

Appliance Standards Awareness Project  
American Council for an Energy-Efficient Economy  
Consumer Federation of America  
National Consumer Law Center, on behalf of its low-income clients  
Natural Resources Defense Council

April 6, 2020

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

**RE: Docket Number EERE-2017-BT-TP-0004/RIN 1904-AD84: Notice of Proposed Rulemaking for Test Procedures for Consumer Refrigeration Products**

Dear Dr. Johnson:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), Consumer Federation of America (CFA), National Consumer Law Center, on behalf of its low-income clients (NCLC), and Natural Resources Defense Council (NRDC) on the notice of proposed rulemaking (NOPR) for test procedures for consumer refrigeration products (“refrigerators and freezers”). 84 Fed. Reg. 70842 (December 23, 2019). We appreciate the opportunity to provide input to the Department.

**We encourage DOE to consider adopting the IEC 62552:2015 test procedure for refrigerators and freezers to improve representativeness.** In the March 2019 request for information (RFI) on the measurement of average use cycles or periods of use in DOE test procedures, DOE stated that the current test procedure for refrigerators and freezers is an example of a “streamlined” approach. DOE explained that the current test procedure, which involves testing at an ambient temperature of 90°F with the doors closed, “is intended to simulate performance in more typical room temperature conditions (72°F) with door openings.”<sup>1</sup>

Since the current test procedure does not reflect typical usage conditions (i.e. most refrigerators and freezers are not placed in 90°F rooms), we are concerned that it may not be providing an accurate relative ranking of models. As we explained in our comments on the average use cycles RFI,<sup>2</sup> we would expect that there would be some variation among models in terms of their efficiency performance at more representative conditions compared to their performance at the current test conditions. In other words, two models that have the same energy consumption as measured by the current test procedure could potentially perform significantly differently at more representative conditions. Furthermore, the current test procedure likely is not adequately reflecting the benefits of variable-speed compressors. We would expect that a refrigerator’s compressor would cycle more often at an ambient temperature of 72°F than at 90°F and, therefore, that the benefits of variable-speed compressors, which can match the

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<sup>1</sup> 84 Fed. Reg. 9722 (March 18, 2019).

<sup>2</sup> <https://www.regulations.gov/document?D=EERE-2018-BT-TP-0020-0009>.

required refrigeration load, would be greater at 72°F. A test procedure that better represented field conditions would provide better information to consumers and would encourage refrigerator and freezer designs that are optimized for typical ambient temperatures (rather than designs that are optimized for a 90°F ambient), which would ultimately benefit consumers.

DOE stated in the average use cycles RFI that requiring actual door openings would introduce test variability and increase test burden.<sup>3</sup> However, in our comments to that RFI we explained that the IEC test procedure—IEC 62552:2015—provides a method to better reflect the field performance of refrigerators and freezers, including the impact of door openings and food loadings, without requiring a series of actual door openings to be performed. The IEC test procedure includes two steady-state tests at ambient temperatures of 16°C and 32°C (61°F and 90°F). The results of these two steady-state tests can be weighted based on representative ambient temperatures in a specific jurisdiction (e.g. representative ambient temperatures for the U.S.). The IEC test procedure also includes a “load processing efficiency” test, which involves opening the cabinet doors a single time to place water loads in the refrigerator and freezer compartments and measuring the energy required to return the unit to stable operating conditions. The total annual energy consumption of a unit under test is then calculated by summing the results of the individual tests (which include the impact of defrost and any auxiliaries such as anti-sweat heaters).

We encourage DOE to evaluate the IEC test procedure, which may be more representative than the current DOE test procedure without imposing an undue test burden. At the DOE public meeting on January 9, Samsung stated that by using a weighted average of two ambient temperatures, the IEC test procedure “is more representative of real-world conditions” than the current DOE test procedure.<sup>4</sup> According to BSH Home Appliances Group, the goals of the IEC test procedure, among others, included reflecting real usage conditions, delivering accurate and reproducible results, and keeping testing costs at a moderate level.<sup>5</sup> Because the IEC test procedure is an international test standard, which is being adopted in other major economies,<sup>6</sup> harmonizing with the IEC test procedure could reduce test burden on manufacturers who sell products internationally. At the DOE public meeting on January 9, Samsung urged the Department to adopt the IEC test procedure and noted that adoption of the IEC test procedure would reduce burdens on manufacturers and “would allow companies who choose to do so to design international configurations for refrigerators, which could reduce cost for manufacturers in design and testing, resulting in efficiencies for manufacturing.”<sup>7</sup>

**DOE should maintain the existing approach of testing demand-response function communication modules in the as-shipped configuration and adopt a similar approach for other consumer-accessible features.** DOE explains in the NOPR that under the current test procedure, products that have a communication module for demand response are tested with the communication module in the as-shipped position.<sup>8</sup> In the NOPR, DOE proposes to remove this section of the test procedure so that communication modules in demand-response capable products would be tested in the lowest energy usage position (i.e. the “off” position). We are concerned that with this change, manufacturers may ship products with demand-response function communication modules in a position other than the “off”

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<sup>3</sup> 84 Fed. Reg. 9722.

<sup>4</sup> <https://www.regulations.gov/document?D=EERE-2017-BT-TP-0004-0011>. p. 7.

<sup>5</sup> [http://ccm.ytally.com/fileadmin/user\\_upload/Workshop/6.Workshop/Publications/H%C3%A4rten.pdf](http://ccm.ytally.com/fileadmin/user_upload/Workshop/6.Workshop/Publications/H%C3%A4rten.pdf).

<sup>6</sup> Ibid.

<sup>7</sup> <https://www.regulations.gov/document?D=EERE-2017-BT-TP-0004-0011>. p. 7.

<sup>8</sup> 84 Fed. Reg. 70856-57.

position, and yet that energy use would not be captured in the product's rating. Consumers could unknowingly end up paying more to operate the product without receiving any benefit from the additional functionality (e.g. if the consumer's electric utility does not offer any demand response program). DOE notes in the NOPR that there are demand-response capable products on the market that are also ENERGY STAR qualified,<sup>9</sup> and we are not aware of any problems with the existing approach for testing these products. We urge DOE to maintain the existing approach, which simply encourages manufacturers to ship products with demand-response communication modules with those modules in the "off" position. The existing approach therefore does not impede innovation in smart technology nor hinder manufacturers from offering connected functionality.<sup>10</sup>

DOE further proposes in the NOPR to maintain the existing approach of testing other consumer-accessible features, such as display screens, in their lowest energy use position.<sup>11</sup> We are similarly concerned that with the existing approach, a manufacturer may ship a product with a feature in a position other than the "off" position, and yet that energy use would not be captured in the product's rating. We urge DOE to require that such consumer-accessible features be tested in the as-shipped position. This change would protect consumers from purchasing a product that is shipped with additional energy-using features enabled, which would increase the cost to operate the product, even if the consumer may never use the features. Such a change should have no impact on manufacturers since a manufacturer could simply ship a product with any consumer-accessible features in the "off" position.

**We encourage DOE to investigate the energy consumption of display screens and connected functions and how consumers use these features.** DOE states in the NOPR that the Department lacks sufficient data to incorporate the energy consumption of display screens and connected functions in the test procedure.<sup>12</sup> DOE also expresses concern around limiting innovation. We encourage DOE to investigate the energy consumption of display screens and connected functions and how consumers use these features so that they can be captured in the test procedure in the future. If these features were captured in the test procedure, the energy conservation standards could be amended to account for the additional features. Capturing display screens and connected functions in the test procedure would thus encourage manufacturers to provide the additional functionality with low power consumption without limiting innovation.

Thank you for considering these comments.

Sincerely,

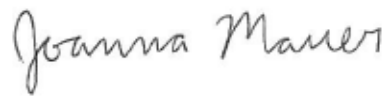
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<sup>9</sup> 84 Fed. Reg. 70857.

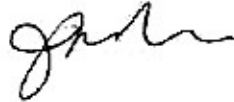
<sup>10</sup> In this case products with connected functionality should not have higher measured energy use than comparable products without such functionality since the energy use of the connected feature would not be captured as long as it was shipped in the "off" position. However, we note that even if the test procedure would result in increasing the measured energy use of products with connected functionality, there is no reason that such a change would impede innovation. Rather, the energy conservation standards could be amended to account for such functionality.

<sup>11</sup> 84 Fed Reg. 70857.

<sup>12</sup> Ibid.



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