsen_Comments.pdf?f45c-2369.*

DOE test procedure, with the integrated average temperature maintained at the rating temperature of 38 °F for refrigerators. A commercial freezer with an operating temperature range below 32 °F should be tested, in accordance with the DOE test procedure, with the integrated average temperature maintained at the rating temperature for freezers of 0 °F. 10 CFR 431.66(d)(1) The ''rating temperature'' in the standards table at 10 CFR 431.66(d)(1) is the same as the rating temperature in the table at 10 CFR 431.64(b)(3), except that the integrated average temperature in the table at 10 CFR 431.64(b)(3) has a tolerance of ±2 °F to account for the inherent variability associated with testing.

The integrated average temperature is determined as a result of testing, while the rating temperature is a nominal value representing the target integrated average temperature for a given test. The intended relationship between these two terms is that, when testing a given unit of commercial refrigeration equipment, the integrated average temperature observed during the test should fall within the allowed tolerance (±2 °F) of the prescribed rating temperature for that unit, based on its designated equipment class. The designated equipment class for a model of commercial refrigeration equipment and, thus, the associated rating temperature, are determined based on the range of operating temperatures for that unit, among other factors.

To clearly articulate the relationship between these terms in the language at 10 CFR part 431, subpart C, DOE proposes to amend 10 CFR 431.64 to state that the integrated average temperature determined as a result of testing a unit shall be within ±2 °F of the prescribed rating temperature for that unit's equipment class, as specified in the table at 10 CFR 431.66(d)(1). DOE also proposes to include definitions for the terms ''rating temperature'' and ''operating temperature'' at 10 CFR 431.62 as follows:

Rating temperature means the integrated average temperature a unit must maintain during testing (i.e., either as listed in the table at 10 CFR 431.66(d)(1) or the lowest application product temperature).

Operating temperature means the range of integrated average temperatures at which a commercial refrigeration unit is capable of operating.

DOE believes that these definitions would provide clarification of the relationship among the terms integrated average temperature, rating temperature, and operating temperature.

While DOE uses the operating temperature range of the equipment to establish the appropriate equipment class for CRE basic models based on the standards table at 10 CFR 431.66(d)(1), only the definition of ''ice-cream freezer'' explicitly identifies the appropriate operating range (*i.e.,* at or below −5 °F). 10 CFR 431.62. In fact, DOE currently does not independently define ''commercial refrigerator'' or ''commercial freezer.'' Therefore, DOE also proposes to establish definitions for ''commercial refrigerator'' and ''commercial freezer'' as set out in the proposed amendments to 10 CFR 431.62 in this NOPR.

DOE has proposed a definition for ''commercial refrigerator-freezer'' above (see section III.B.3), and DOE's definition of ''ice-cream freezer'' can be found at 10 CFR 431.62. The definition of ice-cream freezer specifies additional requirements for a freezer to be classified as an ice-cream freezer. The definition for ice-cream freezer included at 10 CFR 431.62 states that an ice-cream freezer means a commercial freezer that is designed to operate at or below −5 °F (−21 °C) and that the manufacturer designs, markets, or intends for the storing, displaying, or dispensing of ice cream.

DOE recognizes that some basic models may have operating characteristics that include an operating temperature range that spans multiple equipment classes. For example, a CRE model with an operating temperature range of >15 °F and <36 °F meets the definition of both a commercial refrigerator (capable of operating at or above 32 °F) and a commercial freezer (capable of operating below 32 °F). The current language does not make clear how to categorize this model. DOE is proposing language that specifies how to appropriately characterize basic models operating over temperature ranges that span multiple equipment classes. Specifically, DOE proposes that equipment meeting the definition of multiple equipment classes when operated as intended by the manufacturer would have to be tested and certified as each of these equipment classes to demonstrate compliance with DOE's energy conservation standards. The CRE model described above with an operating temperature range of >15 °F and <36 °F would need to be tested and certified as both a commercial refrigerator and a commercial freezer.

DOE requests comment on its proposed definitions for ''operating temperature'' and ''rating temperature,'' and its proposal to clarify the relationship between integrated average temperature and rating temperature. DOE also requests comment on its proposed definitions of ''commercial refrigerator'' and ''commercial freezer.''

D. Proper Configuration and Use of Components or Features in the DOE Test Procedure

DOE has received several inquiries from interested parties regarding the proper configuration and use of certain components or features specified in the DOE test procedure. Specifically, interested parties have inquired regarding how energy management systems and case lighting are to be operating when conducting the DOE test procedure, and the appropriate temperatures of test packages when loaded into the test unit. These inquiries and DOE's responses are summarized in the subsequent sections.

1. Energy Management Systems

DOE has received inquiries from interested parties regarding how to test CRE units equipped with automated energy management controls, specifically those that turn off merchandising lights and raise the cabinet temperature (in the case of some beverage merchandisers) outside of normal merchandising hours.

The DOE test procedure specifies that all devices that would normally be used in the field must be installed and operated in the same manner during the test unless such installation and operation is inconsistent with any requirement of the test procedure.[9] Such devices include energy management systems. DOE interprets energy management systems as meaning electronic devices that control specific systems in commercial refrigeration equipment to save energy. Moreover, DOE research indicates that applicable energy management systems are permanently installed on the case and configured to operate automatically without the intervention of an operator after configuration is complete. For example, an operator may be required initially to program the energy management device to turn off case lighting based on a particular schedule. However, once programmed, an energy management system would continue to perform the desired function, in this case altering case lighting automatically without further intervention by the operator. Further examples of the functions of energy management systems include, but are not limited to:

[9] ASHRAE 72–2005, section 6.1.1, ''Accessories,'' as incorporated by reference into the DOE test procedure at 10 CFR 431.64.

• Turning off cabinet lights on a predetermined schedule or in response to an external variable;

• increasing the temperature setting of the thermostat (in refrigerators that store non-perishable items) during non-merchandizing hours; and

• activating and deactivating anti-sweat heaters, pan heaters, or defrost heaters.

If normal field installation or operation of any device would be inconsistent with any test procedure requirement, then the specific function of that device that causes inconsistency with the DOE test procedure provisions must be disabled for the duration of the test. If the device is designed for multiple functions, only those functions of the device that cause inconsistency with the DOE test procedure requirements must be disabled.

For example, the DOE test procedure requires that all equipment that can operate at the DOE-specified rating temperatures (*i.e.,* 38 ± 2 °F, 0 ± 2 °F, and −15 ± 2 °F) be operated at those rating temperatures during the test. 10 CFR 431.64 If an energy management system raises or lowers the cabinet temperature such that the applicable integrated average temperature cannot be maintained within the rating temperature ranges, then the function of the energy management system that varies the cabinet temperature must be disabled for the duration of the test. If the energy management system controls other systems, in addition to cabinet temperature, those functions of the energy management system should remain enabled, provided those functions do not violate the requirements of the DOE test procedure. Therefore, if the installed energy management system is not able to disable those functions that violate certain test procedure provisions while other functions remain operational, the entire energy management system must be disabled during testing.

2. Lighting

DOE received an inquiry from an interested party regarding the appropriate position for a manual light switch when testing commercial refrigeration equipment with an operable light switch.

The DOE test procedure specifies that all devices that would normally be used in the field must be installed and operated in the same manner during the test. 10 CFR 431.64. Specifically, ARI Standard 1200–2006 (as incorporated by reference in the 2006 test procedure final rule) and AHRI Standard 1200–2010 (as incorporated by reference in the 2012 test procedure final rule and this proposed test procedure update) specify that the TDEC or combined daily energy consumption (CDEC) for self-contained or remote condensing cases, respectively, ''shall include compressors, evaporator fan motors, condensing fan motors, lighting, anti-condensate loads including fans and heaters, defrost heaters, condensate evaporator pans, and any other suitable electrical loads when they are part of the unit.'' This explicit reference to case lighting loads indicates that the energy consumption associated with lights installed on a model of commercial refrigeration equipment are intended to be captured during testing.

In addition, the DOE test procedure, through AHRI Standard 1200–2010, references ASHRAE 72–2005, ''Method of Testing Commercial Refrigerators and Freezers,'' to specify the appropriate test apparatus and conditions suitable for determining the energy consumption of commercial refrigeration equipment. 10 CFR 431.64. ASHRAE 72–2005 specifies, in section 6.1.1, ''Accessories,'' that ''all standard components, such as shelves, end enclosures, lights, anti-condensate heaters, racks, and similar items that would normally be used during shopping or working periods, shall be installed and used as recommended by the manufacturer.'' DOE interprets this requirement to mean that if lighting is installed on the case, the lighting should be operated as intended to be used in the field. For example, if a vertical solid case has lighting installed within the case that turns on only when the door is opened, but remains off when the doors are closed, the lighting in that case should be left to operate in the same manner during testing. In other words, the lighting should be turned on only during the periods of the test when the door is required to be open.

In the 2012 test procedure final rule, DOE adopts specific provisions for testing lighting control systems that have variable operation, such as lighting occupancy sensors that control lighting based on the presence of customer activity in front of the case and scheduled controls that control case lighting based on a pre-set schedule. 77 FR at 10298–302 (Feb. 21, 2012). Due to the variety of types of lighting controls and schemes available on the market, the existing provisions for ''accessories'' may prove insufficient to yield consistent results during testing. Therefore, in the 2012 test procedure final rule, DOE establishes specific time periods these variable lights may be turned off or dimmed during the test to account for energy savings due to installed occupancy sensors or scheduled lighting controls. 77 FR at 10319–10320 (Feb. 21, 2012).

DOE wishes to clarify that a mechanical light switch does not constitute an energy management system, such as scheduled lighting controls or occupancy sensors. Models of commercial refrigeration equipment with lighting installed on the case and no energy management system should be tested with lights on to their maximum illumination level for the duration of the test, except for models with solid doors in which the manufacturer instructs the use of lighting controls that automatically turn off internal case lighting when the door is closed. For such models, the lighting control should be operated in the automatic setting, consistent with manufacturer recommendations, even if the model has a manual switch that disables the automatic lighting control. In general, except for the case noted above, any lighting controls with a user-selectable setting must be turned on and set to the maximum usage position. Under the current CRE test procedure, models featuring an automatic, non-user adjustable controller, such as a lighting occupancy sensor or scheduled lighting controller, must be disabled such that any case lighting is in its maximum illumination setting during testing. After the provisions adopted in the 2012 test procedure become effective, in association with the compliance date of any amended standards for commercial refrigeration equipment, models with lighting occupancy sensors or scheduled lighting controls should be operated in accordance with the 2012 amendments to the DOE test procedure for commercial refrigeration equipment. 77 FR at 10319–10320 (Feb. 21, 2012). For further discussion of energy management systems, please refer to section III.D.1.

To clarify DOE's existing test procedure, DOE proposes to specify in appendix A to Subpart C that all lighting must be energized to the maximum illumination level for the duration of testing for commercial refrigeration equipment except for closed solid models of commercial refrigeration equipment which includes automatic controls that disable case lighting when the door is closed, the use of which is specified by the manufacturer instructions. DOE also proposes to specify in appendix B to subpart C, which will be required for equipment testing on or after the compliance date of any amended energy conservation standards, that case lighting shall be energized to its maximum illumination level, except for when a model of commercial

refrigeration equipment is equipped with lighting occupancy sensors and/or scheduled controls, or when the a model is outfitted with other permanently installed, automatic energy management systems that control case lighting. If the unit includes an automatic lighting control system, it should be enabled during test. If the unit is equipped with lighting occupancy sensors and controls in should be tested in accordance with the provisions adopted in the 2012 test procedure final rule. 77 FR at 10319–10320 (Feb. 21, 2012).

3. Test Package Temperatures

Some manufacturers have inquired whether the DOE test procedure has specific temperature requirements for the test simulators and filler packages that must be met prior to loading the packages in the commercial refrigeration equipment for testing pursuant to the DOE test procedure found at 10 CFR 431.64. Specifically, several manufacturers have expressed the opinion that test simulators and filler packages should be pre-chilled to the temperature at which the equipment will be tested prior to loading. The manufacturers expressed concern that equipment should not be operating in a pull-down capacity [10] during the test.

The ASHRAE 72–2005 method of test, as referenced by ARI Standard 1200–2006 and AHRI Standard 1200–2010, and thus incorporated by the DOE test procedure at 10 CFR 431.64, provides specific instruction at section 6.2 as to the loading of test simulators and filler packages. ASHRAE 72–2005 also requires temperature stabilization before the formal test period begins, as detailed in Section 7.4. Specifically, the unit must run until ''steady state'' conditions, as defined in section 3, are achieved. ''Steady state'' is defined as ''the condition where the average temperature of all test simulators changes less than 0.2 °C (0.4 °F) from one 24-hour period or refrigeration cycle to the next.'' After steady-state operation is reached, the unit must then operate for another period of 12 hours without any adjustment to the controls before it is deemed to be stabilized and the testing can begin. Based on these established stabilization requirements, the product simulators and test packages would be cooled to the test temperature prior to initiation of the test period and data collection, and the unit of commercial refrigeration equipment under test would not operate in a pull-down application during any part of the DOE test procedure. Thus, DOE does not believe the product simulators or test packages need to be a specified temperature prior to loading in the commercial refrigeration equipment for testing.

E. Treatment of Other Specific Equipment Features and Accessories During Testing

During the ongoing negotiated rulemaking for certification of commercial heating, ventilation, air conditioning, refrigeration, and water heating equipment, a number of issues were raised by stakeholders regarding the treatment during the DOE test procedure of specific features, components, and accessories which may be in place on certain basic models of commercial refrigeration equipment. After discussion with those stakeholders during the negotiation proceedings, DOE seeks to issue clarifications on these subjects. The ensuing sections discuss specific features, components, and accessories and present DOE's proposals regarding how these items should be treated under the existing and any amended DOE test procedure provisions.

1. Customer Display Signs/Lights

Manufacturers stated that some customers, when ordering commercial refrigeration equipment, may wish to add additional exterior signage, outside of the body of the refrigerated cabinet, to certain units of a given model for the purposes of advertising the product inside. This lighting and signage is optional and is not integral to the cabinet. Further, this auxiliary signage does not serve to illuminate product inside the body of the cabinet. During the negotiations, stakeholders inquired regarding how this lighting or signage should be treated during testing.

DOE proposes that under the DOE test procedure, all lighting that is integral to the refrigerated cabinet or illuminates the product contained within must be operational during the test. Under DOE's proposal, supplemental lighting that exists solely for the purposes of advertising or drawing attention to the case and is not integral to the case would not be operated during testing under the DOE test procedure. DOE is proposing to add clarifying language in the regulatory text to address customer display signs/lights.

2. Condensate Pan Heaters and Pumps

Commercial refrigeration equipment captures water from the air entering the cabinet during operation by causing the water to condense and then freeze on the evaporator coil of the equipment. During a defrost cycle, this frost is melted, and the meltwater produced must be removed from the unit. In many types of equipment, this meltwater is collected in a pan beneath the unit. Some models of commercial refrigeration equipment come equipped with electric resistance heaters which evaporate this water out of the pan and into the ambient air. Other models may come equipped with pumps, which pump meltwater to an external drain. Stakeholders inquired regarding the treatment of these condensate pan heaters and condensate pumps under the DOE test procedure.

DOE proposes that, during the DOE test procedure, these electric resistance heaters and condensate pumps must be installed and operational during the entire test (as per section 6.1.1, ''Accessories,'' of ASHRAE 72–2005). The ''entire test'' includes stabilization (including pull-down), steady-state and performance testing periods. Prior to the start of the stabilization period, as defined by ASHRAE 72–2005, the condensate pan should be dry. During the entirety of the period of the test following the start of the stabilization period, any condensate moisture generated should be allowed to accumulate in the pan, as it would during normal operations. Water should not be manually added to or removed from the condensate pan at any time during the entire test.

DOE is aware that manufacturers may offer condensate pan heaters and pumps such that they are shipped separately from, or not installed upon, the specific unit of commercial refrigeration equipment with which they would be used in normal operation. DOE proposes that, if the manufacturer offers a given basic model for sale with an available condensate pan heater or pump, the manufacturer must make representations of the performance of the basic model as tested with the feature in place. DOE is proposing to add clarifying language in the regulatory text to address condensate pan heaters and pumps.

3. Anti-Sweat Door Heaters

Many transparent-door cases come equipped with anti-sweat electric resistance heaters that serve to evaporate any water that condenses on the transparent surface of the door during operation. In some instances, manufacturers may equip their cases with higher-powered anti-sweat heaters in anticipation of potential adverse operation conditions. During the negotiation proceedings, stakeholders

[10] Pull-down capacity refers to a commercial refrigerator, freezer, or refrigerator-freezer, which is not operating in steady-state condition, but is instead actively reducing the temperature of products contained within the refrigerated space.

questioned how cases equipped with high-wattage anti-sweat door heaters should be treated during testing.

DOE proposes that anti-sweat heaters should be operational during testing under the DOE test procedure. Models with a user-selectable setting must be turned on and set to the maximum usage position. Models featuring an automatic, non-user adjustable controller that turns on or off based on environmental conditions must be operating in the automatic state. Additionally, DOE proposes that, if a unit is not shipped with a controller from the point of manufacture, and is intended to be used with a controller, the manufacturer must make representations of the basic model based upon the rated performance of that basic model as tested when equipped with an appropriate controller. DOE is proposing to add clarifying language in the regulatory text to address anti-sweat door heaters.

4. Ultraviolet Lights

Some manufacturers equip certain models of commercial refrigeration equipment with ultraviolet lights, which can be operated by end users to neutralize pathogens and ensure case cleanliness. Manufacturers inquired as to how these should be treated during the DOE test procedure. DOE proposes that ultraviolet lights should not be turned on during the conduct of the test procedure and is adding regulatory text to clarify.

5. Illuminated Temperature Displays and Alarms

Manufacturers may equip some commercial refrigeration equipment models with illuminated displays that provide visual information to the equipment operator regarding, for example, the temperature inside the refrigerated case. Manufacturers may also offer alarms that notify operators if the case temperature falls outside of a specified range. DOE understands these items to be features integral to the design of the given model and proposes that they should be enabled during the test as they would be during normal field operation. DOE is proposing to add clarifying language in the regulatory text to address illuminated temperature displays and alarms.

6. Condenser Filters

Manufacturers may offer models equipped with non-permanent filters over a model's condenser coil to prevent particulates such as flour from blocking the condenser coil and reducing airflow. DOE proposes that these filters should be removed during the DOE test procedure and proposes to add clarifying language as part of the regulatory text.

7. Refrigeration System Security Covers

Manufacturers may offer for sale with a basic model an option to include straps or other devices to secure the condensing unit and prevent theft or tampering. DOE proposes that these security devices should be removed during testing under the DOE test procedure and proposes to add clarifying language as part of the regulatory text.

8. Night Curtains and Covers

During the negotiated rulemaking proceedings, manufacturers inquired regarding the treatment of night curtains and night covers under the DOE test procedure. This feature is defined at 10 CFR 431.62, as a device that is deployed temporarily to decrease air exchange and heat transfer between the refrigerated case and the surrounding environment. Additionally, the proper treatment of these components during the conduct of the DOE test procedure is discussed in the current text of the DOE test procedure, 10 CFR 431.64, as amended by the 2012 DOE test procedure final rule. These provisions are reflected at section 1.2.10 in appendix B. Night curtains may not be used when testing under appendix A.

9. Grill Options

Manufacturers may offer for sale with a basic model optional grills which are used to direct airflow in unique applications, such as when a unit is mounted close to a rear wall and the airflow needs to be directed upwards. DOE proposes that, if present, non-standard grills should be removed during testing under the DOE test procedure and proposes to add clarifying language as part of the regulatory text.

10. Coated Coils

During the negotiations, manufacturers inquired as to whether units featuring coated coils are subject to testing under the DOE test procedure. These coils, generally specified for use in units that will be subjected to environments in which acids or oxidizers are present, are treated with an additional coating (such as a layer of epoxy or polymer) as a barrier to protect the bare metal of the coil from deterioration through environmental contact. DOE believes the existing DOE test procedure accurately accounts for the performance of all types of coils, including those with coatings and that no additional accommodations or clarifications are needed in the test procedure. Commercial refrigeration equipment with coated coils shall be tested in accordance with the DOE test procedure, as specified at appendices A and B to subpart C of 10 CFR part 431, in their entirety.

11. Internal Secondary Coolant Circuits

One manufacturer asked for clarification of the treatment of a unit that features an internal, secondary, working fluid that is cooled by a remote condensing unit. This proprietary design purportedly allows for greater control of unit temperature, and may present other attributes desirable to a customer. Upon discussion and examination of the design during the negotiation proceedings, DOE found no evidence indicating that this design could not be tested using the DOE test procedure as written, as the operation of equipment with internal secondary coolant circuits would be effectively the same as that of a standard remote condensing case from the perspective of the test procedure.

12. Wedge Cases

Wedge cases are models of commercial refrigeration equipment that fit between two other cases to fill a gap (such as in a corner) in a continuous case lineup. They may require air spillover from adjacent cases to meet the manufacturer's design temperatures. During the negotiation proceedings, manufacturers inquired as to how wedge cases should be treated under the DOE test procedure.

DOE considered the coverage and testing of wedge cases in the 2009 energy conservation standards final rule. Based on that assessment, DOE understands that wedge cases meet the definition of commercial refrigeration equipment and fall into existing CRE equipment classes. At this time, DOE is unaware of any technical attributes that prevent wedge cases from being tested using the DOE test procedure, or where the DOE test procedure is not representative of the energy use of a given basic model of wedge case. If manufacturers determine that these circumstances exist, they may seek a test procedure waiver for that model pursuant to DOE regulations at 10 CFR 431.401. Consistent with these regulations, DOE will consider amendments to its test procedure to accommodate such equipment.

13. Misting or Humidification Systems

Manufacturers may offer for sale with a basic model optional misting or humidification systems, which dispense a water mist used to maintain the

optimal quality of products. These are commonly used with cases containing, for example, fresh produce, meat, or seafood. DOE proposes that, if present, these systems should be inactive during testing under the DOE test procedure and proposes to add clarifying language as part of the regulatory text.

14. Air Purifiers

Manufacturers may offer for sale purifying systems to remove contaminants from air recirculated within the interior of a refrigerated case. DOE proposes that air purifiers should be inactive during testing under the DOE test procedure and proposes to add clarifying language as part of the regulatory text.

15. General Purpose Outlets

Some commercial refrigeration equipment may be offered for sale with integrated general purpose electrical outlets, which may be used to power additional equipment such as scales or slicers. During the negotiations, manufacturers inquired as to the treatment of these outlets. DOE proposes that, during testing under the DOE test procedure, no external load should be connected to the general purpose outlets contained within a unit and proposes to add clarifying language as part of the regulatory text.

16. Crankcase Heaters

Some models of self-contained commercial refrigeration equipment feature electric resistance heaters designed to keep the compressor warm in order to maintain the refrigerant contained within at optimal conditions when the unit is operating at low ambient temperatures. DOE proposes that, if present, crankcase heaters should be operational during the test. Under this proposal, if a control system, such as a thermostat or electronic controller, is used to modulate the operation of the crankcase heater, it should be used as intended per the manufacturer's instructions. DOE is proposing to add clarifying language regarding testing units with crankcase heaters.

17. Interior/Exterior Liners

Manufacturers may offer for sale a variety of different interior or exterior liner materials with a given commercial refrigeration equipment basic model. These liners, by virtue of differences in thickness, composition, and other physical attributes, could change the insulative properties of the case walls, and thus alter the energy consumption of the case. Manufacturers inquired during the negotiations regarding the treatment of cases with different interior or exterior liners. The test procedure estimates the heat loss from the refrigerated space to the surroundings by measuring the amount of energy needed to maintain the refrigerated space at the given rating temperature. Consequently, DOE believes that the DOE test procedure adequately accounts for variability in the energy consumption of models with different liner types just as it accounts for the difference energy performance of models with varying levels of insulation. Therefore DOE is not proposing any additional measures to accommodate these equipment features.

F. Rounding of Test Results and Certified Ratings

DOE's requirements for calculating test results and certified ratings for covered commercial refrigeration equipment are found at 10 CFR 431.64 and 10 CFR 429.42, respectively. The DOE test procedure currently prescribes that the daily energy consumption of a unit of commercial refrigeration equipment must be determined in accordance with the DOE test procedure. The current DOE test procedure, which incorporates by reference provisions from ARI Standard 1200–2006 and AHRI Standard 1200–2010, requires that the CDEC, for remote condensing equipment, and the TDEC, for self-contained refrigeration equipment, be expressed in terms of kilowatt-hours (kWh) per day and must be stated in increments of 0.01 kWh per day.

Consequently, DOE is proposing clarifications to 431.64 that all calculations in the DOE test procedure must be carried out using raw, measured values, and the results from the testing of a single unit of a given basic model should be expressed in 0.01 kWh per day.

Similarly, DOE notes that these calculation and rounding requirements are also applicable to reporting certified ratings for a basic model, in accordance with the requirements for certified ratings for commercial refrigeration equipment described at 10 CFR 429.42. Therefore, DOE also proposes to update the language at 10 CFR 429.42 to reflect the same rounding requirements, namely that certified ratings shall be expressed in 0.01 kWh per day increments.

DOE requests comment on its proposed rounding provisions for commercial refrigeration equipment.

G. Testing at the Lowest Application Product Temperature

DOE defines equipment classes for commercial refrigeration equipment based on three distinct operating temperature ranges: (1) Refrigerators that have operating temperatures at or above 32 °F and are tested at a rating temperature of 38 °F (±2 °F); (2) freezers that have operating temperatures below 32 °F and are tested at a rating temperature of 0 °F (±2 °F); and (3) ice-cream freezers that have operating temperatures at or below −5 °F and are tested at a rating temperature of −15 °F (±2 °F). 10 CFR 431.64; *id.* § 431.66(d)(1).

In the 2012 test procedure final rule, DOE establishes provisions for testing equipment that is not capable of achieving the prescribed rating temperature for its respective equipment class. This equipment includes, for example, floral cases, which commonly feature operating temperatures of 40–50 °F, and ice storage cases, which often have operating temperatures near 20 °F. These equipment types do not have operating temperatures that are low enough to meet their respective rating temperature requirements. The 2012 test procedure amendments specify that such equipment must be tested at its lowest application product temperature (LAPT), instead of the specified rating temperature for its given equipment class. 77 FR at 10320 (Feb. 21, 2012). DOE regulations at 10 CFR 431.62 define LAPT as an integrated average temperature closest to the specified rating temperature for a given piece of equipment achievable which is repeatable such that the integrated average temperature of a given unit is within ±2 °F of the average of all integrated average temperature values for that basic model. For cases with thermostats, this will be the lowest thermostat set point. DOE adopted this provision to eliminate the need for waivers for commercial refrigeration equipment that are not capable of operating at the prescribed rating temperature for their equipment class, but that otherwise can be tested in accordance with the DOE test procedure.

To clarify, if a certain basic model of commercial refrigeration equipment cannot be operated at the prescribed rating temperature for its given equipment class, the manufacturer must test the equipment at the LAPT. The equipment must be tested in accordance with all the requirements of the DOE test procedure, except that the rating temperature for this equipment will be the LAPT and the integrated average

temperature measured during the test will be within ±2 °F of the LAPT instead of within ±2 °F of the prescribed rating temperature for that equipment class.

The LAPT is the lowest temperature at which a given basic model is capable of operating. For example, if a basic model of freezer has an operating range from 8 to 28 °F, and thus cannot operate at the prescribed rating temperature of 0 °F, that basic model would be tested at its LAPT. The LAPT for the case in this example would be 8 °F because that is the lowest operating temperature achievable by the basic model. However, 8 °F would be the LAPT for the given basic model only if any unit of this basic model could achieve the specified LAPT of 8 °F ± 2 °F. To elaborate, if DOE were to randomly select a representative unit of this model to test for compliance purposes, DOE should be able to test the unit such that an integrated average temperature between 6 °F and 10 °F is maintained over the duration of the test procedure after setting the unit to maintain an internal refrigerated temperature of 8 °F. The selected unit must not be able to operate at 0 °F.

To clarify the intent and application of the LAPT, DOE proposes to modify the definition of LAPT as follows as set out in the proposed amendments to 10 CFR 431.62 in this NOPR.

Although ASHRAE 72–2005 is currently evoked as the DOE method of test through DOE's incorporation by reference of ARI 1200–2006 and AHRI 1200–2010 as the test procedure for commercial refrigeration equipment, DOE has never specifically incorporated by reference ASHRAE 72–2005. Due to the explicit reference of ASHRAE 72–2005 in the proposed definition of LAPT in this NOPR, DOE proposes to incorporate by reference ASHRAE 72–2005 at 10 CFR 431.63.

DOE requests comment on its proposed modification to the LAPT definition and its proposal to incorporate by reference ASHRAE 72–2005.

As specified in the 2012 test procedure final rule, equipment tested in accordance with the LAPT provisions will still be subject to the relevant energy conservation standards for the designated equipment class. 77 FR at 10302–10303 (Feb 21, 2012). In addition, equipment rated under the LAPT provision will be subject to the same certification requirements as all commercial refrigeration equipment, as specified at 10 CFR 429.42. While DOE did not modify the certification requirements for equipment tested at the LAPT in the 2012 test procedure final rule to require manufacturers to report the temperature at which the unit was tested (if other than the rating temperature), DOE requires that documentation to support the selection of the LAPT the manufacturer used for testing be maintained as part of the test data underlying the certification. 77 FR at 10303 (Feb. 21, 2012). Further, DOE requires that the certified ratings calculated from the test data and applicable sampling plans should reflect the energy consumption measured at the LAPT. 77 FR at 10303 (Feb. 21, 2012).

H. Clarifications in Response to Interpretations to AHRI Standard 1200–2010

In addition to responding to inquiries from interested parties regarding the test procedure for commercial refrigeration equipment, in this NOPR DOE also proposes to clarify its test procedure to respond to issues identified by several recent industry interpretations of the referenced industry test procedure, AHRI Standard 1200–2010.

The 2012 test procedure final rule amends the DOE test procedure for commercial refrigeration equipment to reference AHRI Standard 1200–2010 as the method of test to be used as of the compliance date of any amended standards established as part of the ongoing energy conservation standards rulemaking. 77 FR at 10295–96 (Feb. 21, 2012).

Since publication of the 2012 test procedure final rule, AHRI has published five interpretations to AHRI Standard 1200–2010. Interpretations 1 through 4 to AHRI Standard 1200–2010 were issued by AHRI to clarify the method for calculation of TDA. While both ARI Standard 1200–2006 and AHRI Standard 1200–2010 provide instructions for calculation of TDA for standard equipment configurations, Interpretations 1, 2, 3, and 4 to AHRI Standard 1200–2010 extend this guidance to certain configurations for which AHRI believes the current industry standard may be inadequate. Interpretation 5 to AHRI Standard 1200–2010 clarifies the approach for testing commercial refrigeration equipment with two independent refrigeration sections.

A summary of the five AHRI interpretations is laid out below:

Interpretation 1 clarifies that the height measurement should be representative of the visible area of merchandise inside the case and should not include glass area if the ''view'' is blocked by solid features, such as a honeycomb area or deck pans[11].

Interpretation 2 clarifies that, for a refrigerator or freezer with multiple glass doors, the length measurement for TDA should be taken from inside wall to inside wall, including the door mullions and door frames.

Interpretation 3 clarifies that silk screen-coated transparent material should be treated as transparent and included in TDA if the silk screen provides at least 65 percent light transmittance or if at least 65 percent of the screen area is transparent; otherwise, the silk screen-coated area should be treated as non-transparent and excluded.

Interpretation 4 clarifies how to calculate the area and length of commercial refrigerators, freezers, and refrigerator-freezers with curved fronts.

Interpretation 5 clarifies that for commercial refrigeration equipment with two independent refrigeration sections that each cool a separate compartment, each compartment and refrigeration system should be evaluated independently.

For further details, AHRI's Interpretations 1 through 5 of ANSI/AHRI Standard 1200 (I–P)—2010 are available at *www.ahrinet.org/search+standards.aspx*.

Test procedure guidance developed and issued by industry regarding referenced industry standards can be helpful in identifying areas where DOE's existing test procedures may be misinterpreted. As such, DOE has reviewed Interpretations 1, 2, 3, 4, and 5 to AHRI Standard 1200–2010, which provide guidance on how to calculate TDA for certain unique equipment configurations, and believes Interpretations 1, 3, 4, and 5 of the AHRI Interpretations also apply to ARI Standard 1200–2006, which is incorporated by reference in the DOE test procedure. However, DOE finds that Interpretation 2 is inconsistent with the way DOE determines TDA for the purposes of compliance with energy conservation standards.

DOE believes the figures provided in ARI Standard 1200–2006 and AHRI 1200–2010, as incorporated by reference in the DOE test procedure, demonstrate how to calculate TDA for many specific equipment geometries. However, DOE recognizes that there is no clear statement of the principles one should apply when determining the TDA of a model in general. Accordingly, DOE is

[11] Honeycomb area and deck pans are examples of internal, solid components of commercial refrigeration equipment that are integral to operation of the unit, but may impact the view of product for open to closed transparent cases. ''Honeycomb'' is a term in trade for the material of which air grilles are often built, and deck pans are solid structures used to hold product stored inside a case.

considering clarifying the method for calculating TDA in the DOE test procedure. DOE's method is based on defining TDA as the ''projected visible area'' and, as such, is consistent with Interpretation 1, which specifies that TDA should be the and should not include any transparent areas where the view is blocked by solid features. However, DOE's method is not consistent with Interpretation 2, which includes solid features in the calculation of TDA, such as door frames and mullions. DOE's method and the proposed clarifications are laid out in more detail below, in section III.I.

Interpretation 3 describes how to treat silk screens and other semi-transparent coverings on transparent doors or panels. This interpretation relies on AHRI's definition of transparent as greater than or equal to 65 percent light transmittance. DOE is not proposing additional modifications to the DOE test procedure beyond the definition of ''transparent'' proposed in section III.B.2.i.

Interpretation 4 provides guidance to determine the area and length of commercial refrigeration equipment with curved fronts. While DOE agrees with the interpretation, DOE notes that there are theoretically many cases with unusual geometries for which the existing language and diagrams in ARI Standard 1200–2006 and AHRI Standard 1200–2010 (as incorporated by reference into the DOE test procedure) are sufficient even though they are not depicted explicitly. Specifically, these standards contain appendices, such as appendix D of ARI 1200–2006, which provide, by means of detailed diagrams, instructions on how to measure the dimensions of a wide variety of commercial refrigeration equipment geometries. As a result, DOE does not propose further clarification of the DOE test procedure based on Interpretation 4.

DOE also reviewed Interpretation 5, which clarifies the method for evaluating commercial refrigeration equipment with more than one refrigerated section and finds that AHRI's Interpretation 5 is consistent with the DOE test procedure for these systems, as specified at 10 CFR 431.66(d)(2)(i). This provision explains how to test commercial refrigeration equipment with more than one refrigerated sector; however, DOE welcomes comment on whether additional clarification in the regulatory text is necessary.

I. Clarification of Methodology for Measuring Total Display Area

In light of the publication of Interpretations 1, 2, and 4 to AHRI 1200–2010, and as mentioned in section H, DOE recognizes that there may be ambiguity regarding the proper method for measuring the value of TDA under the DOE test procedure, which is used in calculating a given unit's allowable maximum daily energy consumption under the applicable standard. ARI Standard 1200–2006 appendix D, as incorporated by reference by the DOE at 10 CFR 431.63, provides a definition and instructions on measurement of TDA. Appendix D of ARI Standard 1200–2006 defines TDA as follows:

''Total Display Area (TDA) is the sum of the projected area(s) for visible product.''

Moreover, the standard provides a general equation for calculating the ''projected area(s),'' in the form of:

$$TDA = Dh*L + Ae,$$

where

Ae = Projected area from visible product through end walls

Dh = Dimension of projected visible product

L = Length of Commercial Refrigerated Display Merchandiser

For the end walls (or sides) of display merchandisers, the projected area for visible products is represented by Ae. Figures D13 through D16 of appendix D of ARI Standard 1200–2006 and AHRI Standard 1200–2010 provide instructions on the measurement of Ae for various end wall types present in commercial refrigerated display merchandisers. These figures show that the area included in TDA includes only those areas through which displayed product is visible, irrespective of the presence of other transparent areas through which product cannot be viewed. These figures illustrate that the area to be included in the TDA calculation is the sum of the ''projected area(s) for visible products.''

For the front, back, or top faces of display merchandisers, the projected area for visible product is represented by Dh*L. In ARI Standard 1200–2006 and AHRI Standard 1200–2010 Standards, Figures D1 through D12 provide instructions on the measurement of Dh for various equipment configurations, including different types of open cases and vertical multi-deck cases with transparent doors. However, they do not provide explicit instruction on the measurement of Dh for some case types, including horizontal single-deck merchandisers with transparent doors (*i.e.,* those of the DOE equipment family ''horizontal closed transparent'' or HCT). For case types not depicted in the figures, Dh should be measured consistently with the method described in the other figures and with the definition given in the introduction to the appendix. That is, Dh and L should be measured as the dimension of the projected visible product, representing the dimension through which product can be viewed irrespective of the presence of any additional transparent area through which product cannot be viewed. An example of this is a vertical multi-deck base with transparent doors, where the transparent areas of the door through which no transparent area is projected onto the product zone [12] (*i.e.,* the areas through which no product loaded into the case could be directly seen when viewed in the plane; the upper and lower portions of the transparent area) are not to be included in Dh.

The converse is also true—areas of the product zone which cannot be viewed as part of a direct projection through a transparent area are not to be included in any measurement of Dh. The term ''direct projection'' refers to the view at an angle perpendicular to the plane of product presentation (facing area). Figure III.1 and Figure III.2 illustrate this concept, as they show configurations in which the product zone extends beyond the projected visible area and is thus not included in the measurement of Dh. The measurement of Dh in practice should be consistent with its definition as solely the ''dimension of projected visible product.''

[12] The ''product zone'' is a term used to denote the geometric region of a case which can be filled with product using the included racks, shelves, or other storage structures and without violating the manufacturer's instructions regarding load limits or other constraints on product placement.

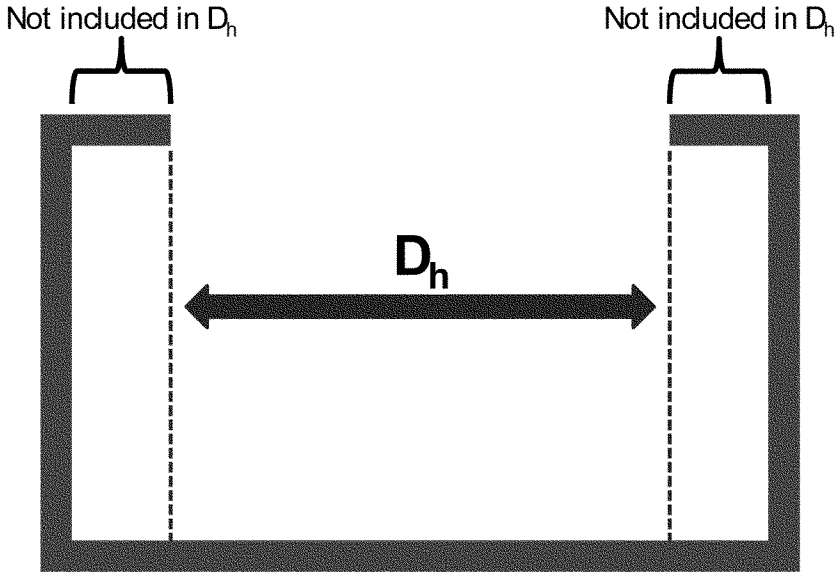

Figure III.1 In the above end view of a horizontal open display case, the distance "D_h" is the dimension of the projected visible product, that being the dimension transverse to the length of the case through which product can be viewed. Note that areas of the product zone which cannot be viewed as part of a direct projection through the open top are not included in the measurement of D_h.

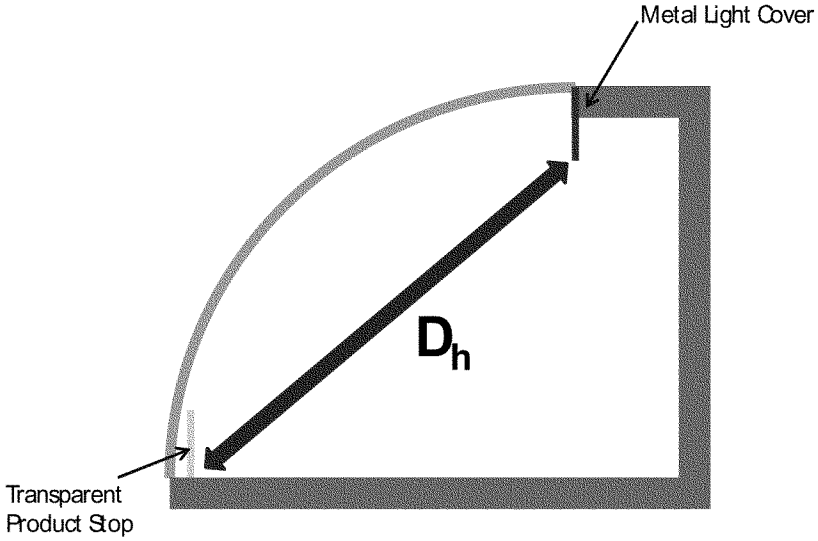

Figure III.2 In the above end view of a service over counter display case, the distance "D_h" is the dimension of the projected visible product, that being the dimension transverse to the length of the case through which product can be viewed. Note that areas of the product zone that cannot be viewed as part of a direct projection through the glass front, specifically that area obscured by the metal light cover, are not included in the measurement of D_h. Conversely, note that the area visible through the transparent product stop is included, because product can be seen through it.

ARI Standard 1200–2006 defines the third variable, ''L'', as the ''length of commercial refrigerated display merchandiser''. While the definition contains no figures or illustrations instructing a user how to perform this measurement, the value of L should be measured in a manner consistent with the definition of TDA that includes only

the ''projected area(s) for visible product.'' Therefore, the length L should be measured consistent with the methods given above for Dh, in that L should correspond to the total length of the transparent area of the merchandiser through which product can be seen. That is, L should be the total length, along the axis of the merchandiser, of portions through which product can be viewed from an angle normal to the transparent area (*i.e.,* the projected linear dimension(s) of visible product). Areas of opaque material which overhang the product zone, as well as areas of transparent material which do not project upon a zone occupied by product, should not be included in this length. This method of measurement is depicted in Figure III.3, and is consistent with the instruction given for calculation of Dh by Figure III.1 and Figure III.2.

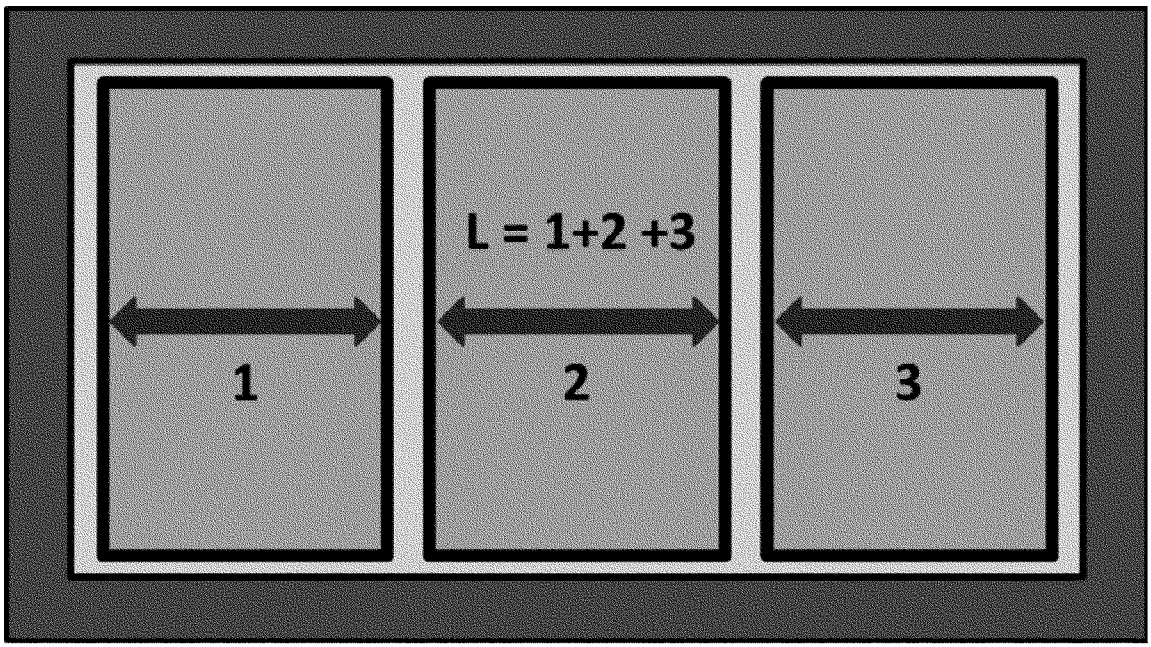

Figure III.3 In the above frontal view of a three-door VCT display case, the distance "L" is the collective length of portions of the merchandiser through which product can be seen.

To clarify the calculation of TDA for the purposes of conducting the DOE test procedure, DOE proposes to add clarifying text to the test procedure explaining that the measurement of TDA should be representative of the ''dimension of projected visible product'' and that no opaque materials or areas of transparent material through which product cannot be viewed should be included in the calculation of TDA. DOE also proposes to add Figure III.1, Figure III.2, and Figure III.3 to the regulatory text in the CFR.

DOE believes that this proposal is a clarification of DOE's existing test procedure and should not change the measured energy consumption of covered equipment. Therefore, DOE proposes to include these amendments in both appendix A, which is the test procedure currently required for equipment testing, and appendix B, which will be required for testing on the compliance date of any amended energy conservation standards established as part of the ongoing CRE energy conservation standards rulemaking (Docket No. EERE–2010–BT–STD–0003).

J. Compliance Date of Test Procedure Amendments

In this NOPR, DOE also proposes to reorganize the test procedure requirements at 10 CFR 431.64 so they are easier to understand and to update the compliance date to reflect the fact that the publication of the final rule for the ongoing energy conservation standards rulemaking has been extended. (Docket No. EERE–2010–BT–STD–0003).

EPCA prescribes that if any rulemaking amends a test procedure, DOE must determine to what extent, if any, the proposed test procedure would alter the measured energy efficiency of any covered equipment as determined under the existing test procedure. (42 U.S.C. 6314(a)(6)) Further, if DOE determines that the amended test procedure would alter the measured efficiency of covered equipment, DOE must amend the applicable energy conservation standard accordingly. (42 U.S.C. 6314(a)(6))

In the 2012 test procedure final rule, DOE states that some test procedure amendments will change the measured energy consumption of some covered equipment. 77 FR at 10295 and 10309 (Feb. 21, 2012). Specifically, DOE determined the provisions to accommodate testing of night curtains and lighting occupancy sensors and controls altered the measured energy consumption of covered equipment. 77 FR at 10309 (Feb. 21, 2012). As such, DOE establishes in the 2012 test procedure final rule that use of the amended test procedure for compliance with DOE energy conservation standards or representations with respect to energy consumption of commercial refrigeration equipment would be required on the compliance date of any revised energy conservation standards, which are being considered in an ongoing energy conservation standards rulemaking (Docket No. EERE–2010–BT–STD–0003). 77 FR at 10309 (Feb. 21, 2012).

To improve clarity, DOE is proposing to reorganize the language at 10 CFR 431.64 into appendices A and B. Appendix A contains the test procedure for commercial refrigeration equipment established in the 2006 test procedure final rule. DOE proposes to include the amended test procedure, established in the 2012 test procedure final rule, in appendix B, which will be required to be used on the compliance date of any amended standards established in the ongoing energy conservation standards rulemaking (Docket No. EERE–2010–BT–STD–0003).

DOE believes this reorganization will help clarify the applicability of various test procedure provisions with respect to the standards compliance dates. DOE requests comment on the reorganization of the test procedure requirements at 10 CFR 431.64 into appendix A and appendix B.

The test procedure amendments established in the 2012 test procedure final rule became effective on March 22, 2012. 77 FR at 10292 (Feb. 21, 2012). However, as previously mentioned, the 2012 amendments are to be used in conjunction with any amended standards promulgated as a result of the ongoing energy conservation standards rulemaking (Docket No. EERE–2010–BT–STD–0003). As such, use of the amended test procedure in appendix B will be required to show compliance with DOE energy conservation standards or to make representations with respect to energy consumption of commercial refrigeration equipment on the compliance date of any revised energy conservation standards established as part of the ongoing energy conservation standards rulemaking. (Docket No. EERE–2010–BT–STD–0003). DOE proposes to update the compliance date referenced in 10 CFR 431.64 to be consistent with the compliance date of any amended standards adopted as a result of the ongoing energy conservation standards rulemaking. DOE will clarify the compliance date of the test procedure amendments proposed in appendix B in the appropriate rulemaking document.

IV. Regulatory Review

A. Review Under Executive Order 12866

The Office of Management and Budget (OMB) has determined that test procedure rulemakings do not constitute ''significant regulatory actions'' under section 3(f) of Executive Order 12866, Regulatory Planning and Review, 58 FR 51735 (Oct. 4, 1993). Accordingly, this action was not subject to review under the Executive Order by the Office of Information and Regulatory Affairs (OIRA) in the OMB.

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires preparation of an initial regulatory flexibility analysis (IRFA) for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by Executive Order 13272, ''Proper Consideration of Small Entities in Agency Rulemaking,'' 67 FR 53461 (Aug. 16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the potential impacts of its rules on small entities are properly considered during the DOE rulemaking process. 68 FR 7990. DOE has made its procedures and policies available on the Office of the General Counsel's Web site: *http://energy.gov/gc/office-general-counsel*.

DOE reviewed today's proposed rule to amend the test procedure for commercial refrigeration equipment, under the provisions of the Regulatory Flexibility Act and the procedures and policies published on February 19, 2003. DOE certifies that the proposed rule, if adopted, would not result in a significant impact on a substantial number of small entities. The factual basis for this certification is set forth below.

For the commercial refrigeration industry, the Small Business Association (SBA) has set a size threshold, which defines those entities classified as ''small businesses'' for the purpose of the statute. DOE used the SBA's size standards to determine whether any small entities would be required to comply with the rule. The size standards are codified at 13 CFR part 121. The standards are listed by North American Industry Classification System (NAICS) code and industry description and are available at *http://www.sba.gov/sites/default/files/files/Size_Standards_Table.pdf*. Commercial refrigeration equipment manufacturing is classified under NAICS 333415, ''Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing.'' Small entities within this industry description are those with 750 employees or fewer.

DOE conducted a market survey to determine whether any small business manufacturers of equipment would be covered by this rulemaking. During its market survey, DOE used all available public information to identify potential small manufacturers. DOE's research involved the review of industry trade association membership directories (including AHRI), equipment databases (*e.g.,* Federal Trade Commission (FTC), the Thomas Register, California Energy Commission (CEC), and ENERGY STAR databases), individual company Web sites, and marketing research tools (*e.g.,* Dunn and Bradstreet reports, Manta) to create a list of companies that manufacture or sell commercial refrigeration equipment covered by this rulemaking. DOE also referred to a list of small businesses that manufacture commercial refrigeration equipment, supplied by Traulsen in a written comment provided in response to the NOPR proposing amendments to the DOE test procedure for commercial refrigeration equipment published November 24, 2010 (Docket No. EERE–2010–BT–TP–0034, Traulsen, No. 9 at pp. 4–5). Using these sources, DOE identified 61 manufacturers of commercial refrigeration equipment.

DOE then reviewed this data to determine whether the entities met the SBA's definition of a small business manufacturer of commercial refrigeration equipment and screened out companies that do not offer equipment covered by this rulemaking, do not meet the definition of a ''small business,'' or are foreign owned and operated. Based on this review, DOE has identified 26 companies that would be considered small manufacturers and will be directly regulated by this rule, which represents 43% of national CRE manufacturers. Although 43% would be considered a substantial number of small entities, further analysis of incremental costs associated with this rulemaking determined no significant impact on these manufacturers. Specifically, the proposed changes to the test procedure consist only of clarifications regarding:

1. The applicability of the test procedure and related energy conservation standards to certain types of equipment;

2. the definitions of hybrid commercial refrigeration equipment, commercial refrigeration equipment with drawers, and commercial refrigeration equipment with solid and/or transparent doors;

3. the relationship among the rating temperature, operating temperature, and integrated average temperature;

4. the proper configuration and use of energy management systems, lighting controls, and test packages in the DOE test procedure for commercial refrigeration equipment;

5. the treatment of various features, components, and accessories under the DOE test procedure;

6. the rounding requirements for test results and certified ratings;

7. the provision adopted in the 2012 test procedure final rule to allow testing at the lowest application product temperature for equipment that cannot operate at the prescribed rating temperature for its equipment class;

8. clarifications raised by Interpretations 1, 2, 3, 4, and 5 of AHRI Standard 1200–2010;

9. the methodology used to determine total display area; and

10. the compliance date of certain amendments established in the 2012 test procedure final rule.

All commercial refrigeration equipment covered by this rule is currently required to be tested using the DOE test procedure to show compliance with established energy conservation standards. The DOE test procedure manufacturers must use to demonstrate compliance with existing standards is that established in the 2006 test procedure final rule, which references AHRI Standard 1200–2006 and AHAM HRF–1–2004. This test procedure consists of one 24-hour test at standard rating conditions to determine daily energy consumption.

The 2012 test procedure final rule amends the test procedure for commercial refrigeration equipment to update the referenced industry test procedures to their most current versions (AHRI Standard 1200–2010 and AHAM HRF–1–2008); incorporates provisions for testing certain energy efficiency features, including night curtains and lighting occupancy sensor and scheduled controls; and provides a test procedure for specialty equipment that cannot be tested at the prescribed rating temperature. As part of that rulemaking, DOE considered the burden associated with the test procedure amendments and certified that the rule would not have a ''significant economic impact on a substantial number of small entities,'' and the preparation of a regulatory flexibility analysis was not warranted. 77 FR 10292, 10314–10316 (Feb. 21, 2012).

The test procedure amendments proposed in today's notice of proposed rulemaking serve only to reorganize and clarify the existing requirements in the DOE test procedure, both those established in the 2006 test procedure final rule and those established in the 2012 test procedure final rule; they do not alter or affect any of the test procedure requirements or provisions in any way. DOE does not believe that the proposed test procedure amendments would affect the way in which any covered commercial refrigeration equipment is tested, nor would they impact the burden of conducting such a test. Based on this factual basis, DOE believes that the proposed test procedure amendments would not have a significant economic impact on a substantial number of small entities, and the preparation of a regulatory flexibility analysis is not required. DOE will transmit the certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the Small Business Administration for review under 5 U.S.C. 605(b).

DOE requests comment on its certification that the proposed test procedure changes will not have a significant impact on a substantial number of small entities.

C. Review Under the Paperwork Reduction Act

Manufacturers of commercial refrigeration equipment must certify to DOE that their products comply with any applicable energy conservation standards. In certifying compliance, manufacturers must test their products according to the DOE test procedure for commercial refrigeration equipment, including any amendments adopted for that test procedure. DOE has established regulations for the certification and recordkeeping requirements for all covered consumer products and commercial equipment, including commercial refrigeration equipment. 76 FR 12422 (March 7, 2011). The collection-of-information requirement for the certification and recordkeeping is subject to review and approval by OMB under the Paperwork Reduction Act (PRA). This requirement has been approved by OMB under OMB Control Number 1910–1400. Public reporting burden for the certification is estimated to average 20 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the PRA, unless that collection of information displays a currently valid OMB Control Number.

D. Review Under the National Environmental Policy Act

In this proposed rule, DOE proposes amendments its test procedure for commercial refrigeration equipment that may be used to implement future energy conservation standards or for certification of equipment under current energy conservation standards. DOE has determined that this rule falls into a class of actions that are categorically excluded from review under the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*). The rule is covered by Categorical Exclusion A5, for rulemakings that interpret or amend an existing rule without changing the environmental effect, as set forth in DOE's NEPA regulations in appendix A to subpart D, 10 CFR part 1021. This rule will not affect the quality or distribution of energy usage and therefore will not result in any environmental impacts. Accordingly, neither an environmental assessment nor an environmental impact statement is required.

E. Review Under Executive Order 13132

Executive Order 13132, ''Federalism,'' 64 FR 43255 (Aug. 4, 1999), imposes certain requirements on agencies formulating and implementing policies or regulations that preempt State law or that have Federalism implications. The Executive Order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and to carefully assess the necessity for such actions. The Executive Order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have Federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR 13735. DOE has examined this proposed rule and has determined that it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation for the products that are the subject of today's proposed rule. States can petition DOE for exemption from such preemption to the extent, and based on criteria, set forth in EPCA. (42 U.S.C. 6297(d)) No further action is required by Executive Order 13132.

F. Review Under Executive Order 12988

Regarding the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, ''Civil Justice

Reform,'' 61 FR 4729 (Feb. 7, 1996), imposes on Federal agencies the general duty to adhere to the following requirements: (1) Eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; (3) provide a clear legal standard for affected conduct rather than a general standard; and (4) promote simplification and burden reduction. Section 3(b) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) Clearly specifies the preemptive effect, if any; (2) clearly specifies any effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in sections 3(a) and 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, the proposed rule meets the relevant standards of Executive Order 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA; Pub. 104–4) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. For proposed regulatory actions likely to result in a rule that may cause expenditures by State, local, and Tribal governments in the aggregate or by the private sector of $100 million or more in any one year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish estimates of the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a), (b)) The UMRA also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal governments on a proposed ''significant intergovernmental mandate'' and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect small governments. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under UMRA. 62 FR 12820. (This policy is also available at *http://energy.gov/gc/office-general-counsel.*) DOE reviewed today's proposed rule pursuant to UMRA and its policy and determined that the rule contains neither an intergovernmental mandate nor a mandate that may result in the expenditure of $100 million or more in any year, so these requirements do not apply.

H. Review Under the Treasury and General Government Appropriations Act, 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105–277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This rule would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

I. Review Under Executive Order 12630

DOE has determined, under Executive Order 12630, ''Governmental Actions and Interference with Constitutionally Protected Property Rights,'' 53 FR 8859 (March 15, 1988), that this proposed regulation, if promulgated as a final rule, would not result in any takings that might require compensation under the Fifth Amendment to the U.S. Constitution.

J. Review Under the Treasury and General Government Appropriations Act, 2001

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516, note) provides for agencies to review most disseminations of information to the public under guidelines established by each agency pursuant to general guidelines issued by OMB. The OMB's guidelines were published in 67 FR 8452 (February 22, 2002), and DOE's guidelines were published in 67 FR 62446 (Oct. 7, 2002). DOE has reviewed today's proposed rule under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use,'' 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to OIRA, Office of Management and Budget, a Statement of Energy Effects for any proposed significant energy action. A ''significant energy action'' is defined as any action by an agency that promulgated or is expected to lead to promulgation of a final rule, and that (1) is a significant regulatory action under Executive Order 12866, or any successor order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (3) is designated by the Administrator of OIRA as a significant energy action. For any proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use. Today's regulatory action would not have a significant adverse effect on the supply, distribution, or use of energy and therefore it is not a significant energy action. Accordingly, DOE has not prepared a Statement of Energy Effects.

L. Review Under Section 32 of the Federal Energy Administration Act of 1974

Under section 301 of the Department of Energy Organization Act (Pub. L. 95–91), DOE must comply with section 32 of the Federal Energy Administration Act of 1974 (Pub. L. 93–275), as amended by the Federal Energy Administration Authorization Act of 1977. When a proposed rule contains or involves use of commercial standards, the rulemaking must inform the public of the use and background of such standards. (15 U.S.C. 788 Section 32)

The proposed rule incorporates testing methods contained in ASTM Standard E 1084–86 (Reapproved 2009), ''Standard Test Method for Solar Transmittance (Terrestrial) of Sheet Materials Using Sunlight'' and ASHRAE 72–2005, ''Method of Testing Commercial Refrigerators and Freezers.'' DOE has evaluated these standards and is unable to conclude whether they fully comply with the requirements of section 323(b) of the Federal Energy Administration Act (*i.e.,* whether they were developed in a manner that fully provides for public participation, comment, and review).

As required by section 32(c) of the Federal Energy Administration Act of 1974 as amended, DOE will consult with the Attorney General and the Chairman of the Federal Trade Commission about the impact on competition of using the methods contained in these standards before prescribing a final rule.

V. Public Participation

A. Attendance at Public Meeting

The time, date and location of the public meeting are listed in the **DATES** and **ADDRESSES** sections at the beginning of this document. If you plan to attend the public meeting, please notify Ms. Brenda Edwards at (202) 586–2945 or *Brenda.Edwards@ee.doe.gov.*

Please note that foreign nationals visiting DOE Headquarters are subject to advance security screening procedures. Any foreign national wishing to participate in the meeting should advise DOE as soon as possible by contacting Ms. Edwards to initiate the necessary procedures. Please also note that those wishing to bring laptops into the Forrestal Building will be required to obtain a property pass. Visitors should avoid bringing laptops, or allow an extra 45 minutes.

In addition, you can attend the public meeting via webinar. Webinar registration information, participant instructions, and information about the capabilities available to webinar participants will be published on DOE's Web site *https://www1.eere.energy.gov/buildings/appliance_standards/product.aspx/productid/52.* Participants are responsible for ensuring their systems are compatible with the webinar software.

B. Procedure for Submitting Prepared General Statements For Distribution

Any person who has plans to present a prepared general statement may request that copies of his or her statement be made available at the public meeting. Such persons may submit requests, along with an advance electronic copy of their statement in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format, to the appropriate address shown in the **ADDRESSES** section at the beginning of this notice of proposed rulemaking. The request and advance copy of statements must be received at least one week before the public meeting and may be emailed, hand-delivered, or sent by mail. DOE prefers to receive requests and advance copies via email. Please include a telephone number to enable DOE staff to make a follow-up contact, if needed.

C. Conduct of Public Meeting

DOE will designate a DOE official to preside at the public meeting and may also use a professional facilitator to aid discussion. The meeting will not be a judicial or evidentiary-type public hearing, but DOE will conduct it in accordance with section 336 of EPCA (42 U.S.C. 6306). A court reporter will be present to record the proceedings and prepare a transcript. DOE reserves the right to schedule the order of presentations and to establish the procedures governing the conduct of the public meeting. After the public meeting and until the end of the comment period, interested parties may submit further comments on the proceedings and any aspect of the rulemaking.

The public meeting will be conducted in an informal, conference style. DOE will present summaries of comments received before the public meeting, allow time for prepared general statements by participants, and encourage all interested parties to share their views on issues affecting this rulemaking. Each participant will be allowed to make a general statement (within time limits determined by DOE), before the discussion of specific topics. DOE will permit, as time permits, other participants to comment briefly on any general statements.

At the end of all prepared statements on a topic, DOE will permit participants to clarify their statements briefly and comment on statements made by others. Participants should be prepared to answer questions by DOE and by other participants concerning these issues. DOE representatives may also ask questions of participants concerning other matters relevant to this rulemaking. The official conducting the public meeting will accept additional comments or questions from those attending, as time permits. The presiding official will announce any further procedural rules or modification of the above procedures that may be needed for the proper conduct of the public meeting.

A transcript of the public meeting will be included in the docket, which can be viewed as described in the Docket section at the beginning of this notice of proposed rulemaking. In addition, any person may buy a copy of the transcript from the transcribing reporter.

D. Submission of Comments

DOE will accept comments, data, and information regarding this proposed rule before or after the public meeting, but no later than the date provided in the **DATES** section at the beginning of this proposed rule. Interested parties may submit comments using any of the methods described in the **ADDRESSES** section at the beginning of this notice of proposed rulemaking.

Any comments submitted must identify the NOPR for Test Procedure for Commercial Refrigeration Equipment and provide docket number EERE–2013–BT–TP–0025 and/or regulatory information number (RIN) number 1904–AC99.

Submitting comments via regulations.gov. The regulations.gov Web page will require you to provide your name and contact information. Your contact information will be viewable to DOE Building Technologies staff only. Your contact information will not be publicly viewable except for your first and last names, organization name (if any), and submitter representative name (if any). If your comment is not processed properly because of technical difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. Persons viewing comments will see only first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

Do not submit to regulations.gov information for which disclosure is restricted by statute, such as trade secrets and commercial or financial information (hereinafter referred to as Confidential Business Information (CBI)). Comments submitted through regulations.gov cannot be claimed as CBI. Comments received through the Web site will waive any CBI claims for the information submitted. For information on submitting CBI, see the Confidential Business Information section.

DOE processes submissions made through regulations.gov before posting. Normally, comments will be posted within a few days of being submitted. However, if large volumes of comments are being processed simultaneously, your comment may not be viewable for up to several weeks. Please keep the comment tracking number that regulations.gov provides after you have successfully uploaded your comment.

Submitting comments via email, hand delivery, or mail. Comments and documents submitted via email, hand delivery, or mail also will be posted to regulations.gov. If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead, provide your contact information on a cover letter. Include your first and last names, email

address, telephone number, and optional mailing address. The cover letter will not be publicly viewable as long as it does not include any comments.

Include contact information each time you submit comments, data, documents, and other information to DOE. If you submit via mail or hand delivery, please provide all items on a CD, if feasible. It is not necessary to submit printed copies. No facsimiles (faxes) will be accepted.

Comments, data, and other information submitted to DOE electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not secured, written in English and free of any defects or viruses. Documents should not contain special characters or any form of encryption and, if possible, they should carry the electronic signature of the author.

Campaign form letters. Please submit campaign form letters by the originating organization in batches of between 50 to 500 form letters per PDF or as one form letter with a list of supporters' names compiled into one or more PDFs. This reduces comment processing and posting time.

Confidential Business Information. According to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email, postal mail, or hand delivery two well-marked copies: one copy of the document marked confidential including all the information believed to be confidential, and one copy of the document marked non-confidential with the information believed to be confidential deleted. Submit these documents via email or on a CD, if feasible. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

Factors of interest to DOE when evaluating requests to treat submitted information as confidential include: (1) A description of the items; (2) whether and why such items are customarily treated as confidential within the industry; (3) whether the information is generally known by or available from other sources; (4) whether the information has previously been made available to others without obligation concerning its confidentiality; (5) an explanation of the competitive injury to the submitting person which would result from public disclosure; (6) when such information might lose its confidential character due to the passage of time; and (7) why disclosure of the information would be contrary to the public interest.

It is DOE's policy that all comments may be included in the public docket, without change and as received, including any personal information provided in the comments (except information deemed to be exempt from public disclosure).

E. Issues on Which DOE Seeks Comment

Although DOE welcomes comments on any aspect of this proposal, DOE is particularly interested in receiving comments and views of interested parties concerning the following issues:

1. DOE requests comment on the proposed definition for chef base or griddle stand.

2. DOE requests comment on its proposed definition of ''door,'' and, in particular, its specification that the term is inclusive of drawers.

3. DOE requests comments from interested parties on the proposal to define ''transparent'' based on the optical properties of the material, as determined by ASTM E 1084–86 (Reapproved 2009) as incorporated by reference.

4. DOE requests comment on its proposed definitions of the terms ''closed transparent'' and ''closed solid.''

5. DOE requests comment on the clarity and sufficiency of the proposed definitions for ''commercial hybrid'' and ''commercial refrigerator-freezer.''

6. DOE requests comment on its proposed definitions for ''operating temperature'' and ''rating temperature,'' and its proposal to clarify the relationship between integrated average temperature and rating temperature. DOE also requests comment on its proposed definitions of ''commercial refrigerator'' and ''commercial freezer.''

7. DOE requests comment on its proposed rounding provisions for commercial refrigeration equipment.

8. DOE requests comment on its proposed modification to the definition of LAPT and its proposal to incorporate by reference ASHRAE 72–2005.

9. DOE requests comment on the reorganization of the test procedure requirements at 10 CFR 431.64 into appendix A and appendix B to subpart C of 10 CFR part 431.

10. DOE requests comment on its certification that the proposed test procedure changes will not have a significant impact on a substantial number of small entities.

VI. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this proposed rule.

List of Subjects in 10 CFR Parts 429 and 431

Administrative practice and procedure, Confidential business information, Test procedures, Incorporation by reference, Reporting and recordkeeping requirements.

Issued in Washington, DC, on September 30, 2013.

Kathleen B. Hogan,

Deputy Assistant Secretary for Energy Efficiency, Energy Efficiency and Renewable Energy.

For the reasons set forth in the preamble, DOE proposes to amend part 429 and 431 of chapter II of title 10, of the Code of Federal Regulations, to read as set forth below:

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

■ 1. The authority citation for part 429 continues to read as follows:

Authority: 42 U.S.C. 6291–6317.

§ 429.42 [Amended]

■ 2. Section 429.42 is amended by adding in paragraphs (b)(2)(i), (ii), and (iii), the words ''increments of 0.01'' before the phrase ''kilowatt hours per day (kWh/day).''

PART 431—ENERGY EFFICIENCY PROGRAM FOR CERTAIN COMMERCIAL AND INDUSTRIAL EQUIPMENT

■ 3. The authority citation for part 431 continues to read as follows:

Authority: 42 U.S.C. 6291–6317.

■ 4. Section 431.62 is amended by:

■ a. Removing the definition for ''commercial hybrid refrigerator, freezer, and refrigerator-freezer;''

■ b. Adding in alphabetical order the definitions for ''chef base or griddle stand,'' ''closed solid,'' ''closed transparent,'' ''commercial freezer,'' ''commercial hybrid,'' ''commercial refrigerator,'' ''commercial refrigerator-freezer,'' ''door,'' ''operating temperature,'' ''rating temperature,'' and ''transparent;''

■ c . Revising the definition for ''lowest application product temperature.''

The additions and revision read as follows:

§ 431.62 Definitions concerning commercial refrigerators, freezers and refrigerator-freezers.

* * * * *

Chef base or griddle stand means commercial refrigeration equipment that

is designed and marketed for the express purpose of having a griddle or other cooking equipment placed on top of it that is capable of reaching temperatures hot enough to cook food.

Closed solid means equipment with doors, and in which more than 75 percent of the outer surface area of all doors on a unit are not transparent.

Closed transparent means equipment with doors, and in which 75 percent or more of the outer surface area of all doors on the unit are transparent.

Commercial freezer means a unit of commercial refrigeration equipment in which all refrigerated compartments in the unit are capable of operating below 32 °F.

Commercial hybrid means a unit of commercial refrigeration equipment

(1) Consisting of two or more refrigerated compartments that are in two or more different equipment families, and

(2) Which is sold as a single unit.

Commercial refrigerator means a unit of commercial refrigeration equipment in which all refrigerated compartments in the unit are capable of operating at or above 32 °F.

Commercial refrigerator-freezer means a unit of commercial refrigeration equipment consisting of two or more refrigerated compartments where at least one refrigerated compartment is capable of operating at or above 32 °F and at least one refrigerated compartment is capable of operating below 32 °F.

* * * * *

Door. (1) *Door* means a movable panel that:

(i) Separates the interior volume of a unit of commercial refrigeration equipment from the ambient environment,

(ii) Is designed to facilitate access to the refrigerated space for the purpose of loading and unloading product, and

(iii) Is affixed such that it is not removable without the use of tools.

(2) This includes hinged doors, sliding doors, and drawers.

* * * * *

Lowest application product temperature means the lowest integrated average temperature at which a given basic model is capable of consistently operating (*i.e.,* maintaining so as to comply with the steady-state stabilization requirements specified in ASHRAE 72–2005 (as incorporated by reference, see § 431.63) for the purposes of testing under the DOE test procedure).

* * * * *

Operating temperature means the range of integrated average temperatures at which a commercial refrigeration unit is capable of operating.

* * * * *

Rating temperature means the integrated average temperature a unit must maintain during testing (i.e., either as listed in the table at § 431.66(d)(1) or the lowest application product temperature).

* * * * *

Transparent means greater than or equal to 65 percent light transmittance, as determined in accordance with the ASTM Standard E 1084–86 (Reapproved 2009), ''Standard Test Method for Solar Transmittance (Terrestrial) of Sheet Materials Using Sunlight,'' (as incorporated by reference, see § 431.63) at normal incidence.

* * * * *

■ 5. Section 431.63 is amended by adding paragraphs (d) and (e) to read as follows:

§ 431.63 Materials incorporated by reference.

* * * * *

(d) *ASTM.* ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428, (877) 909–2786, or go to *http://www.astm.org/.*

(1) ASTM Standard E 1084, ''Standard Test Method for Solar Transmittance (Terrestrial) of Sheet Materials Using Sunlight,'' 1986 (Reapproved 2009), IBR approved for § 431.62.

(2) [Reserved]

(e) *ASHRAE.* The American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., 1971 Tullie Circle, NE., Atlanta, GA 30329, or *http://www.ashrae.org/.*

(1) ASHRAE 72, ''Method of Testing Commercial Refrigerators and Freezers,'' 2005, IBR approved for §§ 431.62 and 431.64.

(2) [Reserved]

■ 6. Section 431.64 is amended by revising paragraph (b) to read as follows:

§ 431.64 Uniform test method for the measurement of energy consumption of commercial refrigerators, freezers, and refrigerator-freezers.

* * * * *

(b) *Testing and calculations.* Determine the daily energy consumption of each covered commercial refrigerator, freezer, or refrigerator-freezer by conducting the appropriate test procedure set forth below, in appendix A or B to this subpart. The daily energy consumption of commercial refrigeration equipment shall be calculated using raw measured values and the final test results shall be reported in increments of 0.01 kWh/day.

■ 7. Section 431.66 is amended by adding paragraph (f) to read as follows:

§ 431.66 Energy conservation standards and their effective dates.

* * * * *

(f) *Exclusions.* The energy conservation standards in paragraphs (b) through (e) of this section do not apply to salad bars, buffet tables, and chef bases or griddle stands.

■ 8. Add Appendixes A and B to Subpart C to read as follows:

Appendix A to Subpart C of Part 431—Uniform Test Method for the Measurement of Energy Consumption of Commercial Refrigerators, Freezers, and Refrigerator-Freezers

Note: After [DATE 180 DAYS AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER], any representations made with respect to the energy use or efficiency of commercial refrigeration equipment must be made in accordance with the results of testing pursuant to this appendix.

Manufacturers conducting tests of commercial refrigeration equipment after [DATE 30 DAYS AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER] and prior to [DATE 180 DAYS AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER], must conduct such test in accordance with either this appendix or § 431.64 as it appeared at 10 CFR part 430, subpart B, in the 10 CFR parts 200 to 499 edition revised as of January 1, 2013. Any representations made with respect to the energy use or efficiency of such commercial refrigeration equipment must be in accordance with whichever version is selected. Given that after [DATE 180 DAYS AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER] representations with respect to the energy use or efficiency of dehumidifiers must be made in accordance with tests conducted pursuant to this appendix, manufacturers may wish to begin using this test procedure as soon as possible.

1. Test Procedure

1.1. Determination of Daily Energy Consumption. Determine the daily energy consumption of each covered commercial refrigerator, freezer, refrigerator-freezer or ice-cream freezer by conducting the test procedure set forth in the Air-Conditioning and Refrigeration Institute (ARI) Standard 1200–2006, ''Performance Rating of Commercial Refrigerated Display Merchandisers and Storage Cabinets,'' section 3, ''Definitions,'' section 4, ''Test Requirements,'' and section 7, ''Symbols and Subscripts'' (incorporated by reference, see § 431.63). For each commercial refrigerator, freezer, or refrigerator-freezer with a self-contained condensing unit, also use ARI Standard 1200–2006, section 6, ''Rating Requirements for Self-contained Commercial Refrigerated Display Merchandisers and Storage Cabinets.'' For each commercial refrigerator, freezer, or refrigerator-freezer with a remote condensing unit, also use ARI Standard 1200–2006, section 5, ''Rating Requirements for Remote Commercial

Refrigerated Display Merchandisers and Storage Cabinets.''

1.2. Additional Specifications for Testing of Components and Accessories. All standard components that would be used during normal operation of the basic model in the field shall be installed and used during testing as recommended by the manufacturer and representative of their typical operation in the field unless such installation and operation is inconsistent with any requirement of the test procedure. The specific components and accessories listed in the subsequent sections shall be operated as stated during the test.

1.2.1. Energy Management Systems. Applicable energy management systems may be activated during the test procedure provided they are permanently installed on the case, configured as sold in such a manner so as to operate automatically without the intervention of the operator, and do not conflict with any of other requirements for a valid test as specified in this appendix.

1.2.2. Lighting. Energize all lighting, except customer display signs/lights as described in section 1.2.3 and UV lighting as described in section 1.2.6 of this appendix, to the maximum illumination level for the duration of testing. However, if a closed solid unit of commercial refrigeration equipment includes an automatic lighting control system which can turn of internal case lighting when the door is closed, and the manufacturer recommends the use of this system, then the lighting control should be operated in the automatic setting, even if the model has a manual switch that disables the automatic lighting control.

1.2.3. Customer display signs/lights. Do not energize supplemental lighting that exists solely for the purposes of advertising or drawing attention to the case and is not integral to the case.

1.2.4 Condensate pan heaters and pumps. All electric resistance condensate heaters and condensate pumps must be installed and operational during the test. This includes the stabilization period (including pull-down), steady-state, and performance testing periods. Prior to the start of the stabilization period as defined by ASHRAE 72–2005 (incorporated by reference, see § 431.63), the condensate pan must be dry. Following the start of the stabilization period, allow any condensate moisture generated to accumulate in the pan. Do not manually add or remove water from the condensate pan at any time during the test.

1.2.5 Anti-sweat door heaters. Anti-sweat door heaters must be operational during the entirety of the test procedure. Models with a user-selectable setting must have the heaters energized and set to the maximum usage position. Models featuring an automatic, non-user-adjustable controller that turns on or off based on environmental conditions must be operating in the automatic state. If a unit is not shipped with a controller from the point of manufacture and is intended to be used with an automatic, non-user-adjustable controller, test the unit with a manufacturer-recommended controller that turns on or off based on environmental conditions.

1.2.6 Ultraviolet lights. Do not energize ultraviolet lights during the test.

1.2.7 Illuminated temperature displays and alarms. All illuminated temperature displays and alarms shall be energized and operated during the test as they would be during normal field operation.

1.2.8 Condenser filters. Remove any nonpermanent filters provided to prevent particulates from blocking a model's condenser coil.

1.2.9 Refrigeration system security covers. Remove any devices used to secure the condensing unit.

1.2.10 Night curtains and covers. Do not deploy night curtains or covers.

1.2.11 Grill options. Remove any optional, non-standard grills used to direct airflow.

1.2.12 Misting or humidification systems. Misting or humidification systems must be inactive during the test.

1.2.13 Air purifiers. Air purifiers must be inactive during the test.

1.2.14 General purpose outlets. During the test, do not connect any external load to any general purpose outlets contained within a unit.

1.2.15 Crankcase heaters. Crankcase heaters must be operational during the test. If a control system, such as a thermostat or electronic controller, is used to modulate the operation of the crankcase heater, it must be activated during the test.

2. Test Conditions

2.1. Integrated Average Temperatures. Conduct the testing required in section 1 and 2 of this appendix A, and determine the daily energy consumption at the applicable integrated average temperature as found in the following table.

Category	Test procedure	Integrated average temperature
(i) Refrigerator with Solid Door(s)	ARI Standard 1200–2006[1]	38 °F (±2 °F).
(ii) Refrigerator with Transparent Door(s)	ARI Standard 1200–2006[1]	38 °F (±2 °F).
(iii) Freezer with Solid Door(s)	ARI Standard 1200–2006[1]	0 °F (±2 °F).
(iv) Freezer with Transparent Door(s)	ARI Standard 1200–2006[1]	0 °F (±2 °F).
(v) Refrigerator-Freezer with Solid Door(s)	ARI Standard 1200–2006[1]	38 °F (±2 °F) for refrigerator compartment. 0 °F (±2 °F) for freezer compartment.
(vi) Commercial Refrigerator with a Self-Contained Condensing Unit Designed for Pull-Down Temperature Applications and Transparent Doors.	ARI Standard 1200–2006[1]	38 °F (±2 °F).
(vii) Ice-Cream Freezer	ARI Standard 1200–2006[1]	−15.0 °F (±2 °F).
(viii) Commercial Refrigerator, Freezer, and Refrigerator-Freezer with a Self-Contained Condensing Unit and without Doors.	ARI Standard 1200–2006[1]	(A) 0 °F (±2 °F) for low temperature applications. (B) 38 °F (±2 °F) for medium temperature applications.
(ix) Commercial Refrigerator, Freezer, and Refrigerator-Freezer with a Remote Condensing Unit.	ARI Standard 1200–2006[1]	(A) 0 °F (±2 °F) for low temperature applications. (B) 38 °F (±2 °F) for medium temperature applications.

[1]Incorporated by reference, see § 431.63.

2.2. Lowest Application Product Temperature. If a unit of commercial refrigeration equipment is not able to be operated at the integrated average temperature specified in the table in paragraph 2.1, test the unit at the lowest application product temperature (LAPT), as defined in § 431.62. For units equipped with a thermostat, LAPT is the lowest thermostat setting. For remote condensing equipment without a thermostat or other means of controlling temperature at the case, the lowest application product temperature is the temperature achieved with the adjusted dew point temperature (as defined in AHRI Standard 1200 (I–P)-2010) set to 5 degrees colder than that required to maintain the manufacturer's lowest specified operating temperature.

3. Volume and Total Display Area

3.1. Determination of Volume. Determine the volume of a commercial refrigerator, freezer, refrigerator-freezer, or ice-cream freezer using the method set forth in the ANSI/AHAM HRF–1–2004, ''Energy, Performance and Capacity of Household Refrigerators, Refrigerator-Freezers and Freezers'' (incorporated by reference, see § 431.63), section 3.21, ''Volume,'' sections 4.1 through 4.3, ''Method for Computing Total Refrigerated Volume and Total Shelf Area of Household Refrigerators and Household Wine Chillers,'' and sections 5.1 through 5.3, ''Method for Computing Total Refrigerated Volume and Total Shelf Area of Household Freezers.''

3.2 Determination of Total Display Area. Determine the total display area of a commercial refrigerator, freezer, refrigerator-freezer, or ice-cream freezer using the method set forth in ARI Standard 1200–2006 (Incorporated by reference, see § 431.63). Specifically, total display area shall be the sum of the projected area(s) of visible product, expressed in ft^2 (*i.e.,* portions through which product can be viewed from an angle normal to the transparent area). See

Figures A3.1, A3.2, and A3.3 as examples of how to calculate the dimensions associated with calculation of total display area. In the diagrams, D_h and L represent the dimensions of the projected visible product.

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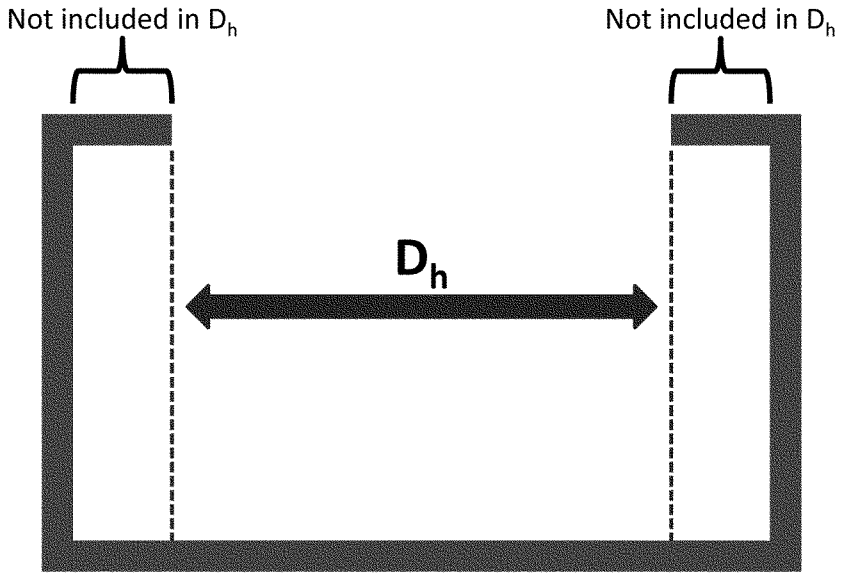

Figure A3.1 Horizontal open display case, where the distance "D_h" is the dimension of the projected visible product.

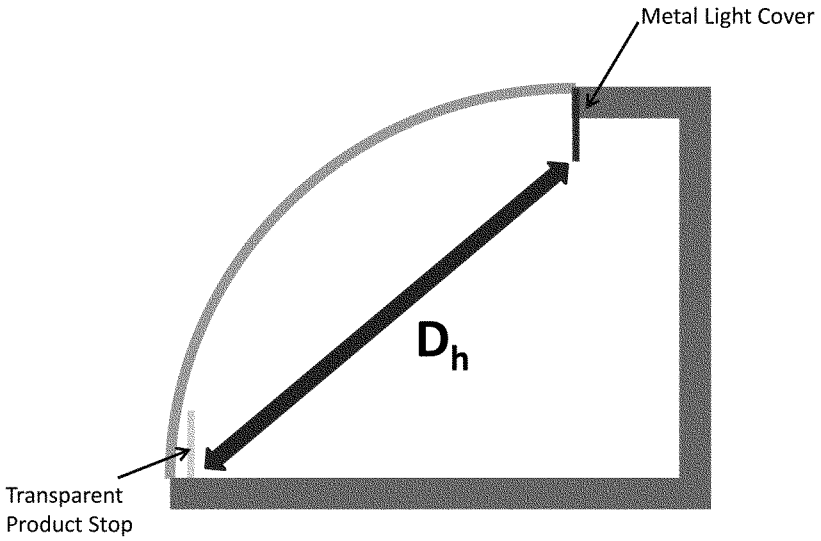

Figure A3.2 Service over counter display case, the distance "D_h" is the dimension of the projected visible product, that being the dimension transverse to the length of the case through which product can be viewed, excluding areas of the product zone that cannot be viewed as part of a direct projection through the glass front.

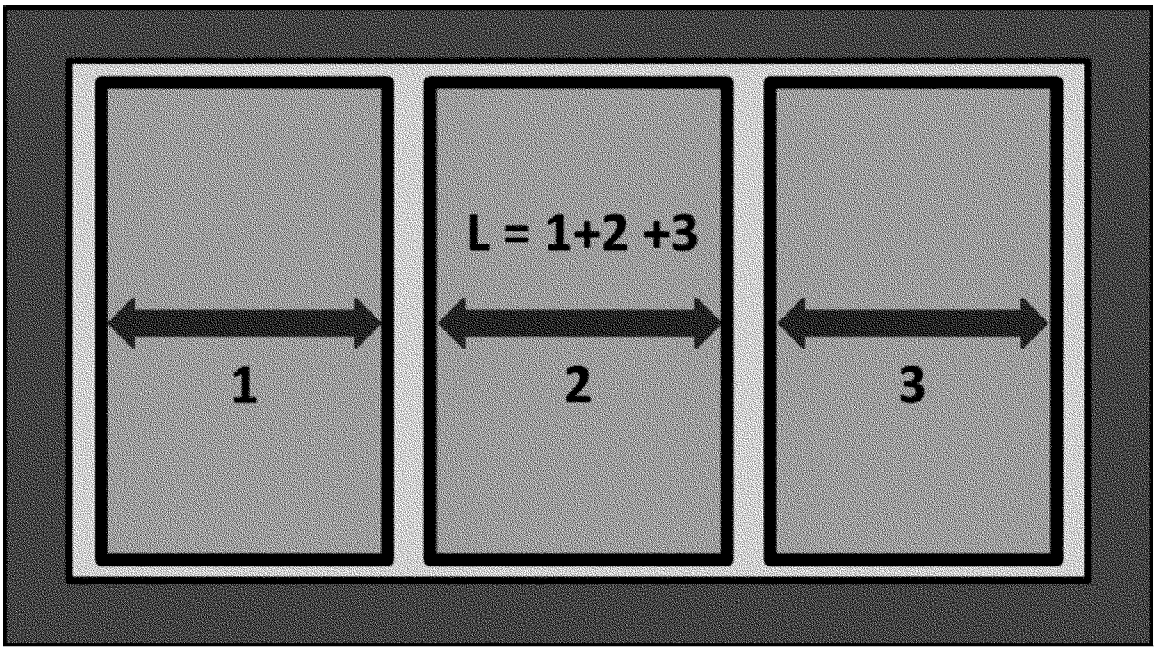

Figure A3.3 Three-door vertical closed transparent display case, where the distance "L" is the collective length of portions of the merchandiser through which product can be seen.

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Appendix B to Subpart C of Part 431—Amended Uniform Test Method for the Measurement of Energy Consumption of Commercial Refrigerators, Freezers, and Refrigerator-Freezers

Note: On or after the compliance date for any amended energy conservation standards for commercial refrigeration equipment, all testing must be conducted in accordance with this appendix for the purposes of determining energy consumption and making representations as to the energy use of covered equipment.

1. Test Procedure

1.1. Determination of Daily Energy Consumption. Determine the daily energy consumption of each covered commercial refrigerator, freezer, refrigerator-freezer or ice-cream freezer by conducting the test procedure set forth in the AHRI Standard 1200 (I–P)–2010, section 3, ''Definitions,'' section 4, ''Test Requirements,'' and section 7, ''Symbols and Subscripts'' (incorporated by reference, see § 431.63). For each commercial refrigerator, freezer, or refrigerator-freezer with a self-contained condensing unit, also use AHRI Standard 1200 (I–P)–2010, section 6, ''Rating Requirements for Self-contained Commercial Refrigerated Display Merchandisers and Storage Cabinets.'' For each commercial refrigerator, freezer, or refrigerator-freezer with a remote condensing unit, also use AHRI Standard 1200 (I–P)–2010, section 5, ''Rating Requirements for Remote Commercial Refrigerated Display Merchandisers and Storage Cabinets.''

1.2. Additional Specifications for Testing of Components and Accessories. All standard components that would be used during normal operation of the basic model in the field shall be installed and used during testing as recommended by the manufacturer and representative of their typical operation in the field unless such installation and operation is inconsistent with any requirement of the test procedure. The specific components and accessories listed in the subsequent sections shall be operated as stated during the test.

1.2.1. Energy Management Systems. Applicable energy management systems may be activated during the test procedure provided they are permanently installed on the case, configured in such a manner so as to operate automatically without the intervention of the operator, and do not conflict with any of other requirements for a valid test as specified in this appendix.

1.2.2. Lighting. All lighting except for customer display signs/lights as described in section 1.2.3 and UV lighting as described in section 1.2.6 of this appendix shall be energized to the maximum illumination level for the duration of testing for commercial refrigeration equipment with lighting except when the unit is equipped with lighting occupancy sensors and controls. If the unit includes an automatic lighting control system, it should be enabled during test. If the unit is equipped with lighting occupancy sensors and controls in should be tested in accordance with paragraph 1.2.2.1 of this appendix.

1.2.2.1. Lighting Occupancy Sensors and Controls. For units with lighting occupancy sensors and/or scheduled lighting controls installed on the unit, determine the effect of the controls/sensors on daily energy consumption by either a physical test or a calculation method and using the variables that are defined as:

CEC_A is the alternate compressor energy consumption (kilowatt-hours);

LEC_{sc} is the lighting energy consumption of internal case lights with lighting occupancy sensors and controls deployed (kilowatt-hours);

P_{li} is the rated power of lights when they are fully on (watts);

$P_{li(off)}$ is the power of lights when they are off (watts);

$P_{li(dim)}$ is the power of lights when they are dimmed (watts);

$TDEC_o$ is the total daily energy consumption with lights fully on, as measured by AHRI Standard 1200 (I–P)–2010 (kilowatt-hours);

t_{dim} is the time period during which the lights are dimmed due to the use of lighting occupancy sensors or scheduled lighting controls (hours);

$t_{dim,controls}$ is the time case lighting is dimmed due to the use of lighting controls (hours);

$t_{dim,sensors}$ is the time case lighting is dimmed due to the use of lighting occupancy sensors (hours);

t_l is the time period when lights would be on without lighting occupancy sensors and/or scheduled lighting controls (24 hours);

t_{off} is the time period during which the lights are off due to the use of lighting occupancy sensors and/or scheduled lighting controls (hours);

$t_{off,controls}$ is the time case lighting is off due to the use of scheduled lighting controls (hours);

$t_{off,sensors}$ is the time case lighting is off due to the use of lighting occupancy sensors (hours); and

t_{sc} is the time period when lighting is fully on with lighting occupancy sensors and scheduled lighting controls enabled (hours).

1.2.2.1.i. For both a physical test and a calculation method, determine the estimated time off or dimmed, t_{off} or t_{dim}, as the sum of contributions from lighting occupancy sensors and scheduled lighting controls that dim or turn off lighting, respectively, as shown in the following equation:

$$t_{off} = t_{off,sensors} + t_{off,controls}$$
$$t_{dim} = t_{dim,sensors} + t_{dim,controls}$$

The sum of t_{sc}, t_{off}, and t_{dim} should equal 24 hours and the total time period during which the lights are off or dimmed shall not exceed 10.8 hours. For cases with scheduled lighting controls, the time the case lighting is off and/or dimmed due to scheduled lighting controls ($t_{off,controls}$ and/or $t_{dim,controls}$, as applicable) shall not exceed 8 hours. For cases with lighting occupancy sensors installed, the time the case lighting is off and/or dimmed due to lighting occupancy sensors ($t_{off,sensors}$ and/or $t_{dim,sensors}$, as applicable) shall not exceed 10.8 hours. For cases with lighting occupancy sensors and scheduled lighting controls installed, the time the case lighting is off and/or dimmed due to lighting occupancy sensors ($t_{off,sensors}$ and/or $t_{dim,sensors}$, as applicable) shall not exceed 2.8 hours and the time the case lighting is off and/or dimmed due to scheduled lighting controls ($t_{off,controls}$ and/or $t_{dim,controls}$, as applicable) shall not exceed 8 hours.

1.2.2.1.ii. If using a physical test to determine the daily energy consumption, turn off the lights for a time period equivalent to t_{off} and dim the lights for a time period equal to t_{dim}. If night curtains are also being tested on the case, the period of lights off and/or dimmed shall begin at the same time that the night curtain is being deployed and shall continue consecutively, in that order, for the appropriate number of hours.

1.2.2.1.iii. If using a calculation method to determine the daily energy consumption–

1.2.2.1.iii.A. Calculate the LEC_{sc} using the following equation:

$$LEC_{sc} = \frac{\left((P_{li} \times t_{sc}) + (P_{li(off)} \times t_{off}) + (P_{li(dim)} \times t_{dim})\right)}{(1000)}$$

1.2.2.1.iii.B. Calculate the CEC_A using the following equation:

$$CEC_A = 0.75 \times \frac{3.4121 \times \left(LEC_{sc} - P_{li} \times {}^{t_l}/_{1000}\right)}{EER}$$

Where EER represents the energy efficiency ratio from Table 1 in AHRI Standard 1200 (I–P)–2010 (incorporated by reference, see § 431.63) for remote condensing equipment or the values shown in the following table for self-contained equipment:

EER FOR SELF-CONTAINED COMMERCIAL REFRIGERATED DISPLAY MERCHANDISERS AND STORAGE CABINETS

Operating temperature class	EER Btu/W
Medium	11
Low	7

EER FOR SELF-CONTAINED COMMERCIAL REFRIGERATED DISPLAY MERCHANDISERS AND STORAGE CABINETS—Continued

Operating temperature class	EER Btu/W
Ice Cream	5

1.2.2.1.iii.C. For remote condensing units, calculate the revised compressor energy consumption (CEC_R) by adding the CEC_A to the compressor energy consumption (CEC) measured in AHRI Standard 1200 (I–P)–2010 (incorporated by reference, see § 431.63). The CDEC for the entire case is the sum of the CEC_R and LEC_{sc} (as calculated above) and the fan energy consumption (FEC), anti-condensate energy consumption (AEC), defrost energy consumption (DEC), and condensate evaporator pan energy consumption (PEC) (as measured in AHRI Standard 1200 (I–P)–2010).

1.2.2.1.iii.D. For self-contained units, the TDEC for the entire case is the sum of total daily energy consumption as measured by the AHRI Standard 1200 (I–P)–2010 (incorporated by reference, see § 431.63) test with the lights fully on ($TDEC_o$) and CEC_A, less the decrease in lighting energy use due to lighting occupancy sensors and scheduled lighting controls, as shown in following equation.

$$TDEC = TDEC_o + CEC_A - \left({}^{[(P]_{li} \times t_l)}/_{1000} - LEC_{sc}\right)$$

1.2.3. Customer display signs/lights. Do not energize supplemental lighting that exists solely for the purposes of advertising or drawing attention to the case and is not integral to the case.

1.2.4 Condensate pan heaters and pumps. All electric resistance condensate heaters and condensate pumps must be installed and operational during the test. This includes the stabilization period (including pull-down), steady-state, and performance testing periods. Prior to the start of the stabilization period as defined by ASHRAE 72–2005, the condensate pan must be dry. Following the start of the stabilization period, allow any condensate moisture generated to accumulate in the pan. Do not manually add or remove water to or from the condensate pan at any time during the test.

1.2.5 Anti-sweat door heaters. Anti-sweat door heaters must be operational during the entirety of the test procedure. Models with a user-selectable setting must have the heaters energized and set to the maximum usage position. Models featuring an automatic, non-user-adjustable controller that turns on or off based on environmental conditions must be operating in the automatic state. If a unit is not shipped with a controller from the point of manufacture and is intended to be used with an automatic, non-user-adjustable controller, test the unit with a manufacturer-recommended controller that turns on or off based on environmental conditions.

1.2.6 Ultraviolet lights. Do not energize ultraviolet lights during the test.

1.2.7 Illuminated temperature displays and alarms. All illuminated temperature displays and alarms shall be energized and operated during the test as they would be during normal field operation.

1.2.8 Condenser filters. Remove any nonpermanent filters provided to prevent particulates from blocking a model's condenser coil.

1.2.9 Refrigeration system security covers. Remove any devices used to secure the condensing unit.

1.2.10 Night curtains and covers. For display cases sold with night curtains installed, the night curtain shall be employed for 6 hours; beginning 3 hours after the start

of the first defrost period. Upon the completion of the 6-hour period, the night curtain shall be raised until the completion of the 24-hour test period.

1.2.11 Grill options. Remove any optional non-standard grills used to direct airflow.

1.2.12 Misting or humidification systems. Misting or humidification systems must be inactive during the test.

1.2.13 Air purifiers. Air purifiers must be inactive during the test.

1.2.14 General purpose outlets. During the test, do not connect any external load to any general purpose outlets contained within a unit.

1.2.15 Crankcase heaters. Crankcase heaters must be operational during the test. If a control system, such as a thermostat or electronic controller, is used to modulate the operation of the crankcase heater, it must be utilized during the test.

2. Test Conditions

2.1. Integrated Average Temperatures. Conduct the testing required in section 1 of this appendix B, and determine the daily energy consumption at the applicable integrated average temperature in the following table.

Category	Test procedure	Integrated average temperature
(i) Refrigerator with Solid Door(s)	AHRI Standard 1200 (I–P)–2010 [1]	38 °F (±2 °F).
(ii) Refrigerator with Transparent Door(s)	AHRI Standard 1200 (I–P)–2010 [1]	38 °F (±2 °F).
(iii) Freezer with Solid Door(s)	AHRI Standard 1200 (I–P)–2010 [1]	0 °F (±2 °F).
(iv) Freezer with Transparent Door(s)	AHRI Standard 1200 (I–P)–2010 [1]	0 °F (±2 °F).
(v) Refrigerator-Freezer with Solid Door(s)	AHRI Standard 1200 (I–P)–2010 [1]	38 °F (±2 °F) for refrigerator compartment. 0 °F (±2 °F) for freezer compartment.
(vi) Commercial Refrigerator with a Self-Contained Condensing Unit Designed for Pull-Down Temperature Applications and Transparent Doors.	AHRI Standard 1200 (I–P)–2010 [1]	38 °F (±2 °F).
(vii) Ice-Cream Freezer	AHRI Standard 1200 (I–P)–2010 [1]	−15.0 °F (±2 °F).
(viii) Commercial Refrigerator, Freezer, and Refrigerator-Freezer with a Self-Contained Condensing Unit and without Doors.	AHRI Standard 1200 (I–P)–2010 [1]	(A) 0 °F (±2 °F) for low temperature applications. (B) 38.0 °F (±2 °F) for medium temperature applications.
(ix) Commercial Refrigerator, Freezer, and Refrigerator-Freezer with a Remote Condensing Unit.	AHRI Standard 1200 (I–P)–2010 [1]	(A) 0 °F (±2 °F) for low temperature applications. (B) 38.0 °F (±2 °F) for medium temperature applications.

[1] Incorporated by reference, see § 431.63.

2.2. Lowest Application Product Temperature. If a unit of commercial refrigeration equipment is not able to be operated at the integrated average temperature specified in the table in paragraph 2.1 of this appendix, test the unit at the lowest application product temperature (LAPT), as defined in § 431.62. For many units of equipment, LAPT is the lowest thermostat setting. For remote condensing equipment without a thermostat or other means of controlling temperature at the case, the lowest application product temperature is the temperature achieved with the adjusted dew point temperature (as defined in AHRI Standard 1200 (I–P)–2010) set to 5 degrees colder than that required to maintain the manufacturer's lowest specified application temperature.

2.3. Testing at NSF Test Conditions. For commercial refrigeration equipment that is also tested in accordance with NSF test procedures (Type I and Type II), integrated average temperatures and ambient conditions used for NSF testing may be used in place of the DOE-prescribed integrated average temperatures and ambient conditions provided they result in a more stringent test. That is, the measured daily energy consumption of the same unit, when tested at the rating temperatures and/or ambient conditions specified in the DOE test procedure, must be lower than or equal to the measured daily energy consumption of the unit when tested with the rating temperatures or ambient conditions used for NSF testing. The integrated average temperature measured during the test may be lower than the range specified by the DOE applicable temperature specification provided in paragraph 2.1 of this appendix, but may not exceed the upper value of the specified range. Ambient temperatures and/or humidity values may be higher than those specified in the DOE test procedure.

3. Volume and Total Display Area

3.1. Determination of Volume. Determine the volume of a commercial refrigerator, freezer, refrigerator-freezer, or ice-cream freezer using the method set forth in the HRF–1–2008 (incorporated by reference, see § 431.63), section 3.30, ''Volume,'' and sections 4.1 through 4.3, ''Method for Computing Refrigerated Volume of Refrigerators, Refrigerator-Freezers, Wine Chillers and Freezers.''

3.2 Determination of Total Display Area. Determine the total display area of a commercial refrigerator, freezer, refrigerator-freezer, or ice-cream freezer using the method set forth in AHRI Standard 1200 (I–P)–2010 (Incorporated by reference, see § 431.63). Specifically, total display area shall be the sum of the projects area(s) for visible product, expressed in ft^2 (*i.e.,* portions through which product can be viewed from an angle normal to the transparent area). See Figures B3.1, B3.2, and B3.3 as examples of how to calculate the dimensions associated with calculation of total display area. In the diagrams, D_h and L represent the dimensions of the projected visible product.

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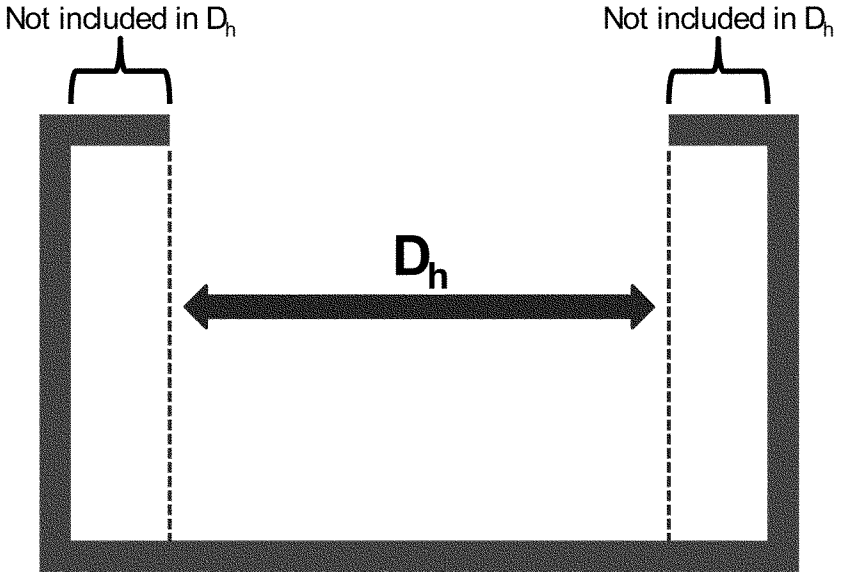

Figure B3.4 Horizontal open display case, where the distance "D_h" is the dimension of the projected visible product.

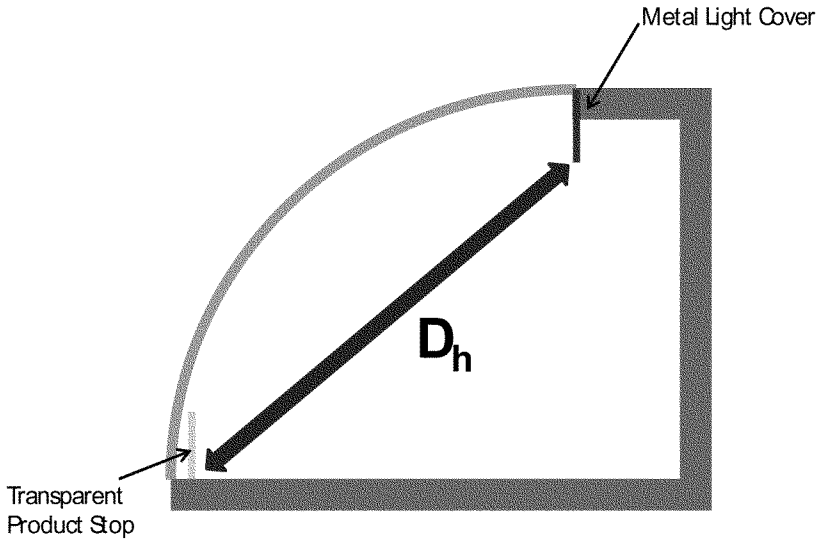

Figure B3.5 Service over counter display case, the distance "D_h" is the dimension of the projected visible product, that being the dimension transverse to the length of the case through which product can be viewed, excluding areas of the product zone that cannot be viewed as part of a direct projection through the glass front.

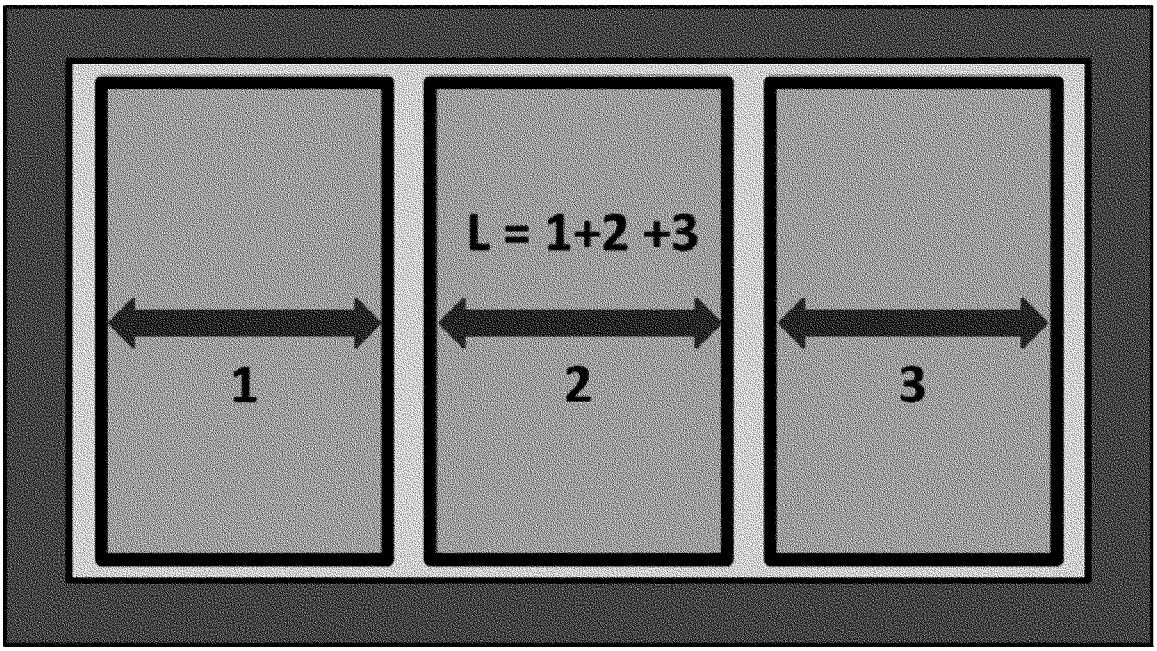

Figure B3.6 Three-door vertical closed transparent display case, where the distance "L" is the collective length of portions of the merchandiser through which product can be seen.

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