

Additional Guidance Regarding Application of Current Procedures for Testing Energy
Consumption of Refrigerator-Freezers with Automatic Ice Makers

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The Energy Policy and Conservation Act of 1975, as amended, (EPCA or the Act) requires the Department of Energy (DOE or the Department) to prescribe standardized test procedures to measure the energy consumption of certain consumer products. *See* 42 U.S.C. §§ 6293, 6295(r). The Department's current test procedure for residential refrigerator-freezers is set forth at 10 C.F.R. Part 430, Subpart B, Appendix A1, Uniform Test Method for Measuring the Energy Consumption of Electric Refrigerators and Electric Refrigerator-Freezers (Appendix A1). DOE issues this guidance to ensure the consistent application of the current test procedure to refrigerator-freezers with French doors, bottom-mounted freezers, and through-the-door (TTD) ice service (French door TTD models).

Appendix A1 requires products to be tested in accordance with the relevant sections of Association of Home Appliance Manufacturers (AHAM) standard HRF-1-1979 (HRF-1). *See* Appendix A1, § 2.2; 47 Fed. Reg. 34517 (Aug. 10, 1982). HRF-1 specifies that "automatic ice makers are to be inoperative during the test" ("ice maker exclusion"). *See* HRF-1, § 7.4.2. HRF-1 defines "automatic ice maker" as "[a] device, connected to a water supply, which automatically produces, harvests, and stores ice in a storage bin, with means to automatically interrupt the harvesting operation when the bin is filled to a predetermined amount." *Id.* at § 3.5.

At the time when AHAM developed and DOE adopted HRF-1, refrigerator-freezer models equipped with automatic ice makers located the ice maker in the freezer compartments, rather than separate ice compartments outside the freezer. Further, ice maker controls were generally electro-mechanical (*i.e.* the electrical switches in the controls that turn functions on and off are operated by mechanical action). Thus, since the test procedure was adopted, DOE has

typically applied HRF-1's ice maker exclusion by raising the baler arm bar of an automatic ice maker into its upright locked position, which stops ice production during normal operation. More specifically, this action stops the harvesting functions—the process of freeing or removing ice pieces from the ice mold of an automatic ice maker. Preventing the removal of ice from the ice mold, in turn, stops the subsequent activation of solenoid valves that allow the flow of more water into the ice maker. This longstanding test procedure renders the ice maker inoperative without affecting any energy-using functions of the product beyond active ice making operations. It most accurately reflects the real-world energy use of these devices because it includes in the efficiency calculation the energy used whenever the ice maker is powered on (as it will be most, if not all, of the time in normal household use), while excluding from the efficiency calculation the additional energy used when the ice maker is operative – *i.e.*, when it is *actively* making and harvesting ice. The additional energy that is used during these periods of active operation is excluded in recognition that these active ice making functions occur only intermittently – when the ice maker senses that the ice bin is not full.

Over the last few years, several manufacturers have introduced French door refrigerator-freezer models with bottom-mounted freezers and TTD ice service, which are designed to permit ice to be produced, stored, and dispensed at a consumer-friendly height through the door. The ice compartment is typically a special insulated compartment located within the fresh food compartment or mounted on one of the fresh food compartment doors. As these French door TTD models grew in number, DOE became aware that design variations led to the use of ice making components, such as the fill tube heater and ice ejection heater, that may consume energy beyond that used when the ice maker is actively making and harvesting ice. As a result, in some designs, turning the ice maker and its components off results in the machine using

significantly less energy than when the ice maker is on, but not making ice.

In January 2009, DOE posted on its website a short statement on the application of this test procedure to refrigerator-freezers with automatic ice makers. See http://www.energystar.gov/index.cfm?c=refrig.pr_refrigerators. That January statement made clear that an ice storage bin must be maintained at a temperature to prevent the ice from melting during testing. We also stated that under DOE's test procedure, energy consumed by components that interact with the ice maker, but are not involved in making ice, must be included in calculating a product's reported total energy use.

We understand that, despite our consistent past practice and prior efforts to be clear, some manufacturers may have misapplied our test procedure with respect to ice making components in French door TTD models. DOE issues this guidance to eliminate any lingering inconsistency in the application of our procedure to these refrigerator-freezers. Specifically, we make clear our consistent view that, under the current test procedure, ice makers and all ice making components—including the fill tube heater and ice ejection heater—must be on and functioning as they would be when the icemaker is not actively making ice. The ice maker and all ice making components—including the fill tube heater and ice ejection heater—may be rendered “inoperative” by preventing the machine from making ice during the test, such as by creating a condition in which the machine senses a full bin of ice. Turning the ice maker and/or its components off during the test is not permitted because it may improperly exclude energy beyond that used during the intermittent periods when the ice maker is operative – *i.e.*, when it is actively making ice.

This application of the ice maker exclusion to French door TTD models follows from the plain language and intent of our test procedure, comports with the purpose of the Act, and is

consistent with nearly 30 years of DOE understanding and practice. As stated above, HRF-1 specifies that “automatic ice makers are to be inoperative during the test.” *See* HRF-1, § 7.4.2. DOE interprets “inoperative” by reference to the definition of an automatic ice maker. HRF-1 defines “automatic ice maker” as “[a] device, connected to a water supply, which automatically produces, harvests, and stores ice in a storage bin, *with means to automatically interrupt the harvesting operation when the bin is filled to a predetermined amount.*” *Id.* at § 3.5 (emphasis added). Thus, an ice maker is “inoperative” when the ice maker has “interrupt[ed] the harvesting operation,” such as when the unit senses that “the bin is filled to a predetermined amount.” As described above, such an action prevents the machine from making ice, by stopping the harvesting of ice, which in turn stops the production of additional ice, without affecting the energy consumed by other refrigerator-freezer functions.

Our application is also informed by EPCA’s underlying purpose of advancing energy efficiency. 42 U.S.C. § 6201(5). In authorizing DOE to promulgate test procedures, the Act provides that “[a]ny test procedures prescribed or amended under this section shall be reasonably designed to produce test results which measure energy efficiency . . . of a covered product during a representative average use cycle or period of use.” 42 U.S.C. 6293(b)(3). Guided by this provision, we apply our test procedures, to the extent possible, to reflect the energy consumed during representative consumer use. In our view, keeping the ice maker and its associated components on, but preventing them from making ice, better represents the average use of a refrigerator-freezer, such as when the machine has a full bin of ice in a consumer’s home. Turning off either the ice maker or components associated with the ice maker, by contrast, does not represent the average use of a refrigerator-freezer, and may cause the machine to consume *less energy* than when the ice maker is on, but not making ice.

Finally, we emphasize that—far from a change to our existing view—this clarification of DOE’s interpretation of HRF-1 is consistent with DOE’s longstanding practice with respect to the ice maker exclusion. DOE has never interpreted the ice maker exclusion in our current test procedure to allow manufacturers to turn the ice maker or its components off. Rather, as described above, since this test procedure was adopted over twenty-seven years ago, DOE has applied the ice maker exclusion with the view that the ice maker should be on but prevented from making ice. Indeed, the advent of French door TTD models reinforces the importance of DOE’s pre-existing approach, which ensures that the exclusion is narrowly targeted to exempt only active ice making energy from a product’s total energy consumption.

This guidance, which reflects nearly 30 years of Department practice, represents the Department’s interpretation of the existing test procedure. It is not intended to create or remove any rights or duties, nor is it intended to affect any other aspect of EPCA or DOE regulations.