Proposed Rules

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This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF ENERGY

10 CFR Parts 429 and 430

[EERE–2017–BT–TP–0024]

Energy Conservation Program: Test Procedure for Microwave Ovens

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

ACTION: Request for information (''RFI'').

SUMMARY: The U.S. Department of Energy (''DOE'') is initiating a data collection process through this request for information to consider whether to amend DOE's test procedures for microwave ovens. To inform interested parties and to facilitate this process, DOE has gathered data, identifying several issues associated with the currently applicable test procedures on which DOE is interested in receiving comment. The issues outlined in this document mainly concern the measurement of active mode, standby mode, and off mode energy use, and an integrated annual energy use metric for microwave ovens; and any additional topics that may inform DOE's decisions in a future test procedure rulemaking, including methods to reduce regulatory burden while ensuring the procedures' accuracy. DOE welcomes written comments from the public on any subject within the scope of this document (including topics not raised in this RFI).

DATES: Written comments and information are requested and will be accepted on or before February 20, 2018.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *http://www.regulations.gov.* Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE–2017–BT–TP–0024, by any of the following methods:

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

2. *Email:* to *MWO2017TP0024@ee.doe.gov.* Include docket number EERE–2017–BT–TP–0024 in the subject line of the message.

3. *Postal Mail:* Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, Mailstop EE–5B, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 287–1445. If possible, please submit all items on a compact disc (''CD''), in which case it is not necessary to include printed copies.

4. *Hand Delivery/Courier:* Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, 950 L'Enfant Plaza SW, Suite 600, Washington, DC 20024. Telephone: (202) 287–1445. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.

No telefacsimilies (faxes) will be accepted. For detailed instructions on submitting comments and additional information on this process, see section III of this document.

Docket: The docket for this activity, which includes **Federal Register** notices, comments, and other supporting documents/materials, is available for review at *http://www.regulations.gov.* All documents in the docket are listed in the *http://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 *https://www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=33.* The docket web page contains simple instructions on how to access all documents, including public comments, in the docket. See section III for information on how to submit comments through *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Dr. Stephanie Johnson, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE–5B, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 287–1943. Email: *ApplianceStandardsQuestions@ee.doe.gov.*

Ms. Celia Sher, U.S. Department of Energy, Office of the General Counsel, GC–33, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 287–6122. Email: *Celia.Sher@hq.doe.gov.*

For further information on how to submit a comment or review other public comments and the docket, contact the Appliance and Equipment Standards Program staff at (202) 287–1445 or by email: *ApplianceStandardsQuestions@ee.doe.gov.*

SUPPLEMENTARY INFORMATION:

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I. Introduction

Microwave ovens are included in the list of ''covered products'' for which DOE is authorized to establish and amend energy conservation standards and test procedures. (42 U.S.C. 6292(a)(10)) DOE's test procedures for microwave ovens are prescribed at title 10 of the Code of Federal Regulations (''CFR'') part 430, subpart B, appendix I (''Appendix I''). The following sections discuss DOE's authority to establish and amend test procedures for microwave ovens, as well as relevant background information regarding DOE's consideration of test procedures for this product.

A. Authority and Background

The Energy Policy and Conservation Act of 1975 (''EPCA'' or ''the Act''),[1] Public Law 94–163 (42 U.S.C. 6291–6317, as codified), among other things, authorizes DOE to regulate the energy efficiency of a number of consumer products and industrial equipment. Title III, Part B [2] of EPCA established the

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

[2] For editorial reasons, upon codification in the U.S. Code, Part B was redesignated Part A.

Energy Conservation Program for Consumer Products Other Than Automobiles, which sets forth a variety of provisions designed to improve energy efficiency. These products include microwave ovens, the subject of this RFI. (42 U.S.C. 6292(a)(10))

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

Federal energy efficiency requirements for covered products established under EPCA generally supersede State laws and regulations concerning energy conservation testing, labeling, and standards. (42 U.S.C. 6297) DOE may, however, grant waivers of Federal preemption for particular State laws or regulations, in accordance with the procedures and other provisions of EPCA. (42 U.S.C. 6297(d))

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 those consumer products (42 U.S.C. 6293(c)). Similarly, DOE must use these test procedures to determine whether the products comply 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 must follow when prescribing or amending test procedures for covered products. EPCA requires that any test procedures prescribed or amended under this section be reasonably designed to produce test results which measure energy efficiency, energy use or estimated annual operating cost of a covered product during a representative average use cycle or period of use and not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3))

In addition, if DOE determines that a test procedure amendment is warranted, it must publish proposed test procedures and offer the public an opportunity to present oral and written comments on them. (42 U.S.C. 6293(b)(2))

EPCA also requires that, at least once every 7 years, DOE evaluate test procedures for each type of covered product, including microwave ovens, to determine whether amended test procedures would more accurately or fully comply with the requirements for the test procedures to not be unduly burdensome to conduct and be reasonably designed to produce test results that reflect energy efficiency, energy use, and estimated operating costs during a representative average use cycle or period of use. (42 U.S.C. 6293(b)(1)(A)) If the Secretary determines, on his own behalf or in response to a petition by any interested person, that a test procedure should be prescribed or amended, the Secretary shall promptly publish in the **Federal Register** proposed test procedures and afford interested persons an opportunity to present oral and written data, views, and arguments with respect to such procedures. The comment period on a proposed rule to amend a test procedure shall be at least 60 days and may not exceed 270 days. In prescribing or amending a test procedure, the Secretary shall take into account such information as the Secretary determines relevant to such procedure, including technological developments relating to energy use or energy efficiency of the type (or class) of covered products involved. (42 U.S.C. 6293(b)(2)) If DOE determines that test procedure revisions are not appropriate, DOE must publish its determination not to amend the test procedures. DOE is publishing this RFI to collect data and information to inform its decision in satisfaction of the 7-year review requirement specified in EPCA. (42 U.S.C. 6293(b)(1)(A))

In addition, EPCA requires that DOE amend its test procedures for all covered products to integrate measures of standby mode and off mode energy consumption into the overall energy efficiency, energy consumption, or other energy descriptor, unless the current test procedure already incorporates the standby mode and off mode energy consumption, or if such integration is technically infeasible. (42 U.S.C. 6295(gg)(2)(A)) If an integrated test procedure is technically infeasible, DOE must prescribe separate standby mode and off mode energy use test procedures for the covered product, if a separate test is technically feasible. (*Id.*)

B. Rulemaking History

DOE's current test procedures for microwave ovens are codified at Appendix I. For reasons discussed in the following sections, the current test procedures for microwave ovens address standby mode and off mode energy use only.

1. Active Mode Amendments

DOE originally established test procedures for microwave ovens in an October 3, 1997 final rule that addressed active mode energy use only. 62 FR 51976. Those procedures were based on the International Electrotechnical Commission (''IEC'') Standard 705–Second Edition 1998 and Amendment 2–1993, ''Methods for Measuring the Performance of Microwave Ovens for Households and Similar Purposes'' (''IEC Standard 705''). On July 22, 2010, DOE published in the **Federal Register** a final rule for the microwave oven test procedures (the ''July 2010 Repeal Final Rule''), in which it repealed the regulatory test procedures for measuring the cooking efficiency of microwave ovens. 75 FR 42579. In the July 2010 Repeal Final Rule, DOE determined that the existing microwave oven test procedure did not produce representative and repeatable test results. 75 FR 42579, 42580. DOE stated at that time that it was unaware of any test procedures that had been developed that address these concerns. 75 FR 42579, 42581.

On October 24, 2011, DOE published an RFI to initiate a test procedure rulemaking to develop active mode testing methodologies for microwave ovens (the ''October 2011 RFI''). 76 FR 65631. DOE specifically sought information, data, and comments regarding representative and repeatable methods for measuring the energy use of microwave ovens in active mode, in particular for the microwave-only and convection-microwave cooking (*i.e.,* microwave plus convection and any other means of cooking) modes.

To inform its consideration of a test procedure for the microwave oven active mode, DOE conducted testing to evaluate potential methods for measuring the active mode energy use for these products, including the microwave-only, convection-only, and convection-microwave cooking modes. On June 5, 2012, DOE published a notice of data availability (''NODA'') to present test results and analytical approaches that DOE was considering for potential amendments to the microwave oven test procedures and to request additional comment and information on these results (the ''June 2012 NODA''). 77 FR 33106. In the June 2012 NODA, DOE presented test results from microwave-only, convection-only, and convection-microwave cooking mode testing using water loads, food simulation mixtures, and real food loads. DOE also presented test results

from testing of the convection-only cooking mode using the aluminum test block specified in the DOE conventional oven test procedures then in effect in Appendix I.[3]

On February 4, 2013, DOE published a notice of proposed rulemaking (''NOPR'') in which it proposed adding provisions to the microwave oven test procedures to measure active mode energy use for microwave ovens, including microwave-only ovens and convection microwave ovens (the ''February 2013 NOPR''). 78 FR 7940. For measuring the energy use in microwave-only cooking mode, DOE proposed test methods based on the November 2011 draft version of IEC Standard 60705. DOE also proposed provisions for measuring the energy use of convection microwave ovens in convection-only cooking mode based on the test procedures for conventional ovens in Appendix I. DOE further proposed to calculate the energy use of convection-microwave cooking mode for convection microwave ovens by apportioning the microwave-only mode and convection-only mode energy consumption measurements based on typical consumer use. 78 FR 7940, 7942.

The IEC issued an update of IEC Standard 60705 on June 30, 2014. To date, DOE has not issued a final rule to re-establish test procedures for measuring the active mode of microwave ovens.

2. Standby Mode Amendments

On March 9, 2011, DOE published an interim final rule (the ''March 2011 Interim Final Rule'') amending the test procedures for microwave ovens. 76 FR 12825. The March 2011 Interim Final Rule incorporated by reference into the microwave oven test procedures IEC Standard 62301, ''Household electrical appliances–Measurement of standby power,'' First Edition 2005–06 (''IEC Standard 62301 (First Edition)'') regarding test conditions and testing procedures for measuring the average standby mode and average off mode power consumption. 76 FR 12825, 12828. As authorized by EPCA, DOE also incorporated into the microwave oven test procedure definitions of ''active mode,'' ''standby mode,'' and ''off mode'' based on the definitions provided in the finalized draft version of IEC Standard 62301 Edition 2.0 2011–01 (''IEC Standard 62301 (Second Edition)''). 76 FR 12825, 12836. In addition, DOE adopted language to clarify the application of IEC Standard 62301 (First Edition) to measuring standby mode and off mode power. Specifically, DOE defined the test duration for cases in which the measured power is not stable and varies in a cyclic manner, because the standby mode power consumption of microwave oven displays can vary depending on the time-of-day displayed on the clock. 76 FR 12825, 12828.

The amendments adopted in the March 2011 Interim Final Rule became effective on April 8, 2011. However, DOE noted that in order to ensure that the amended test procedures adequately address the EPCA requirement to consider the most recent version of IEC Standard 62301, and recognizing that the IEC issued IEC Standard 62301 (Second Edition) in January of 2011, DOE issued the microwave oven test procedure as an interim final rule and offered an additional 180-day comment period to consider whether any changes should be made to the interim final rule in light of publication of IEC Standard 62301 (Second Edition). DOE stated that it would consider these comments and, to the extent necessary, publish a final rulemaking incorporating any changes. 76 FR 12825, 12830–12831. In response to the March 2011 Interim Final Rule, the Association of Home Appliance Manufacturers (''AHAM'') commented that, among other things, DOE should incorporate by reference IEC Standard 62301 (Second Edition), stating that such incorporation would provide for optimal international harmonization, give clarity and consistency to the regulated community, and decrease test burden. (AHAM, No. 31 at pp. 3–4 [4])

Based in part on public comment, DOE further analyzed IEC Standard 62301 (Second Edition). DOE subsequently published a final rule on January 18, 2013 (the ''January 2013 Final Rule''), amending the test procedures for microwave ovens to reference certain provisions of IEC Standard 62301 (Second Edition), along with clarifying language, for the measurement of standby mode and off mode energy use. 78 FR 4015. In the narrow case of microwave ovens with power consumption that varies as a function of the time displayed, DOE maintained the existing use of IEC Standard 62301 (First Edition) for measuring standby mode power to minimize manufacturer burden. 78 FR 4015, 4021. DOE also determined that microwave ovens combined with other appliance functionality are covered under the definition of ''microwave oven'' at 10 CFR 430.2, but due to a lack of data and information, did not adopt provisions to measure the standby mode and off mode energy use of the microwave oven component of a combined cooking product.[5] 78 FR 4015, 4022.

II. Request for Information

In the following sections, DOE has identified a variety of issues on which it seeks input to aid in the development of the technical and economic analyses regarding whether amended test procedures for microwave ovens may be warranted. Specifically, DOE is requesting comment on any opportunities to streamline and simplify testing requirements for microwave ovens.

Additionally, DOE welcomes comments on other issues relevant to the conduct of this process that may not specifically be identified in this document. In particular, DOE notes that under Executive Order 13771, ''Reducing Regulation and Controlling Regulatory Costs,'' Executive Branch agencies such as DOE are directed to manage the costs associated with the imposition of expenditures required to comply with Federal regulations. See 82 FR 9339 (Feb. 3, 2017). Pursuant to that Executive Order, DOE encourages the public to provide input on measures DOE could take to lower the cost of its regulations applicable to microwave ovens consistent with the requirements of EPCA.

A. Scope and Definitions

This RFI covers those products that meet the definition for ''microwave oven,'' as codified at 10 CFR 430.2. Specifically, as codified, ''microwave oven'' means a category of cooking products which is a household cooking appliance consisting of a compartment designed to cook or heat food by means of microwave energy, including microwave ovens with or without thermal elements designed for surface browning of food and convection microwave ovens. This includes any microwave oven(s) component of a

[3] The DOE conventional oven test procedures in Appendix I were later repealed in a final rule published on December 16, 2016. 81 FR 91418. DOE determined that the conventional oven test procedures did not accurately represent consumer use as it favors conventional ovens with low thermal mass and does not capture cooking performance-related benefits due to increased thermal mass of the oven cavity. 81 FR 91418, 91423–91424.

[4] Document No. 31 in Docket No. EERE–2008–BT–TP–0011, available for review at *https://www.regulations.gov*.

[5] Appendix I defines ''combined cooking product'' as a household cooking appliance that combines a cooking product with other appliance functionality, which may or may not include another cooking product. Combined cooking products include the following products: Conventional range, microwave/conventional cooking top, microwave/conventional oven, and microwave/conventional range.

combined cooking product. 10 CFR 430.2.

B. Test Procedure

As discussed in section I.B of this document, DOE's current test procedures for microwave ovens are codified at Appendix I and address standby mode and off mode energy use only.

DOE is requesting information and data to update its understanding of consumer use of microwave ovens. DOE is also requesting comment on whether any more recent developments since the February 2013 NOPR would allow for DOE to develop active mode test procedures for microwave ovens, including microwave-only ovens and convection microwave ovens. As stated in the Rulemaking History section of this document, in the February 2013 NOPR, DOE proposed active mode test procedures for microwave-only ovens and convection microwave ovens, and requested comment from interested parties on the proposed amendments. To date, DOE has not issued a final rule establishing test procedures for active mode. In this document, DOE discusses the current status of IEC Standard 60705 and requests information to help it determine whether it should consider test procedures that measure the active mode energy use for microwave ovens. Additionally, DOE has identified potential testing issues related to newly-available product features that DOE did not consider at the time of the January 2013 Final Rule, that may relate to standby mode and off mode energy use. DOE is requesting comment on appropriate test procedures to account for these features. DOE is also seeking comment on the technical feasibility of establishing an integrated metric that combines active mode, standby mode, and off mode energy use.

Each of these issues is discussed in greater detail in the subsections that follow. DOE is also requesting information on any other issues that may need to be addressed in a test procedure rulemaking for microwave ovens.

1. Consumer Usage

As part of the February 2013 NOPR, DOE presented results from a consumer usage survey conducted by Lawrence Berkeley National Laboratories (''LBNL'') to evaluate the consumer usage habits for microwave ovens.[6] 78 FR 7940, 7943–7944. The survey collected data from 2258 households on the typical cycle lengths, the annual number of cooking cycles, and the annual hours of use for microwave-only ovens. The survey also collected data from 653 households on the typical cycle lengths, the annual number of cooking cycles, and the annual hours of use for each available cooking mode for convection microwave ovens. The results from the LBNL study are presented in Table II.1 and Table II.2.

TABLE II.1—LBNL CONSUMER USAGE DATA FOR MICROWAVE-ONLY OVENS

Mode	Cycle length (minutes (min))	Number of annual cycles	Annual hours (hours)
Microwave-Only Cooking	2.62	1026	44.9

TABLE II.2—LBNL CONSUMER USAGE DATA FOR CONVECTION MICROWAVE OVENS

Mode	Cycle length (min)	Number of annual cycles	Annual hours (hours)
Microwave-Only Cooking	2.54	842	35.7
Convection-Only Cooking	18.70	101	31.7
Convection-Microwave Cooking	15.00	69	17.3

In the February 2013 NOPR, DOE also noted that Whirlpool Corporation (''Whirlpool'') provided data from an informal poll of their employees that suggested that for convection microwave oven owners, 90 percent of the total number of cooking cycles in the field is in the microwave-only cooking mode, and the remaining 10 percent of cooking cycles is a mix of convection-microwave cooking mode and convection-only cooking mode, which is in relative agreement with the consumer usage data collected by LBNL. 78 FR 7940, 7944.

In the February 2013 NOPR, DOE also presented estimates for the annual energy use for each operating mode for microwave-only and convection microwave ovens based on its testing and available consumer usage data. 78 FR 7940, 7950.

TABLE II.3—FEBRUARY 2013 NOPR ESTIMATE ANNUAL ENERGY USE FOR MICROWAVE-ONLY OVENS

Mode	Cycle length (min)	Number of annual cycles	Annual hours (hours)	Average power (watts (W))	Annual energy use (kilowatt-hours (kWh))
Microwave-Only Cooking	2.62	1026	44.9	1582.7	71.1
Microwave-Only Fan-Only Mode[7]	0	0	0	0	0
Standby/Off	.....	.....	8715.1	2.7	23.5

[6] Alison Williams, Hung-Chia (Dominique) Yang, Bereket Beraki, Louis-Benoit Desroches, Scott J. Young, Chun Chun Ni, Henry Willem, and Camilla Dunham Whitehead: LBNL; Sally M. Donovan, Consultant, Melbourne, Australia. (2012) *Surveys of Microwave Ovens in U.S. Homes.* Lawrence Berkeley National Laboratory, LBNL–5947E. December 4, 2012.

[7] Fan-only mode refers to the operation of the fan after a cooking cycle for the purposes of cooling down the cavity and other components of the microwave oven.

TABLE II.4—FEBRUARY 2013 NOPR ESTIMATE ANNUAL ENERGY USE FOR CONVECTION MICROWAVE OVENS

Mode	Cycle length (min)	Number of annual cycles	Annual hours (hours)	Average power (W)	Annual energy use (kWh)
Microwave-Only Cooking	2.54	842	35.7	1582.7	56.5
Convection-Only Cooking	18.70	101	31.7	1299.4	41.2
Convection-Microwave Cooking	15.00	69	17.3	1421.3	24.6
Microwave-Only Fan-Only Mode	0	0	0	0	0
Convection-Only Fan-Only Mode	1.10	101	1.9	39.1	0.07
Convection-Microwave Fan-Only Mode	0.88	69	1.0	39.1	0.04
Standby/Off	.....	.....	8672.4	2.7	23.4

Issue B.1: DOE requests any more recent consumer usage data, if available, to characterize the consumer usage habits for microwave ovens, including both microwave-only ovens and convection microwave ovens.

2. Active Mode Test Methods

As discussed in section I.B.1 of this document, in the July 2010 Repeal Final Rule, DOE repealed the active mode test provisions originally established in Appendix I because they did not produce representative and repeatable measurements of microwave oven energy use in active mode. 75 FR 42579. DOE proposed in the February 2013 NOPR to add provisions to the microwave oven test procedures in Appendix I for measuring energy use in microwave-only cooking mode in a repeatable and representative manner, based on the November 2011 draft version of IEC Standard 60705. 78 FR 7940. AHAM commented on the February 2013 NOPR that it ''supports harmonization with IEC Standard 60705. But DOE should not base the U.S. test procedure on a draft of that standard. Instead, DOE should wait to harmonize with the final IEC Standard 60705.'' (AHAM, No. 18 at p. 4 [8]) On June 30, 2014, IEC published the updated version of IEC Standard 60705–Edition 4.1. Therefore in this RFI, DOE is seeking additional feedback on active model topics from the February 2013 NOPR given that IEC Standard 60705 is now finalized and in response to AHAM's previous comment supporting harmonization. DOE is requesting data and information on microwave oven active mode test methods, including data and information that may not have been available at the time of the previous rulemaking.

a. Microwave-Only Cooking Mode

DOE notes that the water-heating test method specified in IEC Standard 60705–Edition 4.1 is the same as the November 2011 draft version of IEC Standard 60705. The test method in IEC Standard 60705–Edition 4.1 involves measuring the energy consumption required to heat water loads of 275 grams (''g''), 350 g, and 1000 g, in 600 milliliter (''ml''), 900 ml, and 2000 ml borosilicate glass test containers, respectively, by 45–50 degrees Celsius (''°C'') and 50–55 °C. The test method also requires that the difference in the final measured water temperature between these two tests must be at least 2 °C. The results from these two different temperature-rise tests at each load size are then used to linearly interpolate the energy consumption required to heat the load by 50 °C. The cooking cycle energy consumption for each water load size is then weighted based on consumer usage to calculate a weighted-average per-cycle cooking energy consumption. The weighting factors specified in IEC Standard 60705–Edition 4.1 are: 275 g = 3/11; 350 g = 6/11; 1000 g = 2/11.

In the February 2013 NOPR, DOE presented results from testing to evaluate the repeatability of an August 2010 draft version of the IEC Standard 60705 water-heating test method for measuring the cooking cycle energy consumption.[9] 78 FR 7940, 7945. The results, presented in Table II.5, showed minimal test-to-test variation for each water load size.

TABLE II.5—FEBRUARY 2013 NOPR IEC STANDARD 60705 COOKING CYCLE TEST RESULTS

		Draft revised IEC standard 60705 cooking cycle test			
		275 g water load	350 g water load	1000 g water load	Overall weighted
Energy Consumption (watt-hours (Wh))	Average	37.99	44.34	114.90	56.11
	Min	32.54	39.14	104.86	50.35
	Max	46.61	54.68	130.87	66.54
Test-to-Test Variation—Standard Error (%)	Average	1.08	1.06	0.44	0.58
	Min	0.05	0.10	0.09	0.03
	Max	2.31	2.59	0.78	1.25

DOE also noted in the February 2013 NOPR that the European Committee for Electrotechnical Standardization (''CENELEC'') conducted a round-robin testing program to evaluate the repeatability and reproducibility of the draft version of IEC Standard 60705. 78 FR 7940, 7945. A total of five manufacturer test labs and five independent test labs in Europe conducted testing on each of four microwave oven models. For the

[8] Document No. 18 in Docket No. EERE–2010–BT–TP–0023, available for review at *http://www.regulations.gov*.

[9] The August 2010 draft version IEC Standard 60705 used at the time of DOE testing used a smaller test container for the 275 g water load (400 ml capacity) than specified in the November 2011 draft version IEC Standard 60705 and the published IEC Standard 60705–Edition 4.1 (600 ml capacity). Because the dimensions of the test containers are sufficiently similar and the specific heat of the glass containers is relatively low compared to that of water, DOE determined that the effect on the measured energy use would be small and, in particular, the difference in repeatability and reproducibility of the two test containers would not be significant.

measured weighted per-cycle cooking energy consumption, the results showed that the test-to-test variation expressed as standard error within each laboratory was on average 0.56 percent, and the lab-to-lab variation was on average 2.30 percent. For the measured weighted cooling down energy consumption (*i.e.,* energy consumption in the fan-only mode), the results showed that the test-to-test variation expressed as standard error within each laboratory was on average 0.24 percent and the lab-to-lab variation was on average 6.14 percent. 78 FR 7940, 7945.

While IEC Standard 60705-Edition 4.1 was not finalized at the time of the February 2013 NOPR, DOE received comments stating that the water-heating test method in IEC Standard 60705 is based on extensive testing and considered both repeatable and reproducible, and more specifically with regard to the CENELEC data, that issues related to the test procedures are not unique to United States as microwave ovens do not vary significantly across countries. (AHAM, No. 18 at pp. 2–3; AHAM, No. 27 at p. 4; [10] Whirlpool, No. 15 at p. 1 [11])

Issue B.2: DOE requests comment on any developments in microwave oven testing methods since the February 2013 NOPR that would assist DOE in determining whether to develop test procedures that measure active mode energy consumption in microwave-only mode. DOE requests comment and data on the representativeness, repeatability, reproducibility, and testing burdens associated with any suggested test methods. This request includes information on any testing experiences with IEC Standard-Edition 4.1 since its adoption.

DOE also notes that the Informative Annex F in IEC Standard 60705–Edition 4.1 includes a test method for measuring the fan-only mode energy consumption of the microwave oven during the cooling down period for a period of 15 minutes after the completion of a cooking cycle that achieves a water-load temperature-rise of 50 °C. In the February 2013 NOPR, DOE noted that for all of the products in its test sample, which included countertop and over-the-range microwave-only and convection microwave ovens, none contained a fan that operated at the end of the microwave-only cooking cycle. DOE noted that when the door was closed after the load was removed at the end of the cooking cycle, the microwave ovens reverted to standby mode. However, DOE recognized that there may be microwave ovens on the market or future microwave ovens that could potentially operate in fan-only mode at the end of the microwave-only cooking cycle. As a result, DOE proposed in the February 2013 NOPR to include provisions for measuring the fan-only mode cooling down energy consumption only for microwave ovens equipped with a fan that operates automatically at the completion of the cooking cycle to cool down the microwave oven. 78 FR 7940, 7945–7946. AHAM opposed including a requirement to measure fan-only mode during the cooling down period for the following reasons: (1) If DOE pursues an active mode test procedure it should harmonize with IEC Standard 60705, which includes fan-only mode measurement only in an informative annex and not as a mandatory measurement; (2) the fan-only mode test procedure is not repeatable and reproducible; and (3) the energy consumed by the fan is miniscule, especially compared to the active mode cooking cycle energy use. (AHAM, No. 27 at pp. 6–7)

Issue B.3: DOE requests comment on whether any microwave ovens currently on the market operate in fan-only mode during the cooling down period after the end of the microwave-only cooking cycle. This request includes comments about fan-only mode for all types of fans, including exhaust fans, convection fans, and magnetron fans. DOE also requests information on manufacturers' experience with the fan-only mode test procedure in IEC Standard 60705-Edition 4.1, specifically with regard to the repeatability and reproducibility of the test method.

b. Convection Microwave Ovens

In the February 2013 NOPR, DOE proposed test methods for measuring the active mode energy consumption of convection microwave ovens. DOE proposed to measure the energy consumption of the microwave-only cooking mode for convection microwave ovens using the test procedures described in section II.B.2.a of this document. DOE also proposed to measure the energy consumption of the convection-only cooking mode based on the aluminum test block test method specified at the time of the February 2013 NOPR in the DOE conventional oven test procedures in Appendix I. Finally, DOE proposed to calculate the energy consumption of the convection-microwave cooking cycle by apportioning the microwave-only mode and convection-only mode energy consumption measurements based on typical consumer use. 78 FR 7940, 7947.

AHAM and Whirlpool stated that DOE should not develop test procedures for convection microwave ovens because: (1) They represent only 4 percent of microwave oven shipments, (2) the potential for energy savings is trivial compared to the added test burden, and (3) there are currently no international test standards for measuring the convection function of the microwave oven. (AHAM, No. 18 at p. 3; AHAM, No. 27 at p. 3; Whirlpool, No. 15 at pp. 4–6)

Issue B.4. DOE requests any updated shipments data, since the February 2013 NOPR, for convection microwave ovens. DOE also requests comment on any development of industry standards that measure the convection function of a convection microwave oven.

In the February 2013 NOPR, DOE initially determined that testing using actual or simulated food loads does not produce repeatable or reproducible results. DOE also understood that using thermocouples during a convection-microwave cooking cycle would not be appropriate due to safety concerns. As a result, DOE did not propose test methods using actual or simulated food loads, or thermocouples, for measuring the energy consumption of convection microwave ovens. 78 FR 7940, 7949. In lieu of testing using actual or simulated food loads, DOE presented test results showing that the proposed aluminum block test method for testing in convection-only cooking mode produced repeatable results. 78 FR 7940, 7948.

DOE proposed to add the calculated convection-only cooking cycle energy consumption and the measured fan-only mode energy consumption to calculate the total convection-only mode energy consumption. 78 FR 7940, 7949. DOE further proposed to apply a field use factor to the calculation of the convection-only mode energy consumption to account for the typical consumer use of this cooking mode. Id.

AHAM commented that with regard to the proposed aluminum block test method that: (1) It would be impossible to get a consistent thermocouple reading because the aluminum test block would be rotating on the turntable, and (2) the proposed aluminum test block test load was not representative of actual consumer food loads in a convection microwave oven. (AHAM, No. 27 at pp. 8–10) AHAM also stated, for the same reasons discussed in section II.B.2.a of this document, that it opposed a fan-only mode energy use measurement. (AHAM, No. 27 at p. 9) AHAM

[10] Document No. 27 in Docket No. EERE–2010–BT–TP–0023, available for review at *http://www.regulations.gov.*

[11] Document No. 15 in Docket No. EERE–2010–BT–TP–0023, available for review at *http://www.regulations.gov.*

commented that if DOE were to establish an active mode test procedure for microwave ovens and convection microwave ovens, DOE should follow the approach taken in IEC Standard 60705 and require measurement of only the primary cooking function of convection microwave ovens. AHAM added that this approach: (1) Would allow consumers to compare products according to how they view them—as microwave ovens; (2) would harmonize with the international approach, reducing burden on manufacturers; and (3) would not result in a significant loss in energy savings because there was not significant technology available to reduce energy use in active mode in either the microwave or convection functions. (AHAM, No. 27 at pp. 7–8)

Issue B.5: DOE requests information on any developments since the February 2013 NOPR that DOE should consider in determining whether to develop test procedures that measure active mode energy consumption for convection microwave ovens. Such information could include potential test methods for measuring energy use in microwave-only, convection-only, and convection-microwave cooking modes

c. Installation Configurations for Over-the-Range Microwave Ovens

As discussed in the February 2013 NOPR, for over-the-range microwave ovens, products equipped with a fan designed to vent air out of the microwave oven cooking cavity both during the cooking cycle and during the fan-only mode cooling down period offer two installation configurations: (1) Such that the vent fan exhausts air from the cooking cavity to the outdoors and (2) such that the vent fan recirculates air from the cooking cavity back into the room (''recirculation configuration'').[12] For the majority of products in DOE's test sample, the default installation configuration for the venting fan was for air recirculation back into the room. In the February 2013 NOPR, DOE proposed to require that over-the-range microwave ovens be installed with the exhaust vent/recirculation fan installed in the recirculation configuration in accordance with manufacturer's instructions. 78 FR 7940, 7946.

AHAM commented in response to the February 2013 NOPR that, to its knowledge, for safety reasons manufacturers do not recommend that anyone other than trained service technicians disassemble a microwave oven. AHAM stated that DOE should require that over-the-range microwave ovens be installed in the as-shipped configuration in accordance with the manufacturer's instructions. AHAM added that its members stated that this would not add test burden to them as their laboratories are already capable of testing in both configurations. In addition, AHAM stated that it does not expect that the configuration will affect the measured energy, and thus, different installation configurations should provide consistent measurements across products. (AHAM, No. 27 at p. 5)

Issue B.6: As DOE considers developing test procedures to measure the active mode energy consumption for microwave ovens, DOE seeks information on appropriate installation conditions for over-the-range microwave ovens. In particular, DOE seeks information on the installation requirements for these products, including: (1) Whether any products are shipped with the venting fan installed in the outdoor venting configuration and (2) whether instructions advise that only trained service technicians install these products. In addition, if interested parties believe that products should be tested in the as-shipped configuration, DOE welcomes comment on specific vent requirements for products shipped in the outdoor venting configuration (*e.g.,* duct dimensions, materials, *etc.*).

3. Standby Mode and Off Mode Test Methods

a. Displays and Clocks

The current standby mode and off mode test procedures for microwave ovens in Appendix I specify that the microwave oven must be set up in accordance with section 5.2 ''Preparation of product'' of IEC 62301 (Second Edition). This provision requires preparing and setting up the microwave oven in accordance with the manufacturer's instructions, and if no manufacturer instructions are available, using the factory or ''default'' settings, or where there are no indications for such settings, testing the microwave oven as supplied. For the microwave oven standby mode and off mode power measurement, if a microwave oven drops from a higher power state to a lower power state, section 3.1.3.1 in Appendix I requires allowing sufficient time for the microwave oven to reach the lower power state before measuring power consumption.

Microwave Ovens With the Option To Turn On/Off the Clock Display

DOE notes that most manufacturer instructions provide procedures for setting the clock display as part of the initial setup of the product. DOE is also aware that some microwave ovens available on the market may provide the user with the option to turn the clock display on or off. DOE notes that in both of these cases, based on the provisions in the test procedures, if the manufacturer's instructions for the initial setup of the product include instructions to set the clock display, then the microwave oven would be tested with the clock display powered on, as described above.

Issue B.7: DOE requests information to help it determine whether the standby mode and off mode test procedures for microwave ovens should be amended, in particular for microwave ovens with an option to turn the display on or off. DOE seeks data on the standby power consumption with the display turned on and off. DOE also seeks information on the control logic of this function implemented in different models. For example, does the display automatically turn on and remain on indefinitely after the door is opened or if the microwave cooking cycle is operated? DOE requests consumer usage data on how frequently consumers power off the clock display when this option is available, and on how much consumers value a microwave oven clock display that is capable of remaining powered on at all times.

Issue B.8: DOE seeks additional information regarding how manufacturer instructions for the initial setup of the microwave oven differ from the default as-shipped settings of the microwave oven, and the merits of requiring initial setup in accordance with manufacturer instructions versus only requiring testing using the default settings.

Microwave Ovens That Automatically Power Down the Clock Display

DOE is aware that some microwave ovens available on the market automatically power down the display after a period of user inactivity, which reduces the standby power consumption of the product. As discussed previously, Appendix I requires testing such products after the display powers down and reaches a stable state. However, DOE recognizes that some manufacturer instructions provide instructions, not in the initial setup section, for disabling this feature so that the clock/display remains on at all times; others do not provide instructions for disabling this feature.

Issue B.9: DOE seeks information to help it consider whether to amend the standby mode and off mode test procedures for microwave ovens to

[12] Manufacturer's installation instructions include procedures for reconfiguring the vent fan, which typically involve removing an external vent fan cover plate, rotating the blower assembly, and replacing the cover plate.

address microwave ovens with an automatic power-down function. DOE seeks information on the control logic of this function implemented in different models. In addition, DOE requests consumer usage data on how frequently consumers disable the automatic power-down function when this feature is available.

Issue B.10: DOE also requests comment on whether there are any other options or features that the current test procedures may not clearly delineate how to test, and how to test such options/features.

b. Connected Functions

DOE is aware of a manufacturer that currently offers one over-the-range microwave oven model that uses Bluetooth® technology to connect certain control functions to a corresponding Bluetooth-equipped conventional range. The Bluetooth connection allows the microwave oven to synchronize its clock time to that of the range, and to coordinate the operation of the microwave ovens vent fan and/or cooking top surface lights with the functional state of the range. For example, with this feature enabled, the vent fan or cooking top surface lights on the microwave oven can be programmed to automatically turn on whenever the cooking top component of the conventional range is in use. The products' controls may consume different amounts of energy depending on whether the Bluetooth function is enabled or disabled.

Issue B.11: DOE requests information to help it determine whether to amend the standby mode and off mode test procedures to address microwave ovens that use Bluetooth technology, including information as to suitable test methods. DOE seeks information (such as survey data) on whether consumers typically use this Bluetooth connection, when available.

DOE understands that certain consumer cooking products include internet connections to allow for additional control functions. In these cases, the product controls may consume different amounts of energy depending on whether the internet connection is enabled or disabled, and if enabled, whether it is connected to a network. DOE is not aware of any microwave ovens currently on the market that include this feature.

Issue B.12: DOE requests comment on whether any microwave ovens currently available on the market incorporate this feature. If such products exist or manufacturers have plans to introduce such products, DOE seeks comment on: (1) Details about why this feature is useful, (2) the potential energy impacts of microwave ovens equipped with a connected configuration, and (3) appropriate energy-related settings to use for testing.

4. Integrated Annual Energy Use Metric

The current DOE energy conservation standards for microwave ovens are based on standby power consumption, in watts. 10 CFR 430.32(j)(3). EPCA requires that, if DOE develops active mode test procedures for microwave ovens, it must also incorporate active mode, standby mode, and off mode energy use into a single energy use metric, unless it is technically infeasible to do so. (42 U.S.C. 6295(gg)(2)(A))

Issue B.13: DOE welcomes input that would help it consider methods for calculating integrated annual energy use. DOE requests comment on the technical feasibility of establishing an integrated annual energy use metric for microwave ovens that incorporates active mode, standby mode, and off mode energy use. DOE also seeks data on the consumer usage habits for each available operating mode for both microwave-only ovens and convection microwave ovens.

C. Other Test Procedure Topics

In addition to the issues identified earlier in this document, DOE welcomes comment on any other aspect of the existing test procedures for microwave ovens not already addressed in this document. DOE particularly seeks information that would improve the repeatability, and reproducibility, as well as the ability of the test procedures to provide results that are representative of actual use. DOE also requests information that would help DOE create a procedure that would limit manufacturer test burden through streamlining or simplifying testing requirements. Comments regarding the repeatability and reproducibility are also welcome.

DOE also requests feedback on any potential amendments to the existing test procedure(s) that could be considered to address impacts on manufacturers, including small businesses. Regarding the Federal test method, DOE seeks comment on the degree to which the DOE test procedure should consider and be harmonized with the most recent relevant industry standards for microwave ovens and whether there are any changes to the Federal test method that would provide additional benefits to the public. DOE also requests comment on the benefits and burdens of adopting any industry/voluntary consensus-based or other appropriate test procedure, without modification. As discussed in sections II.B.2.a and II.B.3 of this document, DOE is aware of the IEC test procedure, IEC Standard 60705, which includes tests for measuring energy use in microwave-only cooking mode for microwave ovens, and IEC Standard 62301, which includes tests for measuring the power consumption in standby mode and off mode. IEC Standard 60705 also includes an informative annex, which specifies a test method for measuring the fan-only mode energy consumption of microwave ovens during a cooling down period after the completion of a cooking cycle.

Additionally, DOE requests comment on whether the existing test procedures limit a manufacturer's ability to provide additional features to consumers on microwave ovens. DOE particularly seeks information on how the test procedures could be amended to reduce the cost of new or additional features and make it more likely that such features are included on microwave ovens.

III. Submission of Comments

DOE invites all interested parties to submit in writing by February 20, 2018, comments and information on matters addressed in this notice and on other matters relevant to DOE's consideration of amended test procedures for microwave ovens. These comments and information will aid in the development of a test procedure NOPR for microwave ovens if DOE determines that amended test procedures may be appropriate for these products.

Submitting comments via *http://www.regulations.gov.* The *http://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 difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

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

first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

Do not submit to *http://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 *http://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 *http://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 *http://www.regulations.gov* provides after you have successfully uploaded your comment.

Submitting comments via email, hand delivery, or mail. Comments and documents submitted via email, hand delivery, or mail also will be posted to *http://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. If you submit via mail or hand delivery, please provide all items on a CD, if feasible. It is not necessary to submit printed copies. No facsimiles (faxes) will be accepted.

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

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

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

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

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

DOE considers public participation to be a very important part of the process for developing test procedures and energy conservation standards. DOE actively encourages the participation and interaction of the public during the comment period in each stage of this process. Interactions with and between members of the public provide a balanced discussion of the issues and assist DOE in the process. Anyone who wishes to be added to the DOE mailing list to receive future notices and information about this process, the subject of this notice, or any other questions with regards to the Federal test procedures for microwaves should contact Appliance and Equipment Standards Program staff at (202) 287–1445 or via email at *ApplianceStandardsQuestions@ee.doe.gov.*

Issued in Washington, DC, on December 14, 2017.

Kathleen B. Hogan,

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

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2017–1092; Airspace Docket No. 17–AWP–27]

Proposed Amendment of Class E Airspace; Merced, CA

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This action proposes to amend Class E airspace extending upward from 700 feet above the surface at Merced Regional/MacReady Field (formerly Merced Municipal/MacReady Field), Merced, CA, to accommodate airspace redesign due to the decommissioning of the El Nido VHF Omnidirectional Range/Distance Measuring Equipment (VOR/DME) as the FAA transitions from ground-based to satellite-based navigation. Also, this action would remove Class E airspace upward from 1,200 feet above the surface and would update the airport name to match the FAA's aeronautical database. An editorial change would also be made to the Class E surface area airspace legal description replacing ''Airport/Facility Directory'' with the term ''Chart Supplement''. These actions are necessary for the safety and management of instrument flight rules (IFR) operations at the airport.

DATES: Comments must be received on or before March 5, 2018.

ADDRESSES: Send comments on this proposal to the U.S. Department of Transportation, Docket Operations, 1200 New Jersey Avenue SE, West Building Ground Floor, Room W12–140, Washington, DC 20590; telephone: 1(800) 647–5527, or (202) 366–9826. You must identify FAA Docket No. FAA–2017–1092; Airspace Docket No. 17–AWP–27, at the beginning of your