[6450-01-P]

DEPARTMENT OF ENERGY

Office of Energy Efficiency and Renewable Energy

[Case No. RF-028]

Decision and Order Granting a Waiver to GE Appliances from the Department of Energy Residential Refrigerator and Refrigerator-Freezer Test Procedures

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

ACTION: Decision and Order.

SUMMARY: The U.S. Department of Energy (DOE) gives notice of the decision and order (Case No. RF-028) that grants to GE Appliances (GE) a waiver from the DOE electric refrigerator and refrigerator-freezer test procedures for determining the energy consumption of residential refrigerator-freezers for the basic models set forth in its petition for waiver. Under today's decision and order, GE shall be required to test and rate its refrigerator-freezers with separate fresh-food and freezer evaporators and a compressor that cycles in a non-uniform pattern using an alternate test procedure that takes this technology into account when measuring energy consumption.

DATES: This Decision and Order is effective **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

FOR FURTHER INFORMATION CONTACT: Mr. Bryan Berringer, U.S. Department of Energy, Building Technologies Program, 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.

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.

SUPPLEMENTARY INFORMATION: DOE gives notice of the issuance of its decision and order as set forth below. The decision and order grants GE a waiver from the applicable residential refrigerator and refrigerator-freezer test procedures found in 10 CFR part 430, subpart B, appendix A1 for certain basic models of refrigerator-freezers with separate fresh-food and freezer evaporators and a compressor that cycles in a non-uniform pattern, provided that GE tests and rates such products using the alternate test procedure described in this notice. Today's decision prohibits GE from making representations concerning the energy efficiency of these products unless the product has been tested in a manner consistent with the provisions and restrictions in the alternate test procedure set forth in the decision and order below, and the representations fairly disclose the test results.

Distributors, retailers, and private labelers are held to the same standard when making representations regarding the energy efficiency of these products.

Issued in Washington, DC, on June 21, 2013.

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

Decision and Order

In the Matter of: GE Appliances (Case No. RF-028)

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 residential electric refrigerators and refrigerator-freezers that are the focus of this notice.[1] 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 energy efficiency, energy use, or estimated operating costs, and that are not unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)) The test procedure for residential electric refrigerators and refrigerator-freezers is set forth in 10 CFR part 430, subpart B, appendix A1.

DOE's regulations for covered products contain provisions allowing a person to seek a waiver from the test procedure requirements for a particular basic model for covered consumer products when (1) the petitioner's basic model for which the petition for waiver was submitted contains one or more design characteristics that prevent testing according to the prescribed test procedure, or (2) when 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(a)(1). Petitioners must include in their petition any

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

alternate test procedures known to the petitioner to evaluate the basic model in a manner representative of its energy consumption characteristics.

The Assistant Secretary for Energy Efficiency and Renewable Energy (the Assistant Secretary) may grant a 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).

Any interested person who has submitted a petition for waiver may also file an application for interim waiver of the applicable test procedure requirements. 10 CFR 430.27(a)(2). The Assistant Secretary will grant an interim waiver request if it is determined that the applicant will experience economic hardship if the 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 on the petition for waiver. 10 CFR 430.27(g).

II. *GE's Petition for Waiver: Assertions and Determinations*

On February 15, 2013, GE submitted via electronic mail an undated 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. GE is designing new refrigerator-freezers with separate fresh-food and freezer evaporators and a compressor that cycles in a non-uniform pattern. In its petition, GE seeks a waiver from the test procedure for refrigerator-freezers

provided in appendix A1 because that test procedure does not provide a means to measure the energy use of products with multiple defrost cycles. The petition further states that, because of these models' non-uniform compressor cycles, they cannot attain the 0.5 °F temperature differential between compressor cycles that is required in order to identify regular compressor operation using the method specified for the second part of the Appendix A test that will be required starting in 2014. Therefore, GE has asked to use an alternate test procedure. DOE did not receive any comments on the GE petition.

III. *Consultations with Other Agencies*

DOE consulted with the Federal Trade Commission (FTC) staff concerning the GE petition for waiver. The FTC staff did not have any objections to granting a waiver to GE.

IV. *Conclusion*

After careful consideration of all the material that was submitted by GE and consultation with the FTC staff, it is ordered that:

(1) The petition for waiver submitted by GE Appliances (Case No. RF-028) is hereby granted as set forth in the paragraphs below.

(2) GE shall be required to test and rate the following GE models according to the alternate test procedure set forth in paragraph (3) below.

CYE23T*D****
PYE23P*D****
PYE23K*D****
PWE23K*D****

(3) GE shall be required to test the products listed in paragraph (2) above according to the test procedures for electric refrigerator-freezers prescribed by DOE at 10 CFR part 430, appendix A1, except that it would use a modified version of the test period specified in section 4 and the energy use calculation for products with long-time or variable defrost control and multiple defrost cycle types in section 5.2.1.5 of Appendix A. As described by GE, Part 2 of the test ($T2_i$ in the formula) would be defined as the series of cycles prior to and following the defrost period, identified as the A_{1-j} and B_{1-k} cycles, respectively. These cycles would be used to determine when the 0.5 °F temperature differential has been achieved.

As an example, if the average temperatures for Part 1 of the test are 37.8 °F and 0.2 °F in the fresh food and freezer compartments, respectively, and the temperatures for the Cycle B series of Part 2 of the test (i.e., Cycles B_{I-k}), are as follows:

	Fresh Food	Freezer
B1	42.1 °F	4.3 °F
B1-2	40.2 °F	2.1 °F
B1-3	38.0 °F	0.0 °F

then the average temperatures for the Cycle B series are 38.0 °F and 0.0 °F, which are within the 0.5 °F (0.3 °C) requirement. In this example, Part 2 ends after cycle B3.

During the period of the interim waiver granted in this notice, GE 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 GE products listed above only, include:

1. In section 4, test period, the following:

4. Test Period

* * * * *

4.2.1 Long-time Automatic Defrost with Nonuniform Compressor Cycling and Multiple Defrost Cycle Types. The two-part test described in this section shall 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. 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. The second part of the method will be conducted separately for each distinct defrost cycle type.

4.2.1.1 Measurement Frequency. Measurements shall be taken at intervals not exceeding one minute. Steady state conditions as described in section 2.9 shall be verified using measurements taken at intervals not exceeding one minute.

4.2.1.2 The test period for the first part of the test shall start at the start of a compressor "on" cycle after steady-state conditions have been achieved and be no less than 3 hours in duration. During the test period, the compressor motor shall complete two or more whole compressor cycles. At the end of the test period both compartment temperatures (fresh food and freezer) shall be within 0.5 ˚F (0.3 ˚C) of their measurements at the start of the test period. For this comparison, these compartment temperatures shall be measured at the start and end of the test period rather than averaged for the entire test period, but otherwise shall be defined as described in sections 5.1.3 and 5.1.4. If 24 hours pass before the compartment temperatures meet this requirement, the test period shall comprise a whole number of compressor cycles lasting at least 24 hours.

4.2.1.3 The second part of the test starts at the termination of the first part of the test. The average compartment temperatures as defined in sections 5.1.3 and 5.1.4 for a whole number of compressor cycles occurring after the start of the test period and before the time that the defrost heater is energized must both be within 0.5 °F (0.3 °C) of their average temperatures measured for the first part of the test. The test period for the second part of the test ends at the start of a compressor "on" cycle after both compartment temperatures have fully recovered to their stable conditions after the defrost. The average compartment temperatures as defined in sections 5.1.3 and 5.1.4 for a whole number of compressor cycles occurring after temperature recovery and before the end of the test period 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.

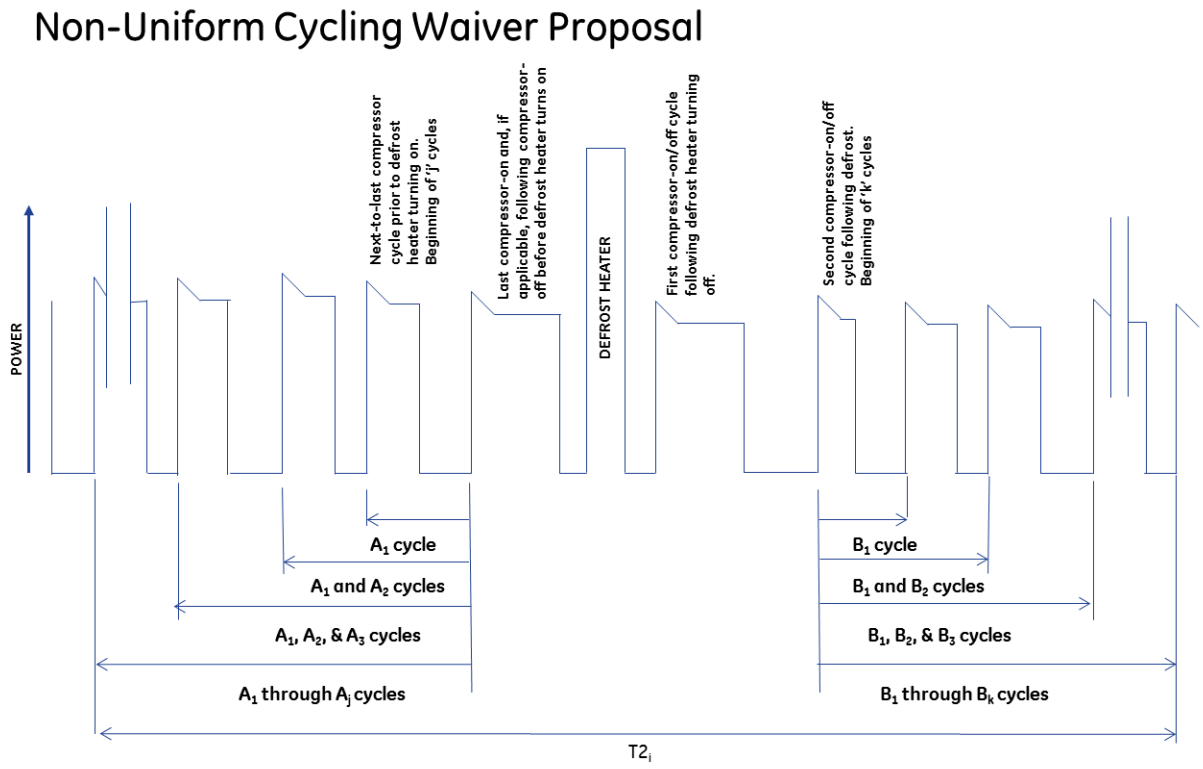

Figure 1 Note: The average temperatures of the compartments for compressor cycles A_1 through A_j shall be within 0.5 ˚F (0.3 ˚C) of their temperature averages for the first part of the test. Likewise, the average temperatures of the compartments for compressor cycles B_1 through B_k shall be within 0.5 ˚F (0.3 ˚C) of their temperature averages for the first part of the test.

2. 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:

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

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;

$EP2_i$ = energy expended in kilowatt-hours during the second part of the test for defrost cycle type i;

$T2_i$ = length of time in minutes of the second part of the test for defrost cycle type i;

CT_i 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

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

CT_{Li} = least or shortest compressor run time between instances of defrost cycle type i in hours rounded to the nearest tenth of an hour (CT_L 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_{Mi} = maximum compressor run time between instances of defrost cycle type i in hours rounded to the nearest tenth of an hour (greater than CT_{Li} 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.

(4) Representations. GE may make representations about the energy use of its above specified refrigerator-freezer products for compliance, marketing, or other purposes only to the extent that such products have been tested in accordance with the provisions outlined above and such representations fairly disclose the results of such testing.

(5) This waiver shall remain in effect consistent with the provisions of 10 CFR 430.27(m).

(6) This waiver is issued on the condition that the statements, representations, and documentary materials provided by the petitioner are valid. 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.

(7) This waiver applies only to those basic models set out in GE's February 15, 2013 petition for waiver. Grant of this waiver does not release a petitioner from the certification requirements set forth at 10 CFR part 429.

Issued in Washington, DC, on June 21, 2013.

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

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