



[6450-01-P]

**DEPARTMENT OF ENERGY**

**Office of Energy Efficiency and Renewable Energy**

[Case No. RF-032]

**Notice of Petition for Waiver of Samsung Electronics America, Inc. from the Department of Energy Residential Refrigerator and Refrigerator-Freezer Test Procedure, and Grant of Interim Waiver**

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

**ACTION:** Notice of petition for waiver, notice of grant of interim waiver, and request for comments.

**SUMMARY:** This notice announces receipt of a petition for waiver from Samsung Electronics America, Inc. (Samsung) regarding specified portions of the U.S. Department of Energy (DOE) test procedure for determining the energy consumption of electric refrigerators and refrigerator-freezers. In its petition, Samsung provides an alternate test procedure that is the same as the test procedure DOE published in a final rule setting out testing requirements for manufacturers to follow starting in 2014. DOE solicits comments, data, and information concerning Samsung's petition and the suggested alternate test procedure. Today's notice also grants Samsung an interim waiver from the

electric refrigerator and refrigerator-freezer test procedure, subject to use of the alternative test procedure set forth in this notice.

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

**ADDRESSES:** You may submit comments, identified by case number “RF-032,” 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](mailto:AS_Waiver_Requests@ee.doe.gov) Include the case number (Case No. RF-032) in the subject line of the message.
- Mail: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Office, Mailstop EE-2J/1000 Independence Avenue, SW, Washington, DC 20585-0121. Telephone: (202) 586-2945. Please submit one signed original paper copy.
- Hand Delivery/Courier: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Office, 950 L’Enfant Plaza SW, Suite 600, Washington, DC 20024. Please submit one signed original paper copy.

Docket: For access to the docket to review the background documents relevant to this matter, you may visit the U.S. Department of Energy, 950 L’Enfant Plaza SW, Washington, DC, 20024; (202) 586-2945, between 9:00 a.m. and 4:00 p.m., Monday

through Friday, except Federal holidays. Available documents include the following items: (1) this notice; (2) public comments received; (3) the petition for waiver and application for interim waiver; and (4) prior DOE waivers and rulemakings regarding similar refrigerator-freezer products. Please call Ms. Brenda Edwards at the above telephone number for additional information.

**FOR FURTHER INFORMATION CONTACT:** Mr. Bryan Berringer, U.S. Department of Energy, Building Technologies Office, Mail Stop EE-2J, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-0371. E-mail: [Bryan.Berringer@ee.doe.gov](mailto:Bryan.Berringer@ee.doe.gov).

Mr. Michael Kido, U.S. Department of Energy, Office of the General Counsel, Mail Stop GC-71, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585-0103. Telephone: (202) 586-8145. E-mail: [Michael.Kido@hq.doe.gov](mailto:Michael.Kido@hq.doe.gov).

**SUPPLEMENTARY INFORMATION:**

**I. Background and Authority**

Title III, Part B of the Energy Policy and Conservation Act of 1975 (EPCA), Pub. L. 94-163 (42 U.S.C. 6291-6309, as codified), established the Energy Conservation Program for Consumer Products Other Than Automobiles, a program covering most major household appliances, which includes the electric refrigerators and refrigerator-

freezers that are the focus of this notice.<sup>1</sup> Part B includes definitions, test procedures, labeling provisions, energy conservation standards, and the authority to require information and reports from manufacturers. Further, Part B authorizes the Secretary of Energy to prescribe test procedures that are reasonably designed to produce results which measure the energy efficiency, energy use, or estimated annual operating costs of a covered product, and that are not unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)) The test procedure for electric refrigerators and refrigerator-freezers is contained in 10 CFR part 430, subpart B, appendix A1.

The regulations set forth in 10 CFR part 430.27 contain provisions that enable a person to seek a waiver from the test procedure requirements for covered products. The Assistant Secretary for Energy Efficiency and Renewable Energy (the Assistant Secretary) will grant a waiver if it is determined that the basic model for which the petition for waiver was submitted contains one or more design characteristics that prevents testing of the basic model according to the prescribed test procedures, or if the prescribed test procedures may 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(l). Petitioners must include in their petition any alternate test procedures known to the petitioner to evaluate the basic model in a manner representative of its energy consumption. The Assistant Secretary may grant the waiver subject to conditions, including adherence to alternate test procedures. 10 CFR 430.27(l). Waivers remain in effect pursuant to the provisions of 10 CFR 430.27(m).

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<sup>1</sup> For editorial reasons, upon codification in the U.S. Code, Part B was re-designated Part A.

The waiver process also allows the Assistant Secretary to grant an interim waiver from test procedure requirements to manufacturers that have petitioned DOE for a waiver of such prescribed test procedures. 10 CFR 430.27(g). An interim waiver remains in effect for 180 days or until DOE issues its determination on the petition for waiver, whichever occurs earlier. DOE may extend an interim waiver for an additional 180 days. 10 CFR 430.27(h).

## **II. Petition for Waiver of Test Procedure and Application for Interim Waiver**

On August 2, 2013, Samsung submitted a petition for waiver from the test procedure applicable to residential electric refrigerators and refrigerator-freezers set forth in 10 CFR part 430, subpart B, appendix A1. Samsung is designing new refrigerator-freezers that incorporate multiple defrost cycles. In its petition, Samsung seeks a waiver from the existing DOE test procedure applicable to refrigerators and refrigerator-freezers under 10 CFR part 430 because the existing test procedure does not account for multiple defrost cycles. Therefore, Samsung has asked to use an alternate test procedure that is the same as the test procedure provisions for products with long time or variable defrost DOE published in a final rule (77 FR 3559, 3564-3565, January 25, 2012). These provisions were placed in appendix A, which is not required for use until September 15, 2014, and not contained in the current appendix A1 test procedure. Samsung has previously submitted similar petitions for waiver and requests for interim waiver for other basic models of refrigerator-freezers that incorporate multiple defrost cycles. DOE subsequently granted Samsung's waiver requests in each case. See 77 FR 1474 (Jan. 10,

2012), 77 FR 75428 (Dec. 20, 2012), 78 FR 35901 (June 14, 2013), and 78 FR 35898 (June 14, 2013).

Samsung also requests an interim waiver from the existing DOE test procedure. An interim waiver may be granted if it is determined that the applicant will experience economic hardship if the application for interim waiver is denied, if it appears likely that the petition for waiver will be granted, and/or the Assistant Secretary determines that it would be desirable for public policy reasons to grant immediate relief pending a determination of the petition for waiver. 10 CFR 430.27(g).

DOE has determined that Samsung's application for interim waiver does not provide sufficient market, equipment price, shipments and other manufacturer impact information to permit DOE to evaluate the economic hardship Samsung might experience absent a favorable determination on its application for interim waiver. DOE has determined, however, that it is likely Samsung's petition will be granted, and that it is desirable for public policy reasons to grant Samsung relief pending a determination on the petition. Previously, DOE granted a waiver to Samsung for other basic models incorporating multiple defrost technology and DOE has determined that it is desirable to have similar basic models tested in a consistent manner. See 77 FR 1474 (Jan. 10, 2012); 77 FR 75428 (Dec. 20, 2012); 78 FR 35901 (June 14, 2013); and 78 FR 35898 (June 14, 2013).

Samsung's petition included an alternate test procedure to account for the energy

consumption of its refrigerator-freezer models with multiple defrost cycles. The alternate test procedure specified by Samsung is the same as the test procedure published in the final rule referenced above. The alternate test procedure specified in this interim waiver (as well as the previous waiver granted to Samsung) is identical to the test procedure provisions for products with long time or variable defrost adopted in the final test procedure rule that manufacturers of these products are required to use in 2014.

For the reasons stated above, DOE grants Samsung's application for interim waiver from testing of its refrigerator-freezer product line containing multiple defrost cycles. Therefore, *it is ordered that*:

The application for interim waiver filed by Samsung is hereby granted for the specified Samsung refrigerator-freezer basic model that incorporates multiple defrost cycles, subject to the specifications and conditions below. Samsung shall be required to test or rate the specified refrigerator-freezer product according to the alternate test procedure as set forth in section III, "Alternate Test Procedure."

The interim waiver applies to the following basic models:

RF28HM\*LB\*\*  
RF28HM\*DB\*\*  
RF28HF\*DT\*\*  
RF28HF\*DB\*\*  
RF23HC\*DT\*\*  
RF23HC\*DB\*\*  
RF25HM\*DB\*\*

DOE makes decisions on waivers and interim waivers for only those models specifically set out in the petition, not future models that may be manufactured by the petitioner. Samsung may submit a subsequent petition for waiver and request for grant of interim waiver, as appropriate, for additional models of refrigerator-freezers for which it seeks a waiver from the DOE test procedure. In addition, DOE notes that grant of an interim waiver or waiver does not release a petitioner from the certification requirements set forth at 10 CFR part 429.

Further, this interim waiver is conditioned upon the presumed validity of statements, representations, and documents provided by the petitioner. DOE may revoke or modify this interim waiver at any time upon a determination that the factual basis underlying the petition for waiver is incorrect, or upon a determination that the results from the alternate test procedure are unrepresentative of the basic models' true energy consumption characteristics.

### **III. Alternate Test Procedure**

EPCA requires that manufacturers use DOE test procedures to make representations about the energy consumption and energy consumption costs of products covered by the statute. (42 U.S.C. 6293(c)) Consistent representations are important for manufacturers to use in making representations about the energy efficiency of their products and to demonstrate compliance with applicable DOE energy conservation standards. Pursuant to its regulations applicable to waivers and interim waivers from

applicable test procedures at 10 CFR 430.27, DOE will consider setting an alternate test procedure for Samsung in a subsequent Decision and Order.

During the period of the interim waiver granted in this notice, Samsung shall test the products listed above according to the test procedures for residential electric refrigerator-freezers prescribed by DOE at 10 CFR part 430, subpart B, appendix A1, except that, for the Samsung products listed above only, Samsung shall include the following:

1. In section 1, Definitions, the following definition:

“Defrost cycle type” means a distinct sequence of control whose function is to remove frost and/or ice from a refrigerated surface. There may be variations in the defrost control sequence such as the number of defrost heaters energized. Each such variation establishes a separate distinct defrost cycle type. However, defrost achieved regularly during the compressor “off” cycles by warming of the evaporator without active heat addition is not a defrost cycle type.

2. In section 4, Test Period, the following:

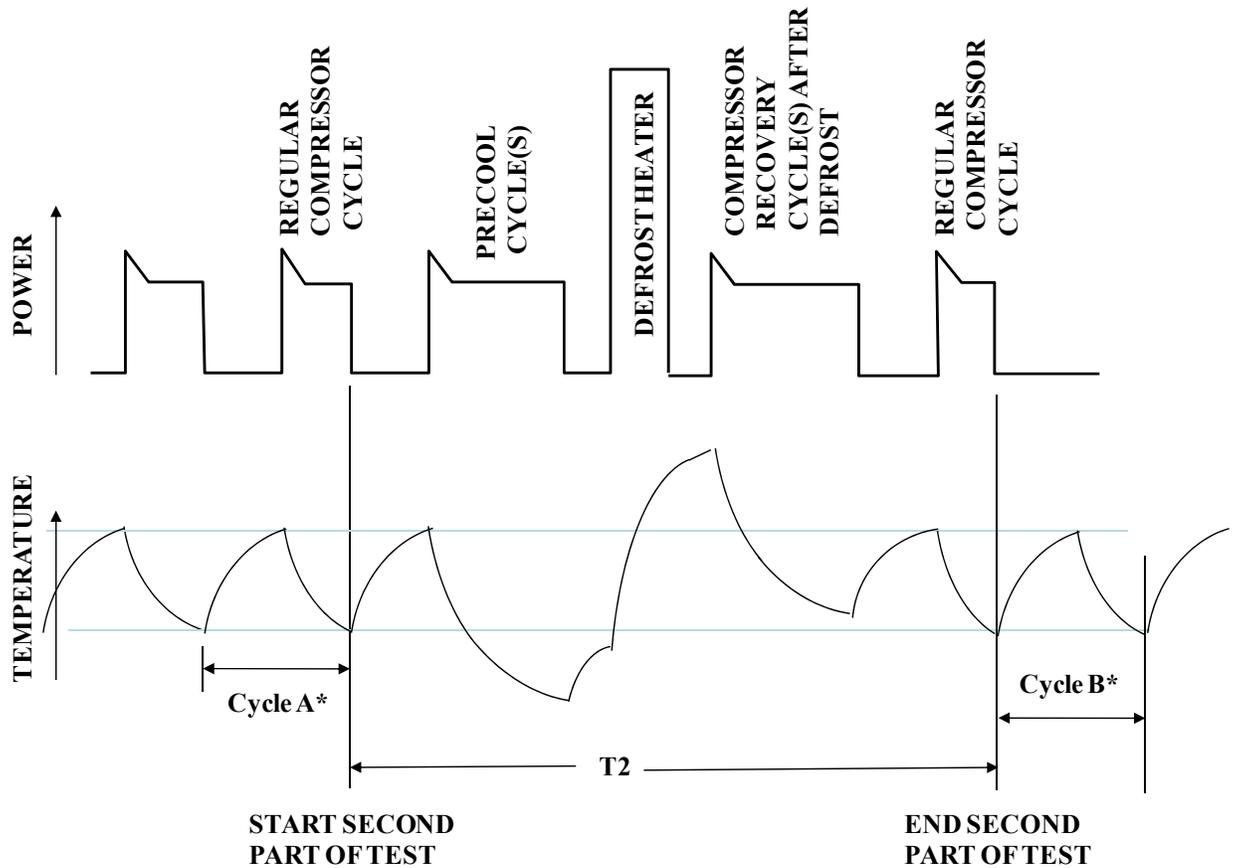
4.2.1 Long-time Automatic Defrost. If the model being tested has a long-time automatic defrost system, the two-part test described in this section may be used. The first part is a stable period of compressor operation that includes no portions of the defrost cycle, such as precooling or recovery, that is otherwise the same as the test for a unit having no defrost provisions (section 4.1). The second part is designed to capture the energy

consumed during all of the events occurring with the defrost control sequence that are outside of stable operation.

4.2.1.1 Cycling Compressor System. For a system with a cycling compressor, the second part of the test starts at the termination of the last regular compressor "on" cycle. The average temperatures of the fresh food and freezer compartments measured from the termination of the previous compressor "on" cycle to the termination of the last regular compressor "on" cycle must both be within 0.5 °F (0.3 °C) of their average temperatures measured for the first part of the test. If any compressor cycles occur prior to the defrost heater being energized that cause the average temperature in either compartment to deviate from its average temperature for the first part of the test by more than 0.5 °F (0.3 °C), these compressor cycles are not considered regular compressor cycles and must be included in the second part of the test. As an example, a "precooling" cycle, which is an extended compressor cycle that lowers the temperature(s) of one or both compartments prior to energizing the defrost heater, must be included in the second part of the test. The test period for the second part of the test ends at the termination of the first regular compressor "on" cycle after both compartment temperatures have fully recovered to their stable conditions. The average temperatures of the compartments measured from this termination of the first regular compressor "on" cycle until the termination of the next regular compressor "on" cycle must both be within 0.5 °F (0.3 °C) of their average temperatures measured for the first part of the test. See Figure 1.

Figure 1

Long-time Automatic Defrost Diagram for Cycling Compressors



**\*Average compartment temperature(s) during cycles A & B must be within 0.5 °F of the average temperature(s) for the first part of the test.**

4.2.4 Systems with Multiple Defrost Frequencies. This section applies to models with long-time automatic or variable defrost control with multiple defrost cycle types, such as models with single compressors and multiple evaporators in which the evaporators have different defrost frequencies. The two-part method in 4.2.1 shall be used. The second part of the method will be conducted separately for each distinct defrost cycle type.

3. In section 5, Test Measurements, the following:

5.2.1.5 Long-time or Variable Defrost Control for Systems with Multiple Defrost cycle Types. The energy consumption in kilowatt-hours per day shall be calculated equivalent to:

$$ET = (1440 \times EP1/T1) + \sum_{i=1}^D [(EP2_i - (EP1 \times T2_i/T1)) \times (12/CT_i)]$$

where:

1440 is defined in 5.2.1.1 and EP1, T1, and 12 are defined in 5.2.1.2;

i is a variable that can equal 1, 2, or more that identifies the distinct defrost cycle types applicable for the refrigerator or refrigerator-freezer;

EP2<sub>i</sub> = energy expended in kilowatt-hours during the second part of the test for defrost cycle type i;

T2<sub>i</sub> = length of time in minutes of the second part of the test for defrost cycle type i;

CT<sub>i</sub> is the compressor run time between instances of defrost cycle type i, for long-time automatic defrost control equal to a fixed time in hours rounded to the nearest tenth of an hour, and for variable defrost control equal to

$$(CT_{Li} \times CT_{Mi}) / (F \times (CT_{Mi} - CT_{Li}) + CT_{Li});$$

CT<sub>Li</sub> = least or shortest compressor run time between instances of defrost cycle type i in hours rounded to the nearest tenth of an hour (CT<sub>L</sub> for the defrost cycle type with the longest compressor run time between defrosts must be greater than or equal to 6 but less than or equal to 12 hours);

CT<sub>Mi</sub> = maximum compressor run time between instances of defrost cycle type i in hours rounded to the nearest tenth of an hour (greater than CT<sub>Li</sub> but not more than 96 hours);

For cases in which there are more than one fixed CT value (for long-time defrost models) or more than one  $CT_M$  and/or  $CT_L$  value (for variable defrost models) for a given defrost cycle type, an average fixed CT value or average  $CT_M$  and  $CT_L$  values shall be selected for this cycle type so that 12 divided by this value or values is the frequency of occurrence of the defrost cycle type in a 24 hour period, assuming 50% compressor run time.

F = default defrost energy consumption factor, equal to 0.20.

For variable defrost models with no values for  $CT_{Li}$  and  $CT_{Mi}$  in the algorithm, the default values of 6 and 96 shall be used, respectively.

D is the total number of distinct defrost cycle types.

#### **IV. Summary and Request for Comments**

Through today's notice, DOE announces receipt of Samsung's petition for waiver from certain parts of the test procedure applicable to refrigerator-freezers and grants an interim waiver to Samsung. DOE is publishing Samsung's petition for waiver in its entirety pursuant to 10 CFR 430.27(b)(1)(iv). The petition contains no confidential information. The petition includes a suggested alternate test procedure to measure the energy consumption of refrigerator-freezer basic models that incorporate multiple defrost cycles.

DOE solicits comments from interested parties on all aspects of the petition. Pursuant to 10 CFR 430.27(b)(1)(iv), 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: Michael Moss, Director of Corporate Environmental Affairs, Samsung Electronics America, Inc., 19 Chapin Road, Building D, Pine Brook, NJ 07058. All submissions received must include the agency name and case number 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).

Issued in Washington, DC, on September 11, 2013.

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

August 2, 2013

Dr. David Danielson  
Energy Efficiency and Renewable Energy  
Department of Energy  
1000 Independence Avenue, SW.  
Washington, DC 20585

Dear Assistant Secretary Danielson:

Samsung Electronics America, Inc. (“Samsung”) respectfully submits this Application for Interim Waiver and Petition for Waiver to the Department of Energy (“DOE” or “the Department”) for Samsung’s compressor refrigerator-freezers with multiple defrost cycles.

### **Reasoning**

10 CFR Part 430.27(a)(1) allows a person to submit a petition to waive for a particular basic model any requirements of §430.23 upon the grounds that the basic model contains one or more design characteristics which either prevent testing of the basic model according to the prescribed test procedures, or the prescribed test procedures may evaluate the basic model in a manner so unrepresentative of its true energy consumption characteristics as to provide materially inaccurate comparative data.

Current test procedures as prescribed in Appendix A1 to Subpart B of Part 430 (“Appendix A1”) do not adequately provide a way for Samsung to accurately represent the energy consumption of its refrigerator-freezers with multiple defrost cycles. DOE concurred with Samsung’s understanding in the interim waiver granted to Samsung in 76 FR 16760<sup>2</sup> and subsequently granted the waiver on January 10, 2012 (77 FR 1474). Additionally, DOE communicated that all manufacturers planning on marketing refrigerator-freezers with multiple defrost cycles must seek a waiver from the Department.<sup>3</sup>

For the reasons that DOE described in its granting of waiver (77 FR 1474) for Samsung refrigerator freezers with multiple defrost cycles, Samsung believes that the granting of Interim Waiver and Waiver for the models listed below are warranted.

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<sup>2</sup> DOE understands, however, that absent an interim waiver, Samsung’s products would not be accurately tested and rated for energy consumption because the current energy test procedure does not include test procedures for products with multiple defrost cycle types.

<sup>3</sup> Until these amendments are required in conjunction with the 2014 standards, manufacturers introducing products equipped with multiple defrost cycle types should, consistent with 10 CFR 430.27, petition for a waiver since the modified version of Appendix A1 set out in today’s notice will not include a specified method for capturing this energy usage.

## Request

Samsung requests that the alternate test procedure for refrigerators with multiple defrost cycles, as prescribed in the waiver (77 FR 1474) and in the interim waiver (77 FR 13109) granted to Samsung, be granted for the following basic Samsung refrigerator-freezers with multiple defrost cycles models:

RF28HM\*LB\*\*  
RF28HM\*DB\*\*  
RF28HF\*DT\*\*  
RF28HF\*DB\*\*  
RF23HC\*DT\*\*  
RF23HC\*DB\*\*  
RF25HM\*DB\*\*

Please feel free to contact me if you have any questions regarding this Petition for Waiver and Application for Interim Waiver. I will be happy to discuss should any questions arise.

Sincerely,  
Michael Moss  
Director of Corporate Environmental Affairs

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