**[6450-01-P]**

**DEPARTMENT OF ENERGY**

**Office of Energy Efficiency and Renewable Energy**

**[Case No. CR-006]**

# Notice of Petition for Waiver of AHT Cooling Systems GmbH and AHT Cooling Systems USA Inc. from the Department of Energy Commercial Refrigerator, Freezer, and Refrigerator-Freezer Test Procedures and Partial Granting of an Interim Waiver

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

**ACTION:** Notice of petition for waiver, partial grant of an interim waiver, and request for public comment.

**SUMMARY:** This notice announces receipt of and publishes a petition for waiver from AHT Cooling Systems GmbH and AHT Cooling Systems USA Inc. (AHT) seeking an exemption from specified portions of the U.S. Department of Energy (DOE) test procedure for determining the energy consumption of commercial refrigerators, freezers, and refrigerator-freezers (collectively "commercial refrigeration equipment") under the regulations. AHT seeks to use an alternate test procedure to address issues involved in testing forty-eight basic models identified by AHT as part of its petition that do not have a typical defrosting cycle (i.e., the cooling coils are built into the body of the units and require defrosting once or twice per week). Consequently, AHT seeks to test and rate these basic models as ice cream freezers only and to use an alternate two-part test procedure to account for the infrequent defrosts. This notice also announces that DOE is declining to grant AHT an interim waiver regarding multi-mode operation, but DOE is granting an interim

waiver to address the defrost cycles, with modifications to AHT's requested approach. DOE solicits comments, data, and information concerning AHT's petition and its suggested alternate test procedure to inform its final decision.

**DATES:** DOE will accept comments, data, and information with regard to the AHT petition until **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** You may submit comments, identified by Case Number CR-006, by any of the following methods:

- Federal eRulemaking Portal: http://www.regulations.gov. Follow the instructions for submitting comments.
- E-mail: AS_Waiver_Requests@ee.doe.gov Include the case number [Case No. CR-006] in the subject line of the message. Submit electronic comments in WordPerfect, Microsoft Word, PDF, or ASCII file format, and avoid the use of special characters or any form of encryption.
- Postal Mail: Mr. Bryan Berringer, U.S. Department of Energy, Building Technologies Office, Mailstop EE-5B, Petition for Waiver Case No. CR-006, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-0371. If possible, please submit all items on a compact disc (CD), in which case it is not necessary to include printed copies.
- Hand Delivery/Courier: Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, 950 L'Enfant Plaza, SW., 6th Floor, Washington,

DC, 20024. Telephone: (202) 586-6636. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.

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.

**FOR FURTHER INFORMATION CONTACT:** Mr. Bryan Berringer, U.S. Department of Energy, Building Technologies Office, Mailstop EE-5B, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-0371. E-mail: AS_Waiver_Request@ee.doe.gov.

Ms. Johanna Jochum, 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) 287-6307. E-mail: Johanna.Jochum@hq.doe.gov.

**SUPPLEMENTARY INFORMATION:**

## I. Background and Authority

Title III, Part C[1] of the Energy Policy and Conservation Act of 1975 (EPCA), Public Law 94-163 (42 U.S.C. 6311-6316, as codified), established the Energy Conservation Program for

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

Certain Industrial Equipment, which includes commercial refrigeration equipment.[2] Part C includes definitions, energy conservation standards, test procedures, labeling provisions, and the authority to require information and reports from manufacturers. Further, Part C authorizes the Secretary of Energy to prescribe test procedures that are reasonably designed to produce results that measure energy efficiency, energy use, or estimated operating costs during a representative average-use cycle, and that are not unduly burdensome to conduct. (42 U.S.C. 6314(a)(2)) The test procedure for commercial refrigeration equipment is contained in the Code of Federal Regulations (CFR) at 10 CFR part 431, subpart C, appendix B, "Amended Uniform Test Method for the Measurement of Energy Consumption of Commercial Refrigerators, Freezers, and Refrigerator-Freezers."

DOE's regulations set forth at 10 CFR 431.401 contain provisions that allow a person to seek a waiver from the test procedure requirements for a particular basic model of a type of covered equipment when the petitioner's basic model for which the petition for waiver was submitted contains one or more design characteristics that either (1) prevent testing according to the prescribed test procedures; or (2) cause the prescribed test procedures to evaluate the basic model in a manner so unrepresentative of its true energy consumption as to provide materially inaccurate comparative data. 10 CFR 431.401(a)(1). A petitioner must include in its petition various information, including a detailed discussion of the need for the requested waiver and any alternate test procedures known to the petitioner to evaluate the basic model in a manner representative of its energy consumption. See 10 CFR 431.401(b)(1).

[2] All references to EPCA in this document refer to the statute as amended through the Energy Efficiency Improvement Act of 2015 (EEIA), Public Law 114-11 (April 30, 2015).

DOE may grant a waiver subject to conditions, including adherence to alternate test procedures. 10 CFR 431.401(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. As soon thereafter as practicable, DOE will publish in the Federal Register a final rule. 10 CFR 431.401(l).

The waiver process also allows DOE to grant an interim waiver if it appears likely that the 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 petition for waiver. 10 CFR 431.401(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 431.401(h)(1). 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 431.401(h)(2).

## II. AHT's Petition for Waiver of Test Procedure and Application for Interim Waiver

On October 25, 2016, AHT filed a petition for waiver and interim waiver from the DOE test procedure for commercial refrigeration equipment set forth in 10 CFR part 431, subpart C, appendix B. (AHT, No. 0001 at pp. 1-10[3]) AHT petitioned for waiver for six model lines[4] that are

[3] A notation in this form provides a reference for information that is in the docket for this test procedure waiver (Docket No. EERE-2017-BT-WAV-0027) (available at https://www.regulations.gov/docket?D=EERE-2017-BT-WAV-0027). This notation indicates that the statement preceding the reference is document number 1 in the docket and appears at pages 1-10 of that document.

[4] The specific basic models for which the petition applies are ice cream freezer and commercial refrigerator basic models IBIZA 100 NAM-R, IBIZA 100 NAM-IC, IBIZA 145 NAM-R, IBIZA 145 NAM-IC, IBIZA 210 NAM-R,

capable of multi-mode operation (i.e., as ice cream freezer and commercial refrigerator) and that do not have typical defrosting cycles (i.e., the cooling coils are built into the body of the units and require defrosts once per week). In the petition, AHT states that the DOE test procedure is not clear regarding how to test multi-mode equipment. Additionally, AHT states that the test procedure's 24-hour test period starting with a defrost would grossly overstate the energy used by these models due to their longer defrost cycles (once per week).

To address multi-mode operation, AHT requests that their equipment be tested and rated only as ice cream freezers (with integrated average temperature of -15°F +/- 2.0°F and use of total display area (TDA) to determine associated energy conservation standards).

To address infrequent defrosts, AHT requests that their equipment be subject to an alternate two-part test procedure. The first part would be a 24-hour test starting in steady state conditions

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IBIZA 210 NAM-IC, MALTA 145 NAM-R, MALTA 145 NAM-IC, MALTA 185 NAM-R, MALTA 185 NAM-IC, MANHATTAN 175 NAM-R, MANHATTAN 175 NAM-IC, MANHATTAN 210 NAM-R, MANHATTAN 210 NAM-IC, MIAMI 145 NAM-R, MIAMI 145 NAM-IC, MIAMI 185 NAM-R, MIAMI 185 NAM-IC, MIAMI 210 NAM-R, MIAMI 210 NAM-IC, MIAMI 250 NAM-R, MIAMI 250 NAM-IC, PARIS 145 NAM-R, PARIS 145 NAM-IC, PARIS 185 NAM-R, PARIS 185 NAM-IC, PARIS 210 NAM-R, PARIS 210 NAM-IC, PARIS 250 NAM-R, PARIS 250 NAM-IC, SYDNEY 175 NAM-R, SYDNEY 175 NAM-IC, SYDNEY 210 NAM-R, SYDNEY 210 NAM-IC, SYDNEY 213 NAM-R, SYDNEY 213 NAM-IC, SYDNEY 223 NAM-R, SYDNEY 223 NAM-IC, SYDNEY 230 NAM-R, SYDNEY 230 NAM-IC, SYDNEY 250 NAM-R, SYDNEY 250 NAM-IC, SYDNEY XL 175 NAM-R, SYDNEY XL 175 NAM-IC, SYDNEY XL 210 NAM-R, SYDNEY XL 210 NAM-IC, SYDNEY XL 250 NAM-R, and SYDNEY XL 250 NAM-IC. These basic model names were provided by AHT in April 2016 as a supplement to its petition. (AHT, No. 0003; https://www.regulations.gov/document?D=EERE-2017-BT-WAV-0027-0003)

Notably, in addition to the above listed ice cream freezer and commercial refrigerator basic models, AHT's petition for waiver and interim waiver previously included commercial freezer basic models IBIZA 100 NAM-F, IBIZA 145 NAM-F, IBIZA 210 NAM-F, MALTA 145 NAM-F, MALTA 185 NAM-F, MANHATTAN 175 NAM-F, MANHATTAN 210 NAM-F, MIAMI 145 NAM-F, MIAMI 185 NAM-F, MIAMI 210 NAM-F, MIAMI 250 NAM-F, PARIS 145 NAM-F, PARIS 185 NAM-F, PARIS 210 NAM-F, PARIS 250 NAM-F, SYDNEY 175 NAM-F, SYDNEY 210 NAM-F, SYDNEY 213 NAM-F, SYDNEY 223 NAM-F, SYDNEY 230 NAM-F, SYDNEY 250 NAM-F, SYDNEY XL 175 NAM-F, SYDNEY XL 210 NAM-F, and SYDNEY XL 250 NAM-F. (AHT, No. 0003; https://www.regulations.gov/document?D=EERE-2017-BT-WAV-0027-0003) However, on May 2, 2017, DOE received a letter from AHT that withdrew these commercial freezer basic models from its petition for waiver and interim waiver request. AHT indicated that it plans to submit a separate waiver request for these basic models at a later date. (AHT, No. 0007 at pp. 1; https://www.regulations.gov/document?D=EERE-2017-BT-WAV-0027-0007) Thus, these commercial freezer basic models were not considered as a part of this Notice.

and including eight hours of door opening (according ASHRAE Standard 72). The energy consumed in this test would be recorded as ET1. The second part would be a defrost cycle test starting after steady state conditions are established and ending after the defrost cycle is complete. The duration of the defrost cycle, $t_{DI}$, and the energy consumed during this defrost cycle, ET2, would be recorded and combined with ET1 based on the once-per-week defrost frequency. In AHT's March 6, 2017 letter, AHT noted that although the standard duration of the defrost cycle was once-per-week, the basic models have an optional manual override that allows up to two defrost cycles per week and recommended revising the October 25 test procedure to reflect that. (AHT, No. 0008[5]) DOE considered this proposal in developing the alternative test procedure.

## III. Alternate Test Procedure

EPCA requires that manufacturers use DOE test procedures when making representations about the energy consumption and energy consumption costs of products covered by the statute. (42 U.S.C. 6293(c); 6314(d)) Consistent representations about the energy efficiency of covered equipment are important for consumers to evaluate equipment when making purchasing decisions and for manufacturers to demonstrate compliance with applicable DOE energy conservation standards.

AHT proposes testing the commercial refrigeration equipment at issue in their petition according to the following alternate test procedure.

The equipment would be tested and rated as ice cream freezers (with integrated average temperature of -15°F +/- 2.0°F).

[5] https://www.regulations.gov/document?D=EERE-2017-BT-WAV-0027-0008

The equipment would be subject to the following testing instead of the corresponding defrost testing in the test procedure. The first part would be a 24-hour test starting in steady state conditions and including eight hours of door opening (according ASHRAE Standard 72). The energy consumed in this test would be recorded as ET1.

The second part would be a defrost cycle test starting after steady state conditions are established. The defrost cycle would be initiated and the second part of testing would terminate after the defrost cycle is complete. The energy consumed during this defrost cycle, ET2, and the duration of the defrost cycle, $t_{DI}$, would be recorded.

Based on the measured energy consumption in these two tests, the daily energy consumption (DEC), in kilowatt-hours (kWh), would be calculated as:

$$DEC = ET1 \times \frac{(1440 - t_{NDI})}{1440} + \frac{E_{td}}{7}$$

and

$$t_{NDI} = \frac{t_{DS}}{7}$$

and

$$t_{DS} = t_{DI} * D$$

and

$$E_{td} = ET2 * D$$

where

*DEC* = Daily Energy Consumption in kilowatt-hours (kWh);

*ET1* = energy expended during the first part of the test, in kWh;

*ET2* = energy expended during the second part of the test, in kWh;

$E_{td}$ = energy expended by defrosts per week

$t_{NDI}$ = normalized length of defrosting time per day, in minutes;

$t_{DS}$ = sum of defrost time per week;

*D* = maximum number of defrosts per week

7 = conversion factor of days per week;

1440 = conversion factor to adjust to a 24-hour period in minutes per day.[6]

As stated in the Summary above, DOE is declining to grant an interim waiver to AHT regarding the multi-mode operation issue, and is granting an interim waiver to address the defrost issue with modifications to AHT's proposed approach. AHT is required to test the basic models according to each of the equipment class definitions that it meets, and must do so according to the test procedure for commercial refrigeration equipment prescribed by DOE as specified in section V of this document. Pursuant to its regulations applicable to waivers and interim waivers from applicable test procedures at 10 CFR 431.401, and after consideration of public comments on the petition, DOE will consider whether to set an alternate test procedure for the equipment identified by AHT. DOE will provide that decision in a subsequent Decision and Order.

## IV. Summary of Declining to Grant an Interim Waiver: Multi-Mode Operation

AHT first is seeking a waiver for commercial refrigeration equipment that have multi-mode operation. DOE understands, on the basis of AHT's petition, that the equipment at issue have

[6] DOE notes that AHT's proposed test procedure included a scrivener's error. That error has been corrected to reflect AHT's intended proposal.

single compartments; in other words, the equipment are not "commercial hybrids" under the definition at 10 CFR 431.62. The applicable regulations define a "commercial freezer" as a unit that, among other criteria, is "capable of operating below 32 °F." 10 CFR 431.62. An "ice-cream freezer" is a commercial freezer "that is designed to operate at or below -5 °F" and is meant for "storing, displaying, or dispensing . . . ice cream." Id. A "commercial refrigerator" is a unit that, among other criteria, is "capable of operating at or above 32 °F." Id.

With respect to multi-mode operation, DOE has taken the position in the most recent commercial refrigeration equipment test procedure final rule, that self-contained equipment or remote condensing equipment with thermostats capable of operating at temperatures that span multiple equipment categories must be certified and comply with DOE's regulations for each applicable equipment category. 79 FR 22291 (April 21, 2014).

In light of the 2014 final rule, DOE declines at this time to provide AHT an interim waiver allowing testing only in the ice cream freezer mode. Additionally, DOE notes that DOE's current regulations allow for the use of alternative efficiency determination methods (AEDMs), which allow manufacturers to simulate the energy use of untested basic models once a manufacturer has a validated AEDM and could be used to simulate results at other rating temperatures. 10 CFR 429.70.

## V. Summary of Granting an Interim Waiver: Long Defrost Cycles

Regarding the second issue of infrequent defrosts, DOE understands that defrosts are highly dependent upon the as-installed conditions of the commercial refrigeration equipment. DOE has adopted the industry procedure that accounts for the energy consumption associated with a defrost

cycle by requiring a defrost at the start of the test period. Under the current applicable test procedure, all manufacturers test at "typical" conditions and allow commercial customers to compare performance of competing units in the marketplace at such conditions.

DOE agrees that the test protocol that AHT proposes may better reflect energy consumption on the equipment identified in the petition for waiver. As AHT stated in the petition for waiver, the test procedure requires beginning the test period at the start of a defrost cycle and recording data for 24 hours. Based on AHT's petition and additional supporting information, DOE understands that these model lines are not capable of defrosting once every 24 hours as simulated by the DOE test procedure. Instead, AHT identified model lines that use a control strategy that requires a single defrost once per week and allows the commercial customer to initiate an additional defrost each week, as needed. Accordingly, DOE is granting an interim waiver to AHT on this issue, but with modifications to AHT's requested approach as described below.[7]

The two-part test method outlined in AHT's petition for waiver is an appropriate method to account for defrost energy consumption when the defrost interval is known. The DOE test procedures for consumer refrigerators, refrigerator-freezers, and freezers include a similar method. AHT indicated in its petition for waiver that the controls for these basic models initiate a defrost once per week and indicated that the controls for the equipment allow for user-initiated defrosts as often as twice per week. DOE assumes that users would likely use this feature to minimize frost build up, and, therefore, DOE has accounted for two defrosts per week in the energy use equation

[7] This interim waiver does not apply to the commercial freezer models that were previously listed in AHT's petition and subsequently withdrawn by AHT on May 2, 2017. For those models, AHT must test in accordance with the applicable DOE test procedure at 10 CFR part 431, subpart C, appendix B.

in the interim waiver. DOE notes that if AHT were to change the defrost control schemes for this equipment, then they would be new basic models to which this interim waiver does not apply.

In order for AHT to appropriately select the test period for the defrost portion of the test, DOE added specific provisions to clarify that test period to AHT's proposed alternative test procedure. For example, capturing only the defrost occurrence may omit other aspects of the defrost cycle that would impact energy performance, such as the temperature recovery period immediately following the defrost cycle. To better reflect unit operation during a defrost, DOE is clarifying that the defrost test period include any complete compressor cycles immediately before or after the defrost and temperature recovery compressor cycle with cabinet temperatures that are not within 0.5°F of the average cabinet temperature measured during the first test with stable operation. DOE references the consumer refrigerator and refrigerator-freezer test procedure at 10 CFR part 430, subpart B, Appendix A to incorporate this requirement into the interim waiver.

Therefore, DOE has issued an Order, stating:

After careful consideration of all the material submitted by AHT in this matter, DOE grants an interim waiver regarding the specified basic models. Accordingly, it is ORDERED that:

(1) AHT must, going forward, test and rate the following AHT basic models as set forth in paragraph (2) below:

IBIZA 100 NAM-R, IBIZA 100 NAM-IC, IBIZA 145 NAM-R, IBIZA 145 NAM-IC, IBIZA 210 NAM-R, IBIZA 210 NAM-IC, MALTA 145 NAM-R, MALTA 145 NAM-IC, MALTA 185 NAM-

R, MALTA 185 NAM-IC, MANHATTAN 175 NAM-R, MANHATTAN 175 NAM-IC, MANHATTAN 210 NAM-R, MANHATTAN 210 NAM-IC, MIAMI 145 NAM-R, MIAMI 145 NAM-IC, MIAMI 185 NAM-R, MIAMI 185 NAM-IC, MIAMI 210 NAM-R, MIAMI 210 NAM-IC, MIAMI 250 NAM-R, MIAMI 250 NAM-IC, PARIS 145 NAM-R, PARIS 145 NAM-IC, PARIS 185 NAM-R, PARIS 185 NAM-IC, PARIS 210 NAM-R, PARIS 210 NAM-IC, PARIS 250 NAM-R, PARIS 250 NAM-IC, SYDNEY 175 NAM-R, SYDNEY 175 NAM-IC, SYDNEY 210 NAM-R, SYDNEY 210 NAM-IC, SYDNEY 213 NAM-R, SYDNEY 213 NAM-IC, SYDNEY 223 NAM-R, SYDNEY 223 NAM-IC, SYDNEY 230 NAM-R, SYDNEY 230 NAM-IC, SYDNEY 250 NAM-R, SYDNEY 250 NAM-IC, SYDNEY XL 175 NAM-R, SYDNEY XL 175 NAM-IC, SYDNEY XL 210 NAM-R, SYDNEY XL 210 NAM-IC, SYDNEY XL 250 NAM-R, and SYDNEY XL 250 NAM-IC.

(2) The applicable method of test for the AHT basic models listed in paragraph (1) is the test procedure for commercial refrigeration equipment prescribed by DOE at 10 CFR part 431, subpart C, appendix B, except that the test period shall be selected as follows.

The first part of the test shall be a 24-hour test starting in steady-state conditions and including eight hours of door opening (according to ASHRAE Standard 72). The energy consumed in this test, ET1, shall be recorded.

The second part of the test shall be a defrost cycle, including any operation associated with a defrost. The start and end points of the defrost cycle test period shall be determined according to the instructions for consumer refrigerators and refrigerator-freezers outlined in 10 CFR part 430, subpart B, appendix A, section 4.2.1.1 (for cycling compressor systems) or section 4.2.1.2 (for non-

cycling compressor systems). The energy consumed in this test, ET2, and duration, $t_{DI}$, shall be recorded.

Based on the measured energy consumption in these two tests, the daily energy consumption (DEC) in kWh shall be calculated as:

$$DEC = ET1 \times \frac{(1{,}440 - t_{NDI})}{1{,}440} + \frac{ET2}{3.5}$$

and

$$t_{NDI} = \frac{t_{DI}}{3.5}$$

where:

DEC = daily energy consumption, in kWh;

ET1 = energy consumed during the first part of the test, in kWh;

ET2 = energy consumed during the second part of the test, in kWh;

$t_{NDI}$ = normalized length of defrosting time per day, in minutes;

$t_{DI}$ = length of time of defrosting test period, in minutes;

3.5 = time between defrost occurrences, in days; and

1440 = conversion factor, minutes per day.

(3) Representations. AHT must make representations about the energy use of the equipment identified in paragraph (1) for compliance, marketing, or other purposes only to the extent that such equipment have been tested in accordance with the provisions set forth above and such representations fairly disclose the results of such testing in accordance with 10 CFR Part 429, Subpart B.

(4) This interim waiver shall remain in effect consistent with the provisions of 10 CFR 431.401.

(5) This interim waiver is issued on the condition that the statements, representations, and documentary materials provided by the petitioner are valid. If AHT makes any modifications to the defrost controls of these basic models, the waiver would no longer be valid and AHT would either be required use the current Federal test method or submit a new application for a test procedure waiver. DOE may revoke or modify this waiver at any time if it determines the factual basis underlying the petition for waiver is incorrect, or the results from the alternate test procedure are unrepresentative of the basic models' true energy consumption characteristics.

(6) Granting of this interim waiver does not release AHT from the certification requirements set forth at 10 CFR part 429.

Because DOE has found it likely that AHT's waiver petition will be granted, with modifications as described earlier in this section, DOE is granting an interim waiver to address the defrost cycles of the relevant basic models. DOE is now seeking comment from interested stakeholders on whether either the interim waiver approach or AHT's proposed test is likely to be representative of the energy use of the basic models that are the subjects of the waiver petition, or whether another alternative test may be more appropriate.

## VI. Summary and Request for Comments

Through this notice, DOE announces receipt of AHT's petition for waiver from the DOE test procedure for certain basic models of AHT commercial refrigeration equipment and announces DOE's decision to partially grant AHT's request for an interim waiver. DOE is publishing AHT's petition for waiver in its entirety, pursuant to 10 CFR 431.401(b)(1)(iv). The petition contains no

confidential information. The petition includes a suggested alternate test procedure, as specified in section III of this notice, to determine the energy consumption of AHT's specified basic models of commercial refrigeration equipment. DOE may consider including this alternate procedure in a subsequent Decision and Order based on comments from interested parties. However, DOE is granting a partial interim waiver using a modified test approach as described in section V of this notice. DOE is denying the portion of AHT's request regarding the multi-mode operation.

DOE solicits comments from interested parties on all aspects of the petition, including the suggested alternate test procedure and calculation methodology. Pursuant to 10 CFR 431.401(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 Scott Blake Harris, Harris, Wiltshire & Grannis LLP, 1919 M Street, NW, Eighth Floor, Washington, DC 20036. All comment submissions must include the agency name and Case Number CR-006 for this proceeding. Submit electronic comments in WordPerfect, Microsoft Word, Portable Document Format (PDF), or text (American Standard Code for Information Interchange (ASCII)) file format and avoid the use of special characters or any form of encryption. Wherever possible, include the electronic signature of the author. DOE does not accept telefacsimiles (faxes).

Pursuant 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 two copies to DOE: one copy of the document marked "confidential" with all of the information believed to be confidential included, and one copy of the document marked "non-confidential" with all of the information believed to be confidential deleted. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

Issued in Washington, DC, on May 18, 2017.

Kathleen B. Hogan,
Deputy Assistant Secretary for Energy Efficiency
Energy Efficiency and Renewable Energy

**BEFORE THE**
**UNITED STATES DEPARTMENT OF ENERGY WASHINGTON, D.C. 20585**

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| Docket No. EERE-2013-BT-TP-0025;<br>In the Matter of<br>Energy Efficiency Program: Test Procedure for Commercial Refrigeration Equipment | RIN 1904-AC99 |

## I. PETITION OF AHT COOLING SYSTEMS FOR WAIVER OF TEST PROCEDURE FOR COMMERCIAL REFRIGERATION EQUIPMENT

AHT Cooling Systems GmbH and AHT Cooling Systems USA Inc. (collectively AHT)[1] respectfully submit this Petition for Waiver and Application for Interim Waiver[2] from DOE's test procedure for commercial refrigeration equipment.[3]

AHT is a world leader in the production of plug-in refrigerators and freezers for the commercial sector. It currently manufactures its products in Austria, and imports them into the United States through its wholly-owned subsidiary in South Carolina. AHT USA is also about to open a new manufacturing facility in the Charleston area. AHT products are distributed to major supermarket retail chains, convenience stores, wholesalers, and consumer-packaged goods companies throughout the United States and Canada. AHT's pursuit of innovation has led it continuously to develop and market cutting-edge technology. Its philosophy focuses on sustainability, energy efficiency, innovation, and customer benefit. AHT's products, as is

[1] AHT's U.S. subsidiary is AHT Cooling Systems USA Inc., 3235 Industry Drive, North Charleston, South Carolina 29418 (tel. 843-767-6855). AHT's worldwide headquarters are AHT Cooling Systems GmbH, Werkgasse 57**,** 8786 Rottenmann, Austria (tel. 011-43-3614 / 2451-0).

[2] *See* 10 C.F.R. § 431.401 (petitions for waiver and interim waiver).

[3] *Id.* Part 431, Subpart C, Appendix B

reflected by their use of propane as a refrigerant, are among the most energy efficient and environmentally friendly in the world.

Commercial refrigeration equipment, such as AHT's, will soon be subject to a new regulatory regime. This includes new test procedures[4] and efficiency standards.[5] The new procedures will apply to representations of energy efficiency or use made on and after March 28, 2017. The new standards will apply to products manufactured on or after March 27, 2017.

In part because of their advanced design and features, many AHT commercial refrigerators and freezers cannot be fairly evaluated by DOE's mandated testing protocols. First, because of their implicit assumptions, it is not clear which of the DOE tests should be applied to the AHT appliances. Second, any of the DOE tests would overstate the amount of energy used by the AHT appliances. Accordingly, a waiver of those test requirements is necessary.

## I. BASIC MODELS FOR WHICH A WAIVER IS REQUESTED

The basic models for which a waiver is requested are set forth in Appendix I. These models are all display merchandisers with transparent doors. They are distributed in commerce under the AHT brand name.

## II. NEED FOR THE REQUESTED WAIVER

As noted, the DOE test procedures will take effect on March 28, 2017. It is not clear which DOE test procedure should apply to AHT's advanced models, and all would grossly overstate the energy used by these models. There are two critical features of the AHT models that raise issues under the forthcoming testing procedure.

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[4] *Id.* Part 431, Subpart C, Appendix B, as adopted, 79 Fed. Reg. 22277 (April 21, 2014).

[5] *Id.* § 431.66, as adopted, 79 Fed. Reg. 17725 (March 28, 2014).

### A. The AHT Appliances Are Multi-Mode.

The AHT appliances for which we seek a waiver are all multi-mode models; they have three modes of operation among which the user can choose merely by turning a switch. In one mode, the units operate as an ice cream freezer. In another mode, they operate as a regular commercial freezer. In yet another mode, they operate as a commercial refrigerator. The advantage to a user of having a single appliance that can operate in three different modes is obvious. And if a retail operator can purchase one appliance that can operate in three modes, rather than having to buy multiple appliances to meet the same needs, there are sustainability benefits as well. The problem is that the DOE rules implicitly assume that an appliance is exclusively an ice cream freezer, exclusively a standard commercial freezer, or exclusively a commercial refrigerator.[6] And the DOE rules mandate different testing protocols for an ice cream freezer than they do for a standard commercial freezer or a commercial refrigerator.

DOE testing rules often require that products be tested in their default configuration, or in the typical configuration. In the case of the AHT multi-mode appliances however, there isn't a "default" configuration or one "typical" configuration. The machines are designed to be easily and equally usable in all three modes. DOE precedent also suggests that when there is no default or typical mode for testing purposes, products with multiple configurations should be tested in the most energy consumptive mode. In this case, that would mean that AHT should test its products in the ice cream freezer mode and treat them as such for regulatory purposes.

Accordingly, AHT asks for a "waiver" to be allowed to do precisely that.

The only obvious alternative to testing in the most energy consumptive mode would be to require testing in all three modes. But such a requirement would be unique, burdensome, and

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[6] *Id.* § 431.66.

inconsistent with the Energy Policy and Conservation Act (EPCA), which requires that the test procedures "shall be reasonably designed" and "shall not be unduly burdensome to conduct."[7] Moreover, in this situation it is not clear how one would evaluate whether an appliance passed a multiple test regime, particularly since testing the appliances as ice cream freezers would require using total display area (TDA) as the normalizing metric, while testing them in the other modes would require using volume as a normalizing metric. Such a testing regime would be both confusing and burdensome.

Finally, testing these appliances as ice cream freezers makes most sense because DOE has determined that TDA is the best metric for display equipment with transparent doors, and is moving increasingly in that direction in its testing protocols. As DOE has concluded, "where the function is to display merchandise for sale, TDA best quantifies the ability of a piece of equipment to perform that function."[8] That is surely true here.

### B. The AHT Appliances Do Not Have a Typical Defrosting Cycle.

The AHT appliances are innovative, and perhaps unique, in one other respect: their cooling coils are built into the body of the units. This means the cooling coils are not exposed to the air and do not get covered with frost. This also means the coils do not need to be defrosted. The DOE test procedure understandably assumes that commercial refrigerators and freezers have cooling or evaporator coils that need to be defrosted for the equipment to function effectively. Indeed, the Technical Support Document for the test procedure essentially defines "defrosting" to mean melting ice from evaporator coils:

[7] 42 U.S.C. § 6293(b)(3).

[8] 79 Fed. Reg. 17725, 17741 (March 28, 2014).

> As the air in the refrigerated space is cooled, water vapor condenses on the surface of the evaporator coil….There are several methods available for defrosting the evaporator coil…[9]

In addition, the ASHRAE test procedure mandated by the DOE regulations provides that the defrost adequacy assurance test "shall verify that any defrost setting and arrangement is adequate to melt all frost and ice from coils and flues and drain it out of the refrigerator."[10] Based on the assumption that all refrigerators and freezers that have evaporator coils from which frost must be melted regularly in order to function, the test procedure calls for starting testing with a full defrost cycle, and may require additional defrost cycles in a 24-hour period before the test is complete (depending on the expected operation of the model).

AHT appliances, however, have no need to defrost their coils. Rather, small amounts of frost can build up on the inner walls of the cabinet when the appliances are in a freezer mode. But this is a strictly esthetic matter that is easily resolved. Thus, rather than running one or more defrosting cycles a day to keep the machines operating efficiently, AHT appliances have a defrost (in the generic sense rather than as defined by DOE/ASHRAE) function that operates just once per week to keep the machines looking good.[11] As a result, the test procedure, which provides for at least one full defrost cycle in a 24-hour period is not appropriate for these models. *It would overstate the energy usage from the defrosting function by at least a factor of seven.*

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[9] DOE, Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment; Commercial Refrigeration Equipment (Feb. 2014), § 3.3.1.11 (Defrost Cycle; Defrost Mechanism).

[10] ANSI/ASHRAE Standard 72-2005, "Method of Testing Commercial Refrigerators and Freezers," § 7.8 (Defrost Adequacy Assurance). ASHRAE 72-2005 is incorporated by reference in the DOE test procedure. 10 C.F.R. § 431.63(d)(1).

[11] We also note that AHT appliances have a manual override, such that a user *could* activate the defrost cycle a second time in any one week period. But the default automatic setting, and we expect the typical use, is one defrost cycle per week.

Accordingly, AHT asks for a waiver to test its appliances with the defrost cycle activated in a way that reflects the actual operation of the units. To this end, AHT proposes to test the appliances in two phases. Phase one shall be a 24-hour test according to ASHRAE 72 including eight hours of door openings but without defrost. The second phase should be a separate measurement of the energy used during the defrost cycle. One-seventh of the measured energy in phase two should be added to the energy measured in phase one. This approach would translate the once-a-week defrost cycle into an average daily energy usage factor.

## III. PROPOSED ALTERNATE TEST PROCEDURE

In line with the waivers outlined above, AHT proposes the following alternate test procedure to evaluate the performance of the basic models listed in Appendix I of this petition and application.

Effective March 28, 2017, AHT shall be required to test the performance of the basic models listed in Appendix I according to the test procedures for commercial refrigeration equipment prescribed by DOE at 10 C.F.R. Part 431, Subpart C, Appendix B, except as follows.

The basic models shall be tested and rated as ice cream freezers (Integrated Average Temperature of -15°F +/- 2.0°F and use of TDA).

The basic models shall be subject to the following testing instead of the corresponding defrost testing in the test procedure.

**The first part** shall be a 24-hour test starting in steady state conditions and including eight hours of door opening (according ASHRAE Standard 72). The energy consumed in this test shall be recorded, *ET1*.

**The second part** shall be a defrost cycle test starting after steady state conditions are established. The defrost cycle is initiated and terminates after the defrost cycle is complete. The

energy consumed during this defrost cycle, *ET2*, and the duration of the defrost cycle, $t_{DI}$, shall be recorded.

Based on the measured energy consumption in these two tests, the daily energy consumption (DEC) in kWh shall be calculated as

$$DEC = ET1 \times \frac{(1440 - t_{NDI})}{1440} + \frac{ET2}{7}$$

and

$$t_{NDI} = \frac{t_{DI}}{7}$$

where

*DEC* = Daily Energy Consumption in kilowatt-hours (kWh);

*ET1* = energy expended during the first part of the test, in kWh;

*ET2* = energy expended during the second part of the test, in kWh;

$t_{NDI}$ = normalized length of defrosting time per day, in minutes;

$t_{DI}$ = length of time of one defrosting cycle, in minutes;

7 = conversion factor of days per week;

1440 = conversion factor to adjust to a 24-hour period in minutes per day.

The waiver shall continue until DOE adopts an applicable amended test procedure.

## IV. REQUEST FOR INTERIM WAIVER

AHT also requests an interim waiver for its testing and rating of the basic models listed in Appendix I. Based on its merits, the petition for waiver is likely to be granted. Further, it is essential that an interim waiver be granted, as AHT plans to distribute units of the models that would be affected by the DOE rule as otherwise applicable on and after the March 28, 2017, compliance date. Without waiver relief, AHT will be at a competitive disadvantage in the

market for these important products and would suffer economic hardship. AHT would be subject to requirements that clearly should not apply to such products.

## V. OTHER MANUFACTURERS

A list of manufacturers of all other basic models distributed in commerce in the United States and known to AHT to incorporate overall design characteristic(s) similar to those found in the basic model(s) that are the subject of the petition is set forth in Appendix II.

* * * *

AHT requests expedited treatment of the Petition and Application.

Respectfully submitted,

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## APPENDIX I

The waiver and interim waiver requested herein should apply to testing and rating of the following basic models that are manufactured by AHT:

SYDNEY ^ *

MIAMI ^ *

PARIS ^ *

MANHATTAN ^ *

MALTA ^ *

IBIZA ^ *

**The models use the following model number layout:**

SYDNEY, MIAMI, etc. – Represent the name of the model platform.

(^) – Represents characters in the model number that correspond to the size.

(*) – Represents characters in the model number that correspond to marketing features.

The * and ^ characters have no impact on the compartment function, product class, or test method.

## APPENDIX II

The following are manufacturers of all other basic models distributed in commerce in the United States and known to AHT to incorporate overall design characteristic(s) similar to those found in the basic model(s) that are the subject of the petition for waiver.

AMF Sales & Associates (importing LUCKDR)
ARNEG USA
Avanti Products LLC
Beverage Air
Dellfrio (importing Liebherr cabinets)
Electrolux Home Products
Excellence
Fogel de Centroamerica S.A.
Foshan City Shunde District Sansheng Electrical Manufacture Co., Ltd.
Hillphoenix
Hussmann
Innovative DisplayWorks Inc.
Jiangsu Baixue Electric Appliances Co., Ltd.
Metalfrio Solutions Mexico S.A.
Mimet S.A.
Minus Forty Technologies Corp.
MTL Cool
Novum USA
Ojeda USA
Panasonic
PREMIERE Corporation
Sanden Vendo
Silver King
Stajac Industries
Thermell Manufacturing
True Manufacturing Co.
Turbo-Air
Vestfrost Solutions

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