

Summary and Response to Stakeholder Comments

ENERGY STAR Program Requirements Product Specification for Water Coolers Draft Final Test Method (July 2012)

Comment	Topic	Comment	Response
1	On Demand Hot Water Draw	<p>Line 240 & 241 D) Stipulate “When ready, as verified by a cessation in heater power, <u>draw hot water until the dispensed water temperature is equivalent to the water supply temperature</u>”.</p> <p>COMMENTS: We do not understand the rationale and/or logic for the “underlined” portion of the above requirement. i.e. The capacity of the hot water tank employed on our “on-demand” units is 0.6kg / 600ml (0.6L). Based on the proposed test method, if we must draw water until such time “dispensed” water temperature and “supply” water “temperature achieve the same “equal” state, this means our on-demand units must deliver a total water draw volume mass equivalent to 1.94kg / 1940ml (1.94L) which represents more than 3 times the official net capacity of the hot water tank.</p>	<p>The ENERGY STAR Water Cooler Test Method is a non-invasive procedure that evaluates efficiency while minimizing test burden. The procedure compares the average supply and dispensed water temperatures to the energy consumed by the unit due to a water draw (either in recovery or in preparation of a water draw). Therefore, the temperature difference used in calculations must correlate with the full energy consumed for water preparation.</p> <p>Based on research and testing, DOE determined that On Demand units do not maintain water at hot temperatures, but only consume energy upon request for hot water. These units heat the dispensed water from the baseline supply water temperature. Therefore, the dispensed water must be brought back down to the baseline supply water temperature during testing to remove all energy input into the system from the initial request. The difference between the average dispensed water temperature and the baseline supply water temperature is then calculated in the test method and utilized when calculating the water draw performance. If the water draw were limited to the internal hot water tank capacity, the dispensed water would never reach the supply water temperature and would not accurately reflect the energy use within the system. Additionally, energy attributed to the initial heating process would remain in the system, and therefore the efficiency of the unit would appear lower.</p> <p>DOE is aware that On Demand units will “overdraw” the internal hot water tank, but in order to capture all energy input to the dispensed water, the test must specify drawing water until the supply temperature equivalency is reached. DOE has incorporated a 2°F tolerance on reaching the supply water temperature to clarify and bound the test.</p>

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2	On Demand Hot Water Draw	<p>Line 248 I) Stipulate “Repeat steps 7.3C) through 7.3H) two additional times” which now equate to an overall “mass” total water draw of 1.94kg / 1940ml / 1.94L x 3 = 5.82kg / 5820ml / 5.8L. This requirement seems to be very “extreme” and seriously jeopardize/mitigate strategic Energy Efficiency “gains” and “benefits” specifically engineered and designed for water coolers inclusive of on-demand heating technologies associated with this product category. Especially when you consider the test protocols for water coolers inclusive of “standard” (24/7) heating systems, (non-on-demand units) are not being mandated to mirror these same, (equal temperature dispensed/supply) test protocols as the “on-demand” units. (creating a non-level playing field).</p> <p>With this in mind, we would like to propose a temporary “moratorium” of the proposed Final Draft Test Method (July 2012) for “On Mode Test with Water Draw – On Demand Units Only” for further study and review of the ramifications associated therein. On an interim basis, we would be in favor of maintaining the current Water Cooler Specification Version 1.3 test protocols for on-demand heating units. As an alternate consideration, we would also be in favor of limiting the scope of the Final Draft Test protocols, (7.3) to that of a “single” water draw equivalent to that of the volume capacity of the hot water tank.</p>	<p>Section 7.3.D of the ENERGY STAR Water Coolers Final Draft Test Method (Rev. July-2012) specifies that water must not be drawn until the unit has indicated that water has been properly prepared. Therefore, the water draws are separated by recovery times, which DOE believes to be representative of “real world” conditions.</p> <p>In the example provided by the stakeholder, the test would not require 1 water draw of 5.8L, but rather 3 water draws of 1.94L each, separated by a hot water request and normal heating process. The procedure is performed as follows:</p> <ol style="list-style-type: none"> 1. Request hot water 2. When ready, draw water (Draw 1: 1.94L) 3. Request hot water 4. When ready, draw water (Draw 2: 1.94L) 5. Request hot water 6. When ready, draw water (Draw 3: 1.94L) <p>This is not a method to minimize the benefits and gains from On Demand technology, but rather to determine the water draw performance and efficiency.</p> <p>DOE developed the On Mode with Water Draw tests so all units can be compared under the same specification with identical metrics. In order to do this, DOE developed a test that compared the energy consumed with the energy delivered, regardless of differences in operation. As shown in Slide 18 of the ENERGY STAR Water Coolers Stakeholder Webinar (February 16, 2012)¹, a “standard” Storage unit will consume energy following a water draw. Slide 20 shows On-demand units consume energy prior to the water draw. Despite the energy consumption occurring at different times, the resulting data are comparable. The only significant difference between these two units is that Storage units may begin to consume energy to reheat water during a water draw. In this case, the test method is careful to capture this additional energy consumption.</p> <p>The On Demand hot water draw test carefully considers the energy consumed by the unit in preparation for a hot water draw and captures the resulting output energy provided within the dispensed water. Therefore, the On Mode Test with Water Draw for On Demand units will remain in the Water Cooler Test Method.</p>

¹ http://www.energystar.gov/ia/partners/prod_development/revisions/downloads/water_coolers/Draft_2_Water_Cooler_Presentation.pdf
September 14, 2012