Appliance Standards Awareness Project

July 19, 2021

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–0010/RIN 1904-AD78: Request for Information for Test Procedures for Walk-In Coolers and Freezers

Dear Dr. Johnson:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP) on the request for information (RFI) for test procedures for walk-in coolers and freezers. 86 Fed. Reg. 32332 (June 17, 2021). We appreciate the opportunity to provide input to the Department.

We encourage DOE to develop a test procedure for liquid-cooled condensing units. DOE explains in the RFI that liquid-cooled condensing units are readily available from walk-in refrigeration system manufacturers, and yet the current test procedure does not contain provisions for testing these units.[1] Adopting test methods for liquid-cooled condensing units would provide purchasers of condensing units with comparable efficiency ratings regardless of the cooling type.

We believe that it makes sense to add an option for direct measurement of door component electrical power. DOE explains in the RFI that the calculation of energy consumption for electricity-consuming door components is based on the component's rated power. However, DOE has found that various issues related to the information on door nameplate labels "make calculating a door's total energy consumption challenging when a test facility does not have in-depth knowledge of the electrical characteristics of the door components."[2] Given these issues, we believe that it makes sense to add to the test procedure a direct measurement of door component electrical power, both as an option for manufacturers wishing to make direct measurements as well as for DOE (or third-party) testing.

We support adding specific percent time off (PTO) values for motorized door openers. As DOE explains in the RFI, the current test procedure includes PTO values for door components such as lights and anti-sweat heaters. However, because there are no specific PTO values for motorized door openers, these components fall under the category of "all other electricity consuming devices" and are assigned a PTO of either 0% or 25%. DOE has granted several test procedure waivers to manufacturers of doors with motorized door openers to use PTO values of between 92% and 97%.[3] We support DOE's plan to establish standard PTO values for motorized door openers, which will provide similar treatment for these components as for other door components and eliminate the need for ongoing test procedure waivers.

[1] 86 Fed. Reg. 32334.
[2] 86 Fed. Reg. 32337-38.
[3] 86 Fed. Reg. 32338.

We encourage DOE to incorporate a measurement of air infiltration in the test procedure for walk-in doors. DOE explains in the RFI that technologies such as fast-acting doors and air curtains can reduce air infiltration.[4] However, the current test procedure does not capture the impact of air infiltration, and thus does not capture the energy-saving benefits of technologies that can reduce air infiltration. We encourage DOE to incorporate a measurement of air infiltration in the test procedure for walk-in doors, which would improve representativeness and encourage the development and deployment of technologies that can save energy by reducing infiltration.

We encourage DOE to continue to consider a method to capture the overall thermal transmittance of walk-in panels. The RFI explains that while the April 2011 test procedures final rule for walk-in coolers and freezers included a measurement of the overall thermal transmittance of walk-in panels, DOE ultimately removed this portion of the test procedure after receiving comments regarding the capabilities of test labs to conduct the thermal transmittance test.[5] However, DOE states in the RFI that the Department "remains concerned that elements like framing materials and fixtures used to mount cam locks can significantly affect walk-in panel energy efficiency performance."[6] We support DOE in continuing to consider a method to capture the overall thermal transmittance of walk-in panels, which would improve representativeness and capture the impact of door designs that can reduce thermal transmittance.

We support adopting the calculation method in AHRI 1250-2020 for hot gas defrost and encourage DOE to work to develop a future test method for capturing defrost energy use. As DOE notes in the RFI, the ASRAC working group for walk-in coolers and freezers recommended that DOE amend the test procedure to incorporate a method to measure defrost energy consumption, including for hot gas defrost and adaptive defrost.[7] We recognize the challenges associated with developing a test method for measuring defrost energy, and we appreciate AHRI's work to develop a calculation method in AHRI 1250-2020 for addressing hot gas defrost. We support adopting the calculation method in AHRI 1250-2020 into the DOE test procedure. However, we also encourage DOE to continue to work to develop a test method to measure defrost energy consumption, which would better capture the performance of all defrost systems.

We support adopting the methods in AHRI 1250-2020 for measuring off-cycle power consumption. The ASRAC working group recommended that DOE amend the test procedure to incorporate a measurement of off-cycle power consumption. We appreciate AHRI's work to develop such a method in AHRI 1250-2020, and we support adopting the method into the DOE test procedure.

We encourage DOE to investigate test methods that would allow for separate ratings of stand-alone variable-capacity condensing units and better reflect the real-world efficiency of all condensing units. As DOE describes in the RFI, variable-capacity condensing units can be rated as matched pairs (with a unit cooler). However, while it is much more common to rate stand-alone condensing units, there is no method to rate stand-alone variable-capacity condensing units.[8] The ASRAC working group therefore recommended that DOE amend the test procedure to include a method to separately rate variable-

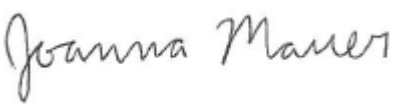
[4] 86 Fed. Reg. 32340.
[5] 86 Fed. Reg. 32342.
[6] Ibid.
[7] 86 Fed. Reg. 32343.
[8] 86 Fed. Reg. 32348.

capacity condensing units. In addition, as DOE notes in the RFI, the current test procedure is a steady-state test that measures performance at full load, which does not capture the impact of compressor cycling during part-load operation. We encourage DOE to investigate a test method that would allow for separate ratings of stand-alone variable-capacity condensing units. We also encourage DOE to investigate methods to reflect part-load operation, including the impacts of cycling losses, for all condensing units to improve representativeness and to allow for fair comparisons of single-stage and multi- and variable-capacity units.

We encourage DOE to establish a new standardized rating temperature for "high-temperature" walk-in freezers. Currently, walk-in freezers are tested at a storage temperature of -10°F. However, DOE explains in the RFI that there are so-called "high-temperature" walk-in freezers, which have a storage temperature range of 10°F to 32°F and which are often refrigerated with medium-temperature condensing units (rather than the low-temperature condensing units which are used with typical walk-in freezers).[9] In the RFI, DOE states that the Department is considering how to address high-temperature walk-in freezers and outlines three potential approaches. We believe that the best option is the third approach, which would establish a new class of low-temperature refrigeration systems for high-temperature freezers and a single standardized test condition at which this equipment would be tested. This approach would provide representative ratings and would allow all equipment falling into the new refrigeration system category to be fairly compared.

Thank you for considering these comments.

Sincerely,



Joanna Mauer
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[9] 86 Fed. Reg. 32349.