DEPARTMENT OF ENERGY

[Case Number 2021-004; EERE-2021-BT-WAV-0009]

Energy Conservation Program: Notification of Petition for Waiver of GE Appliances, a Haier Company, from the Department of Energy Miscellaneous Refrigeration Products Test Procedure

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

ACTION: Notification of petition for waiver; request for comments.

SUMMARY: This notification announces receipt of and publishes a petition for waiver from GE Appliances, a Haier Company, which seeks a waiver for a specified miscellaneous refrigeration product basic model from the U.S. Department of Energy ("DOE") test procedure used for determining the energy consumption of these products. DOE solicits comments, data, and information concerning the petition and its suggested alternate test procedure so as to inform DOE's final decision on the waiver request.

DATES: Written comments and information are requested and will be accepted on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *www.regulations.gov*. Alternatively, interested persons may submit comments, identified by docket number EERE-2021-BT-WAV-0009, by any of the following methods:

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

2. *E-mail*: to *AS_Waiver_Requests@ee.doe.gov*. Include docket number EERE-2021-BT-WAV-0009 in the subject line of the message.

No telefacsimiles ("faxes") will be accepted. For detailed instructions on submitting comments and additional information on this process, see the "**SUPPLEMENTARY INFORMATION**" section of this document.

Although DOE has routinely accepted public comment submissions through a variety of mechanisms, including postal mail and hand delivery/courier, the Department has found it necessary to make temporary modifications to the comment submission process in light of the ongoing coronavirus disease 2019 ("COVID-19") pandemic. DOE is currently suspending receipt of public comments via postal mail and hand delivery/courier. If a commenter finds that this change poses an undue hardship, please contact Appliance Standards Program staff at (202) 586-1445 to discuss the need for alternative arrangements. Once the COVID-19 pandemic health emergency is resolved, DOE anticipates resuming all of its regular options for public comment submission, including postal mail and hand delivery/courier.

Docket: The docket, which includes *Federal Register* notices, comments, and other supporting documents/materials, is available for review at *www.regulations.gov*. All documents in the docket are listed in the *www.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.

The docket web page can be found at *www.regulations.gov/docket/EERE-2021-BT-WAV-0009*. The docket web page contains instruction on how to access all documents, including public comments, in the docket. See the "**SUPPLEMENTARY INFORMATION**" section for information on how to submit comments through *www.regulations.gov*.

FOR FURTHER INFORMATION CONTACT: Ms. Julia Hegarty, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, Mailstop EE-5B, 1000 Independence Avenue, SW., Washington, DC 20585-0121. E-mail: *AS_Waiver_Request@ee.doe.gov*.

Mr. Michael Kido, U.S. Department of Energy, Office of the General Counsel, Mail Stop GC-33, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585-0103. Telephone: (202) 586-8145. E-mail: *Michael.Kido@hq.doe.gov*.

SUPPLEMENTARY INFORMATION: DOE is publishing GEA's petition for waiver in its entirety, pursuant to 10 CFR 430.27(b)(1)(iv).[1] DOE invites all interested parties to submit in writing by [**INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER***], comments and information on all aspects of the petition, including the alternate test procedure. Pursuant to 10 CFR 430.27(d), any person submitting written comments to DOE must also send a copy of such comments to the petitioner. The contact information for the petitioner is:

John T. Schlafer, GE Appliances, A Haier Company, Appliance Park – AP2-225, Louisville, KY 40225. E-mail: *john.schlafer@geappliances.com*.

Submitting comments via www.regulations.gov. The *www.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

[1] The petition did not identify any of the information contained therein as confidential business information.

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. If this instruction is followed, 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 *www.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 *www.regulations.gov* cannot be claimed as CBI. Comments received through the website 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 *www.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 *www.regulations.gov* provides after you have successfully uploaded your comment.

Submitting comments via email. Comments and documents submitted via email also will be posted to *www.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. Faxes will not 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 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. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

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).

I. Background and Authority

The Energy Policy and Conservation Act, as amended ("EPCA"),[2] authorizes the U.S. Department of Energy ("DOE") to regulate the energy efficiency of a number of consumer products and certain industrial equipment. (42 U.S.C. 6291–6317) Title III, Part B[3] of EPCA, Pub. L. 94-163, as amended (42 U.S.C. 6291-6309, as codified), established the Energy Conservation Program for Consumer Products Other Than Automobiles, which, in addition to identifying particular types of consumer products and commercial equipment as covered under the statute, permits the Secretary of Energy to classify additional types of consumer products as covered products. (42 U.S.C. 6292(a)(20)) DOE added miscellaneous refrigeration products ("MREFs") as covered products through a final determination of coverage published in the *Federal Register* on July 18, 2016 (the "July 2016 Final Rule"). 81 FR 46768. *Id*.

The energy conservation program under EPCA consists essentially of four parts: (1) testing, (2) labeling, (3) Federal energy conservation standards, and (4) certification and enforcement procedures. Relevant provisions of EPCA include definitions (42 U.S.C. 6291), test procedures (42 U.S.C. 6293), labeling provisions (42 U.S.C. 6294), energy conservation standards (42 U.S.C. 6295), and the authority to require information and reports from manufacturers (42 U.S.C. 6296).

[2] All references to EPCA in this document refer to the statute as amended through the Energy Act of 2020, Pub. L. 116-260 (Dec. 27, 2020).
[3] For editorial reasons, upon codification in the U.S. Code, Part B was redesignated as Part A.

The Federal testing requirements consist of test procedures that manufacturers of covered products must use as the basis for: (1) certifying to DOE that their products comply with the applicable energy conservation standards adopted pursuant to EPCA (42 U.S.C. 6295(s)), and (2) making representations about the efficiency of that product (42 U.S.C. 6293(c)). Similarly, DOE must use these test procedures to determine whether the covered product complies with relevant standards promulgated under EPCA. (42 U.S.C. 6295(s))

Under 42 U.S.C. 6293, EPCA sets forth the criteria and procedures DOE is required to follow when prescribing or amending test procedures for covered products. EPCA requires that any test procedures prescribed or amended under this section must be reasonably designed to produce test results which reflect the energy efficiency, energy use or estimated annual operating cost of a covered product during a representative average use cycle or period of use and requires that test procedures not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3))

MREFs are consumer refrigeration products other than refrigerators, refrigerator-freezers, or freezers. These products include coolers and combination cooler refrigeration products. 10 CFR 430.2. A "cooler" is a cabinet, used with one or more doors, that has a source of refrigeration capable of operating on single-phase, alternating current and is capable of maintaining compartment temperatures either: (1) no lower than 39 °F (3.9 °C); or (2) in a range that extends no lower than 37 °F (2.8 °C) but at least as high as 60 °F (15.6 °C) as determined according to the applicable DOE test procedure. The test procedure for MREFs is contained in the Code of Federal Regulations ("CFR") at 10 CFR part 430, appendix A to subpart B of part 430—Uniform Test Method for Measuring the Energy Consumption of Refrigerators, Refrigerator-Freezers, and Miscellaneous Refrigeration Products ("Appendix A").

Under 10 CFR 430.27, any interested person may submit a petition for waiver from DOE's test procedure requirements. DOE will grant a waiver from the test procedure requirements if DOE determines either that the basic model for which the waiver was requested contains a design characteristic that prevents testing of the basic model according to the prescribed test procedures, or that the prescribed test procedures evaluate the basic model in a manner so unrepresentative of its true energy consumption characteristics as to provide materially inaccurate comparative data. 10 CFR 430.27(f)(2). A petitioner must include in its petition any alternate test procedures known to the petitioner to evaluate the performance of the product type in a manner representative of the energy consumption characteristics of the basic model. 10 CFR 430.27(b)(1)(iii). DOE may grant the waiver subject to conditions, including adherence to alternate test procedures. 10 CFR 430.27(f)(2).

As soon as practicable after the granting of any waiver, DOE will publish in the *Federal Register* a notice of proposed rulemaking to amend its regulations so as to eliminate any need for the continuation of such waiver. 10 CFR 430.27(l). As soon thereafter as practicable, DOE will publish in the *Federal Register* a final rule to that effect. *Id*.

The waiver process also provides that DOE may grant an interim waiver if it appears likely that the underlying petition for waiver will be granted and/or if DOE determines that it would be desirable for public policy reasons to grant immediate relief pending a determination on the underlying petition for waiver. 10 CFR 430.27(e)(2). Within one year of issuance of an interim waiver, DOE will either: (i) publish in the *Federal Register* a determination on the petition for waiver; or (ii) publish in the *Federal Register* a new or amended test procedure that addresses the issues presented in the waiver. 10 CFR 430.27(h)(2).

If DOE ultimately denies the petition for waiver, DOE will provide a period of 180 days before the manufacturer is required to use the DOE test procedure to make representations of energy efficiency. 10 CFR 430.27(i). When DOE amends the test procedure to address the issues presented in a waiver, the waiver will automatically terminate on the date on which use of that test procedure is required to demonstrate compliance. 10 CFR 430.27(h)(3).

II. GEA's April 2021 Petition for Waiver and Interim Waiver

On April 9, 2021, DOE received from GE Appliances, a Haier Company ("GEA") a petition (dated April 8, 2021) for waiver and interim waiver from the test procedure for MREFs set forth at appendix A to subpart B of 10 CFR part 430. (GEA, No. 1 at p. 1)[4] Pursuant to 10 CFR 430.27(e)(i), DOE posted the petition on the DOE website at: *www.regulations.gov/document/EERE-2021-BT-WAV-0009-0001*.[5]

The specific basic model subject to the petition was "S-IHG-R", which GEA described as an "In-Home Grower"—a product with lighting, temperature, humidity, and nutrient water control that allows the user to grow plants within their home year-round. GEA stated that the average compartment temperatures of the In-Home Grower exceed the 55 °F standardized temperature required for testing under the existing DOE test procedure (see section 3.2 of appendix A) and, therefore, the product cannot be tested using the existing test procedure. GEA also described characteristics of this basic model that GEA stated would prevent the use of certain test setup, stabilization, temperature control, and energy use determination requirements in appendix A. (GEA, No. 1 at pp. 3-4)

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[4] A notation in this form provides a reference for information that is in the docket for this test procedure waiver (Docket No. EERE-2021-BT-WAV-0009) (available at *www.regulations.gov/docket/EERE-2021-BT-WAV-0009*). This notation indicates that the statement preceding the reference is document number 1 in the docket and appears at page 1 of that document.

[5] The petition did not identify any of the information contained therein as confidential business information.

In its April 8, 2021 petition, GEA submitted to DOE an alternate test procedure to determine the energy consumption of its In-Home Grower. (GEA, No. 1 at p. 6) GEA stated that its alternate test procedure would allow for the measurement of the energy use of this product where the requirements of the current DOE test procedure cannot be met. DOE received a follow-up correspondence from GEA on April 26, 2021, which provided a revised alternate test procedure.[6] DOE reviewed the alternate test procedure included in the April 26, 2021 correspondence as the requested alternate test approach when making the initial determination on the petition for waiver and interim waiver. GEA also provided additional correspondence on June 2, 2021, in which it clarified certain aspects of the proposed alternate test procedure included in the April 26, 2021 submission.[7] In the April 26, 2021, correspondence, GEA requested an alternate test approach in which two tests would be conducted for the subject basic model: one with the model operating as "normal," and the other with the refrigeration system disabled to allow for identifying the energy contribution of the cooling system. GEA stated that the main purpose of the cooling system is to counteract the heat generated from the internal lighting, and that the requested alternate test procedure would be used to determine the energy consumption of the cooling system only. (GEA, No. 2 at p. 4)

On July 7, 2021, DOE published a notification of petition for waiver and denial of an interim waiver for the alternative test approach described by GEA in its April 26, 2021 correspondence. 86 FR 35766. In that notification, DOE acknowledged that, based upon GEA's petition, absent an interim waiver, GEA's In-Home Grower cannot be tested and rated for energy consumption according to the MREF test procedure on a basis representative of its true energy consumption characteristics. *Id.* at 86 FR 35768. However, DOE tentatively determined that

[6] This document can be found in the docket for this test procedure waiver under Document No. 002.
[7] This document can be found in the docket for this test procedure waiver under Document No. 003.

GEA's proposed alternative test procedure would not result in a measurement of the energy use of the basic model that is representative of an average use cycle or period of use, and therefore the petition for waiver was unlikely to be granted as submitted. *Id*. Specifically, DOE determined that the requested test approach to isolate the refrigeration system energy consumption would not provide a representative measurement of energy use for the basic model during an average use cycle or period of use. 86 FR 35766, 35770. DOE requested comment on all aspects of the petition, including the suggested alternate test procedure and calculation methodology. *Id.*

III. GEA's September 2021 Petition for Waiver

On September 17, 2021, GEA submitted to DOE a new petition for waiver ("September 2021 petition for waiver") for the same basic model with a revised alternate test approach.[8] The following two sections discuss specific aspects of GEA's September 2021 petition for waiver.

A. Requirements Sought to be Waived

GEA requested to waive the current test procedure, calculations, and accompanying conditions for testing coolers as specified in section 6.2.2 of appendix A. GEA asserted that the In-Home Grower is fundamentally different from all other known miscellaneous refrigeration products. The primary assertion of the petition is that the basic model for which the waiver was requested contains design characteristics that prevent testing of the basic model according to the prescribed DOE MREF test procedure. GEA states that the In-Home Grower, when tested at its coldest setting in a 90 °F ambient temperature, cannot achieve the 55 °F standardized temperature required for the DOE MREF test procedure (see section 3.2 of appendix A). GEA stated that its testing in a 90 °F ambient condition resulted in compartment temperatures of 79.90 °F and 79.97 °F.

[8] This document can be found in the docket for this test procedure waiver under Document No. 006.

The DOE test procedure at appendix A simulates typical room conditions (72 °F) with door openings, by testing at 90 °F without door openings. 10 CFR 430.23(ff)(7). The test procedure directly measures the energy consumed during steady-state operation and defrosts, if applicable. Additionally, the DOE test procedure incorporates usage adjustment factors to account for differences in these user-related thermal loads for different types of consumer refrigeration products (*i.e.*, MREFs are typically used less frequently than a primary refrigerator-freezer in a household and thus have an adjustment factor of 0.55). See section 5.2.1.1 of appendix A.

GEA states that there is no need to elevate the ambient temperature for the test to account for door openings and loads because the In-Home Grower has a very low number of door openings and, after the initial loading with plants, will typically not have additional loads introduced. GEA seeks to waive the requirement for testing the In-Home Grower at a 90 °F ambient condition. See section 2.1.1 of appendix A. GEA instead requests to test the In-Home Grower in a 72 °F ambient condition, which it asserts better represents typical use of the product. GEA further stated that testing at a 72 °F ambient with the product temperature set to 60 °F (the minimum temperature set point) yields compartment temperatures between 59.15 and 61.41 °F. GEA also seeks to waive the requirement in section 6.2.2 of appendix A that performance be calculated at a standardized compartment temperature of 55 °F, since the In-home Grower is not capable of maintaining the 55 °F standardized compartment temperature specified in appendix A. Instead, GEA requests that the model be tested in the 72 °F ambient condition using default settings.

Additionally, GEA seeks to waive the existing DOE test procedure requirement to measure the internal compartment temperatures of the unit under test. See section 5.1 of

appendix A. GEA claims that the rotation of the compartments significantly increases the test burden of temperature measurements, as the thermocouple wires would require a customized testing setup to avoid tangling of the wires and movement of the temperature masses. Under GEA's requested approach, compartment temperature measurements would not be necessary because no interpolation would be made to reflect performance at the standardized 55 °F compartment temperature. (GEA, No. 6 at p. 4)

GEA also seeks to waive the stabilization and test period requirements specified in sections 2.9 and 4 of appendix A, respectively. Specifically, GEA requests an 8-hour stabilization period (the duration of each rotation) and 24-hour test period (the duration of one full rotation) based on the rotation of the internal compartments, rather than based on compressor cycling as specified in appendix A. (GEA, No. 6 at p. 4)

B. Requested Alternate Test Procedure

GEA seeks to use an alternate test procedure to test and rate a specific MREF basic model. GEA's requested alternate test procedure addresses the test procedure requirements to be waived as discussed in the previous section of this document. GEA's requested approach also includes additional test instructions regarding setup and settings instructions.

Because the In-Home Grower supplies water and nutrients to plants during normal operation, GEA's suggested alternate test procedure provides instructions for filling nutrient tanks with ambient-temperature water prior to the start of the test.

The proposed alternate test approach also provides instructions for product settings, as the suggested test procedure would not be based on the product maintaining compartment temperature to the 55 °F standardized compartment temperature specified in appendix A.

Specifically, GEA requests that the In-Home Grower be controlled via use of an application on a connected device and that the product be operated using default settings.

In summary, GEA's suggested alternate test procedure would measure the daily energy consumption of the basic model by providing:

(1) Directions for filling the nutrient water tanks with water at ambient temperature;

(2) A specific stabilization period of 8 hours (in place of the requirements of section 2.9 of appendix A);

(3) A specific test period of 24 hours (in place of the test period described in section 4.1 of appendix A);

(4) An ambient test condition of 72 °F (in place of the requirement in section 2.1.1 of appendix A);

(5) That no compartment temperature measurements be taken during the test (in place of the requirements in section 5.1 of appendix A); and

(6) That the product be controlled using an application from a connected device and operated using default settings. (GEA, No. 6 at p. 6)

IV. DOE Response and Request for Comments

As the September 17, 2021 petition is for the same basic model that is the subject of the petition addressed in the July 7, 2021 *Federal Register* notification, DOE is treating the September 17, 2021 petition as an amendment to the prior petition. DOE reiterates its determination from the July 7, 2021 notification that based on GEA's description of the In-Home Grower, the basic model meets the definition of a cooler in 10 CFR 430.2 for the following reasons:

1. The product consists of a cabinet used with one or more glass doors, as specified by GEA; and

2. The product maintains compartment temperatures no lower than 39 °F, as determined when tested in a 90 °F ambient temperature, as GEA specified that the compartment temperatures measured 79.90 °F and 79.97 °F under these conditions at the minimum temperature setting.

86 FR 35766, 35768.

The definition for cooler at 10 CFR 430.2 does not reference a specific design intent (such as storage of food or beverages) and does not require that the product be capable of maintaining a compartment temperature of 55 °F when tested in a 90 °F ambient temperature. *Id.* While DOE maintains its determination that the subject basic model meets the definition of a cooler in 10 CFR 430.2, DOE acknowledges the significant differences between this basic model and typical MREFs (and more specifically, coolers).[9] Based on the product design and operation details provided by GEA, DOE has tentatively determined that the basic model under consideration is substantially different than the coolers considered in the analysis used to develop the current cooler standards. DOE considered products for which the refrigeration systems were the main source of energy consumption, and in these products the primary purpose of the refrigeration system is to remove heat that enters the cooler compartment from the outside (*i.e.*, through the walls of the cabinet) in order to maintain the compartment at a temperature lower than the ambient temperature (see chapter 3 of the technical support document to the 2016 direct final rule, document number EERE-2011-BT-STD-0043-0118 found online at *www.regulations.gov*). However, the GEA basic model under question includes an array of lights that are used to facilitate plant growth, but which generate heat, such that the primary purpose of the refrigeration system is to remove heat that is generated internally within the

[9] GEA stated in its September 17, 2021, petition for waiver that the subject basic model is fundamentally different from all other known MREFs. Specifically, GEA stated that: (1) the product has a fundamentally different purpose than other MREFs, which are for cooling and storing beverages and food; (2) the primary purpose of the refrigeration system in the product is humidity control; (3) because the product operates at or near ambient temperature, the product is uninsulated, unlike all other known MREFs, which are insulated; and (4) the product contains grow lighting, which both consumes energy and adds heat to the product.

compartment in order to maintain the compartment at approximately the same temperature as the ambient temperature. Based on this difference in function from the other cooler products addressed by DOE's regulations, the design changes that would improve the efficiency of the subject basic model (*e.g.*, reducing lighting energy use, improving heat transfer through the cabinet walls to allow heat to be more easily transferred out of the cabinet) are significantly different than those considered for coolers during the 2016 rulemaking analysis (*e.g.*, increasing refrigeration system efficiency, improving cabinet insulation to reduce heat transfer through the cabinet walls). Therefore, DOE has tentatively determined that the current cooler energy conservation standards are not applicable to the subject basic model.

This approach is not dissimilar from prior actions taken by DOE to address products or equipment that had not been contemplated under the regulatory framework set out by DOE. For example, in the case of commercial refrigeration equipment, DOE has previously indicated that salad bars, buffet tables, and other refrigerated holding and serving equipment meet the definition of commercial refrigeration equipment. But these equipment operate in a unique manner compared to the other commercial refrigeration equipment that DOE considered when establishing its test procedures and standards. Nevertheless, DOE has determined that salad bars, buffet tables, and other refrigerated holding and serving equipment are covered as commercial refrigeration equipment, but that the current energy conservation standards do not apply to them. 79 FR 22277, 22281 (April 21, 2014).

DOE's 2009 beverage vending machines ("BVM") energy conservation standards rulemaking and the 2007 distribution transformer energy conservation standards rulemaking are also examples of prior instances where DOE determined that covered products or equipment would not be subject to standards due to their unique design or operation. 81 FR 44914, 44920 (Aug. 31, 2009); 72 FR 58190, 58197 (Oct. 12, 2007).

When DOE initially considered energy conservation standards for BVMs, DOE did not consider combination vending machines as a separate equipment class, but instead considered that equipment with all other Class A and Class B BVMs. DOE later recognized that combination vending machines offered a distinct utility (*i.e.*, storage and vending of refrigerated and unrefrigerated merchandise) and concluded that those machines were a separate class of BVMs. DOE decided to not set standards for the equipment class at that time and reserved standards for combination vending machines (indicating that the Class A and Class B BVM standards were not applicable to combination vending machines) and modified the definition of Class A and Class B BVMs to accommodate a definition for combination vending machines. 74 FR 44914, 44920 (Aug. 31, 2009).

Similarly, in the 2007 energy conservation standards rulemaking for distribution transformers, DOE clarified that although underground mining distribution transformers are within the scope of coverage, it recognized that mining transformers were subject to unique and extreme dimensional constraints that impacted their efficiency and performance capabilities and did not establish energy conservation standards for underground mining transformers. In the final rule, DOE established a separate equipment class for mining transformers with the intent to develop the analysis required to establish an appropriate energy conservation standard in the future. 72 FR 58190, 58197 (Oct. 12, 2007). DOE later reached a similar conclusion in 2013 when it decided again not to establish standards for mining distribution transformers. 78 FR 23336, 23353-23354 (Apr. 18, 2013).

Accordingly, in light of these examples, DOE's tentative views with respect to the applicability of standards to the products at issue are consistent with its past approach in addressing novel products and equipment.

DOE understands, based upon GEA's petition, that absent a waiver, GEA's In-Home Grower cannot be tested and rated for energy consumption according to the MREF test procedure on a basis representative of its true energy consumption characteristics.

DOE has reprinted the September 17, 2021 petition for waiver, including the suggested alternate test procedure, at the end of this notification. DOE may consider including this alternate procedure, or a modified version of this alternate procedure, in a subsequent Decision and Order. DOE solicits comments from interested parties on all aspects of the petition, including the suggested alternate test procedure.

Signing Authority

This document of the Department of Energy was signed on November 9, 2021, by Kathleen B. Hogan, Acting Under Secretary for Science and Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed in Washington, DC, on November 9, 2021

Treena V. Garrett,
Federal Register Liaison Officer,
U.S. Department of Energy.

John Schlafer
Senior Counsel
Appliance Park – AP2
Louisville, KY 40225
T: (502) 452-7603
john.schlafer@geappliances.com

September 17, 2021

Via Email (AS_Waiver_Requests@ee.doe.gov)

Ms. Lucy deButts
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Building Technologies Office
1000 Independence Avenue, SW
Mailstop EE-5B
Washington, DC 20585-0121

Re: Petition for Waiver Regarding Test Procedures for Measuring the Energy Consumption of an In-Home Grower Product

Dear Ms. deButts:

GE Appliances, a Haier company (GEA) respectfully submits this Petition for Waiver requesting an alternate test procedure from the Department of Energy's (DOE) test procedure for Miscellaneous Refrigeration Products in 10 CFR 430 Subpart B, Appendix A. GEA's request is for a new product that allows users to grow plants within their home the entire year, known as an In-Home Grower. The product is designed to be used in an indoor, temperature-controlled environment with room temperatures from 60 °F to 80 °F. The product provides the lighting, temperature and humidity control, and nutrient water to grow an array of plants. As detailed below, there are numerous reasons that the existing DOE miscellaneous refrigeration products test procedures is not appropriate or impossible to use for the In-Home Grower.

1. About GE Appliances

GEA is a leading US manufacturer of home appliances. GEA offers a full suite of major appliances across seven brands as well as portable appliances. GEA has been a participant in and contributor to the DOE's home appliance energy conservation program since its founding more than 40 years ago. Indeed, GEA supports the goal of the appliance efficiency program: maximizing energy savings improvements that offer consumers real economic benefits and that do not diminish product performance. GEA devotes substantial resources to the development of new technologies to increase energy efficiency where they are feasible and engineering products to meet the demanding DOE energy efficiency requirements. GEA manufactures a substantial portion of its refrigerator products at its manufacturing facilities in Louisville, KY, Decatur, AL, and Selmer, TN. The products covered by this waiver request will be manufactured in the United States.

2. Basic Models for Which a Waiver is Requested

There is no existing Product Class for the In-Home Grower. The Basic Model is S-IHG-R. The basic model will be distributed in commerce under the brand name "Profile".

The In-Home Grower allows the user to grow plants within their home year-round. The product provides the lighting, temperature and humidity control and nutrient water needed to grow an array of plants. The product is designed to be in a controlled environment with room temperature from 60 to 80 °F.

The product has a circular grow tower that is in the center of the product. The tower is divided into three equal-sized vertical sections, each comprising 1/3rd of a circular cross section (see Figure 1 below).[10]

[Figure]
Figure 1. Top View of In-Home Grower.

On each of the three sides of the tower are gardens. The three sides of the tower meet up with the curved interior walls of the product cabinet to create three chambers within the product. The tower rotates every eight hours. Each time the tower rotates, a section of the tower enters a new chamber. The front chamber is called the display chamber. This is the side of the garden the owner will see through the front glass doors. In the display chamber, there is no grow lighting. The back right and back left chambers are individually controlled for grow lighting, temperature, and humidity.

The product is primarily controlled by a smart-phone application and connection to the app is obtained through WiFi networking capabilities built into the product.

The grow lighting in the product is LED lighting. The lighting systems uses lamps with a variety of color spectrums. The selection and layout of these lamps is designed to optimize plant growth while minimizing energy consumption.

The product utilizes a vapor-compression cooling system that is primarily intended to control humidity in the product, but which also removes excess heat generated by the grow-lighting system in the rear two chambers.

3. Design Characteristic Constituting Grounds for the Petition

There are multiple reasons why the existing MREF test procedure at 10 CFR 430 Subpart B, Appendix A is either impossible to use or inappropriate to use for the In-Home Grower.

a. Even at the product's coldest setting, the internal compartment temperature does not reach the reference temperature of 55 °F for a miscellaneous refrigeration product when it is run in a 90 °F ambient. Per Table 1 in 10 CFR 430 Subpart B, Appendix A, Section 3.2.1.3, when this condition occurs, "No Energy Use Rating can be established under the existing test procedure". Therefore, interpolation to 55 °F is not possible, and the existing DOE interpolation method cannot be used to establish a test result.

b. There is no need to test at an elevated ambient temperature to account for door openings and loading as is the case with the current DOE miscellaneous refrigeration products test procedure. This is true for the following reasons.

i. The In-Home Grower is designed to operate with an internal temperature between 60 °F and 80 °F.

[10] Product images provided with petition may be found at Docket No. EERE-2021-BT-WAV-0009 at *www.regulations.gov/docket/EERE-2021-BT-WAV-0009*.

ii. Once loaded with plants, there are a minimal amount of door openings as the product is intended to grow the plants until they are grown and ready for use.

iii. Since the internal temperatures are closer to the ambient temperature, any door openings that did occur would only result in minimal heat addition to the interior.

c. The product has rotating compartments which makes taking internal temperature measurements burdensome if not impossible. Thermocouple wires for refrigeration tests run from inside the unit being tested to a panel box affixed to a wall. The internal compartments of the In-Home Grower rotate during operation. Unique fixtures and test setup would be required to avoid tangling of the wires, movement of the thermocouples, or pulling the wires out of the panel box.

d. The test procedure lacks appropriate setup provisions for this remotely controlled product that requires initial cycle selection and activation.

e. The product is fundamentally different from all other known miscellaneous refrigeration products. These differences include, but are not limited to, the following.

i. The product has a fundamentally different purpose than other miscellaneous refrigeration products, which are for cooling and storing beverages and food.

ii. The primary purpose of the refrigeration system in the product is humidity control.

iii. Because the product operates at or near ambient temperature, the product is uninsulated. This is unlike all other known miscellaneous refrigeration products, which are insulated.

iv. The product contains grow lighting, which both consumes energy and adds heat to the product.

4. Requirements Sought to be Waived

GEA seeks to replace the current test procedure in Appendix A for Coolers, section 6.2.2, with the accompanying test conditions specified in Exhibit A, attached, for the In-Home Grower.

Instead of a 90 °F ambient, GEA has specified a 72 °F ± 1.0 °F ambient for the testing. This is representative of usage as the product is designed to be placed in an indoor, conditioned space with an ambient between 60 and 80 °F. Also, as stated above, there is no need to elevate the ambient for the test to account for door openings and loads as the product has a very low number of door openings and, after the initial loading with plants, will typically not have additional loads introduced.

The proposed test procedure does not have internal temperature measurements. Based on internal testing in a 90 °F environment, the internal temperatures of the two controlled compartments, at its coldest setting were 79.90 °F and 79.97 °F, well above the 55 °F reference temperature of the DOE MREF test procedure. Also, the rotation of the compartments significantly increases the test burden of temperature measurements as the thermocouple wires would require a setup to avoid tangling of the wires and movement of the temperature masses.

This product has no defrosting capabilities and can be tested similarly to a non-automatic defrost refrigerator. In order to capture a complete cycling of the growing chambers, GEA is proposing a test that has an 8-hour stabilization period followed by a 24-hour test period. The growing chambers rotate 120° every 8 hours. This comprises one rotation for stability and three rotations for the test period.

5. Manufacturers of All Other Basic Models with Similar Design Characteristics

To GEA's knowledge, there are no products of this type in the marketplace.

6. Notice to Other Manufacturers

Pursuant to 10 CFR 430.27(c)(2), upon publication of this Petition for Waiver, GEA will notify in writing all known manufacturers of domestically marketed basic models of the same product class (as specified in 10 CFR 430.32) and of other product classes known to the petitioner to use the technology or have the characteristic at issue in the waiver. The notice will include a statement that DOE has published the Petition for Waiver in the Federal Register and the date the Petition for Waiver was published. The notice will also include a statement that DOE will receive and consider timely written comments on the petition for waiver. Within five working days of publication of this Petition for Waiver, GEA will file with DOE a statement certifying the names and addresses of each person to whom a notice of the petition for waiver was sent.

7. Conclusion

GEA respectfully requests that DOE grant this Petition for Waiver from the current test procedure for the specified basic models.

Very truly yours,
/s/
John T. Schlafer

Attachments:
Exhibit A – Alternate Test Procedure

EXHIBIT A

Alternate Test Procedure for In-Home Grower

Energy Consumption is Determined by the Formula: E= EP*1440/T where:

- E is the test cycle energy (kWh/day)
- 1440 = number of minutes in a day
- EP is the energy expended during three full rotations of the growing chambers (kWh)
- T is the length of time for EP (minutes)

Water in Tanks:

Fill the nutrient and supply tanks with water (72.0 ± 5.0 °F) prior to start of the stabilization period.

Stabilization:

The test shall start after a minimum 8-hour stabilization run for each temperature control setting. This constitutes one rotation of the growing chambers.

Ambient Temperature:

Measure and record the ambient temperature at points located 3 feet (91.5 cm) above the floor and 10 inches (25.4 cm) from the center of the two sides of the unit under test. The ambient temperature shall be 72.0 ± 1 °F (21.1 ± 0.6 °C) during the stabilization period and the test period.

Compartment Temperature Measurements:

No compartment temperature measurements are taken during the stabilization and test period.

Test Procedure:

Run the test using the SmartHQ App

1. Download the SmartHQ app on a connected device
2. Select “Connect Appliance” and then “In Home Grower”
3. Follow the procedures per the SmartHQ app to set up the appliance.
4. Fill the nutrient and supply tanks with 72.0 ± 5.0 °F water.
5. Select “Let’s Start Planting” from the main screen.
6. Select Garden 1 from the “Select Garden” screen
    a. Select the “Default” growing region.
    b. Select “Next” at the bottom of the screen
7. At the screen titled “What do you want to plant in Garden x?”, select “Choose Later”
8. Repeat this process for Garden 2 and Garden 3.
9. Select “Start the Growing Cycle”
10. The first rotation (8 hours) is the stabilization period.
11. The next three rotations (24 hours) is the period where EP and T data are taken.

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