

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
AIR AND RADIATION

April 28, 2014

Dear ENERGY STAR® Clothes Washer Manufacturers and Other Interested Stakeholders:

With this letter, the U.S. Environmental Protection Agency (EPA) is sharing a proposed clarification to the voluntary connected criteria in the Version 7.0 ENERGY STAR Clothes Washer specification. Specifically, EPA proposes for stakeholder review and comment clarifications to the clothes washer demand response capabilities and a revised definition for connected clothes washer's temporary appliance load reduction capability. EPA welcomes written comments no later than May 19, 2014 via email to appliances@energystar.gov.

Clarifying Intent for Demand Response Capabilities

EPA is proposing the modification to Section 4.G., shown below, in order to clarify the Agency's intent that a clothes washer be able to respond to a signal to shift or temporarily reduce load for all wash load cycles/settings. EPA welcomes feedback on this proposed modification.

From Section 4.G

A connected clothes washer shall have the capability to receive, interpret and act upon consumer-authorized signals by automatically adjusting its operation depending on both the signal's contents and settings from consumers. At a minimum, the product shall be capable of providing the following capabilities for all cycle and setting combinations:

Defining Temporary Appliance Load Reduction

The final Version 7.0 clothes washer specification includes a placeholder for a Temporary Appliance Load Reduction (TALR) capability. The U.S. Department of Energy (DOE) plans the development of a test method to validate clothes washer demand response capabilities.

In an earlier draft, EPA had expressed this capability as requiring at least a 50 percent reduction in power draw over the duration of the response, relative to a baseline power draw. EPA subsequently removed this language in order to provide more time to gather input from stakeholders as to how best to define this capability.

After further consideration, EPA believes the approach for defining this response as a percentage of a baseline is likely to be difficult to implement in practice given that clothes washer cycles today can be quite complex, involving large variations in power draw over the course of the cycle. Run-to-run test variations (both for cycles used to develop the baseline and to validate the response), could impact testing repeatability.

In practice, there is likely a limited set of actions that a clothes washer would take while it temporarily reduces load, e.g., reducing the agitation level, slowly rotating the drum, or bringing it to a complete stop. EPA and DOE believe a simpler approach that requires a clothes washer to reduce its average power draw to no more than a specified, fixed level (in watts) during the load reduction period will offer greater test repeatability as well as reduce test burden. This approach avoids the need to establish a baseline power draw for each cycle.

EPA is proposing below that the TALR capability require, at a minimum, the clothes washer to restrict its average power draw during the load reduction period to no more than 50 watts. The proposed 50 watt level was both informed by clothes washer test data collected by DOE and is within the range of a permissible response under the prior 50% power-draw reduction criteria. It is EPA's intent that at this level, a clothes washer would need to

suspend most operations, but could likely continue to slowly rotate the drum, provide low-level agitation, and drain or fill the tub.

1. *Temporary Appliance Load Reduction Capability: The capability of the product to respond to a signal by providing load reduction for a short time period, typically 10 minutes. Upon receipt of signal and in accordance with consumer settings, except as permitted below, the product shall restrict its average power draw during the load reduction period to no more than 50 watts.*
 - a. *Default settings – The product shall ship with default settings that enable a response in accordance with 4G2 for a time period of least 10 minutes.*
 - b. *Consumer override – The consumer shall be able to override the product’s Temporary Appliance Load Reduction response before or during a load reduction period.*
 - c. *The product shall be able to provide at least one Temporary Appliance Load Reduction response in a rolling 24-hour period.*

Applicable Cycle Settings for TALR

As noted above, EPA intends that the product shall be capable of providing TALR capabilities for all cycle and setting combinations. Stakeholders have previously recommended that the baseline and response testing be limited to a specific cycle included for testing in the DOE energy and water test (Appendix J2). EPA and DOE are concerned that this approach may not be adequate to verify the product would be capable of responding in all cycles and settings. Some stakeholders also noted that certain heavy-duty or sanitization cycles use more energy, especially with supplementary water heating or steam generation, and as such, are important targets for demand response. However, such cycles may not be included as part of the DOE energy and water test for all clothes washers. EPA seeks feedback on the proposal regarding cycle and setting combinations.

In order to further illustrate these considerations, a set of charts developed based on DOE testing are enclosed that plot the full-cycle power draw as a function of time for several ENERGY STAR clothes washers in both normal and sanitize cycles.

EPA welcomes feedback on this proposed clothes washer TALR capability. EPA is interested in further feedback and in particular, test data, that helps inform whether the proposed 50 watt level is an appropriate target that will permit some limited operation (e.g., low-level agitation, slowly rotating the drum, filling, or draining) during response periods. Is a higher level needed, and if so, for what action, or conversely could a lower level be specified that would increase grid benefit without undue impact to consumers? This proposal also seeks feedback as to how testing might be structured to minimize test burden while reasonably assuring compliance with the demand response criteria for all cycle and setting combinations.

Once vetted, EPA plans to incorporate the new criteria into a new Version 7.1 specification which will allow stakeholders the option of having products that meet the connected criteria identified as such on the ENERGY STAR qualified product list. Once a final ENERGY STAR clothes washer demand response test procedure is available, manufacturers who certify clothes washers to all Section 4 criteria and certify demand response capability using this test method, will be eligible to take advantage of the 5% energy allowance.

Should you have any questions or wish to set up a meeting to discuss this proposal, please contact me at Kaplan.Katharine@epa.gov or (202) 343-9120. Clothes washer test method questions should be directed to Ashley Armstrong, DOE, at Ashley.Armstrong@ee.doe.gov or (202) 586-6590. Thank you for your review of this proposal and your continued support of the ENERGY STAR program.

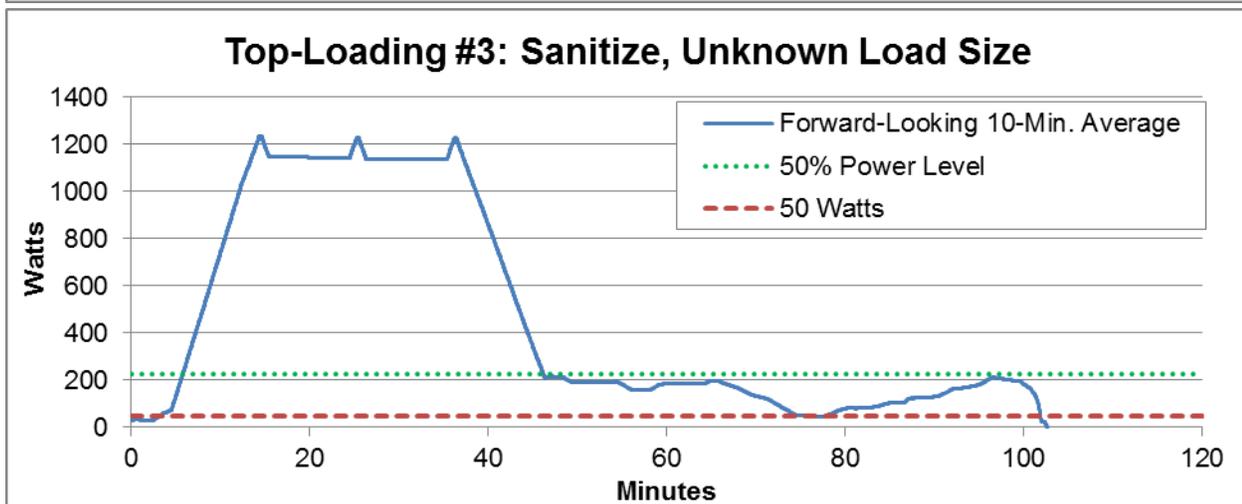
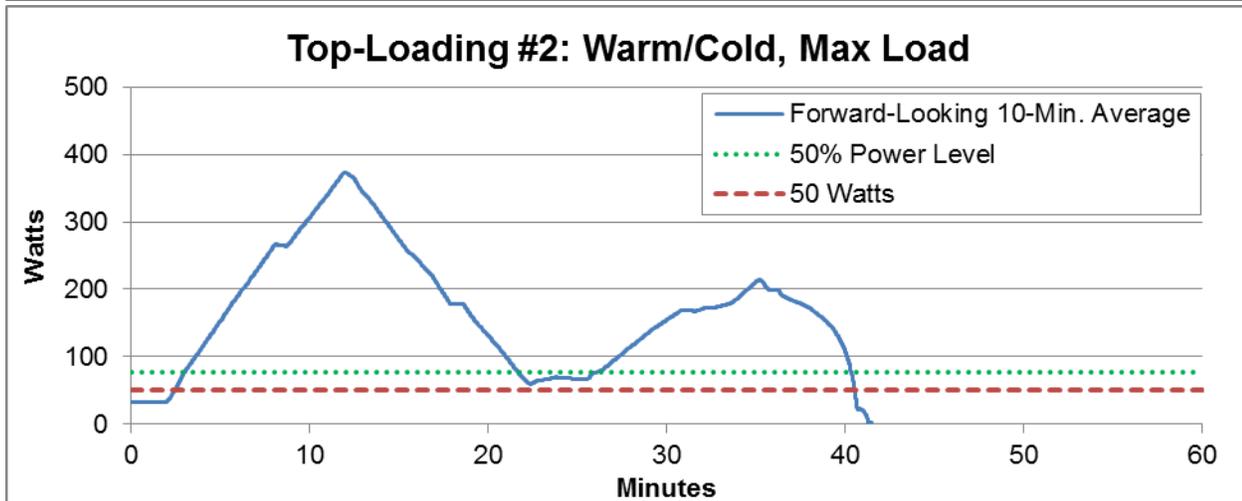
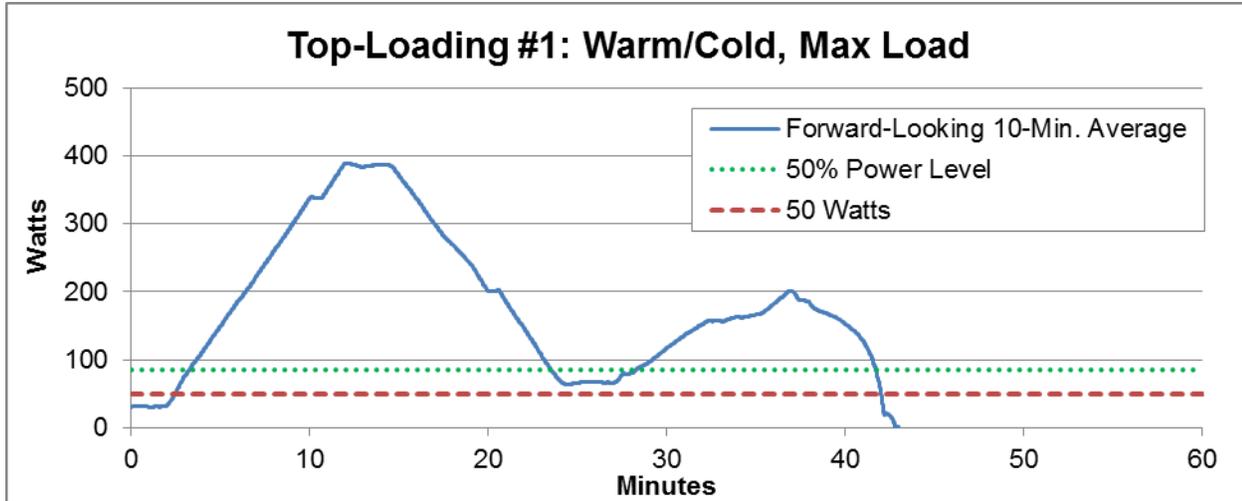
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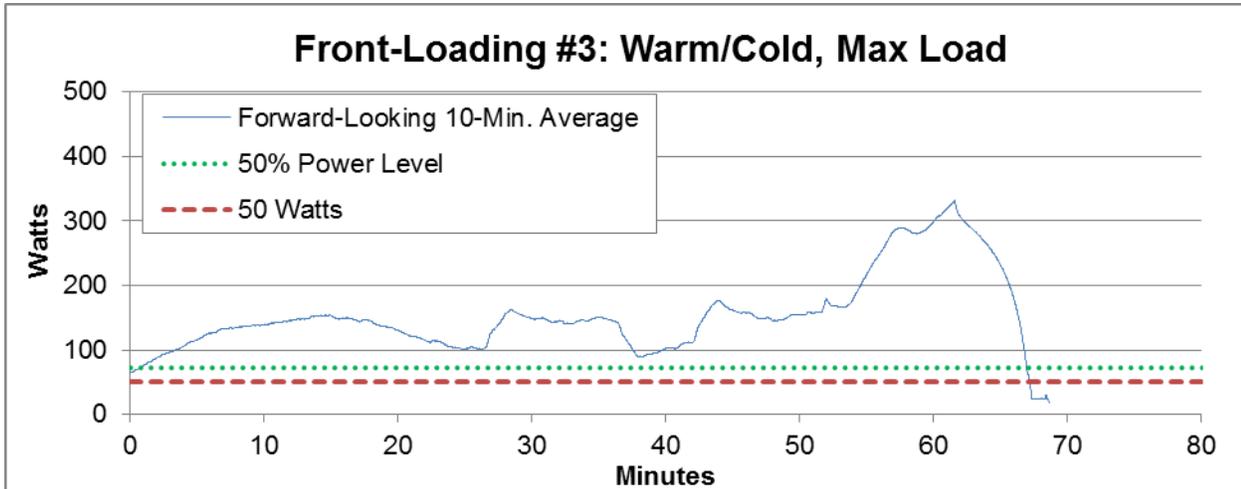
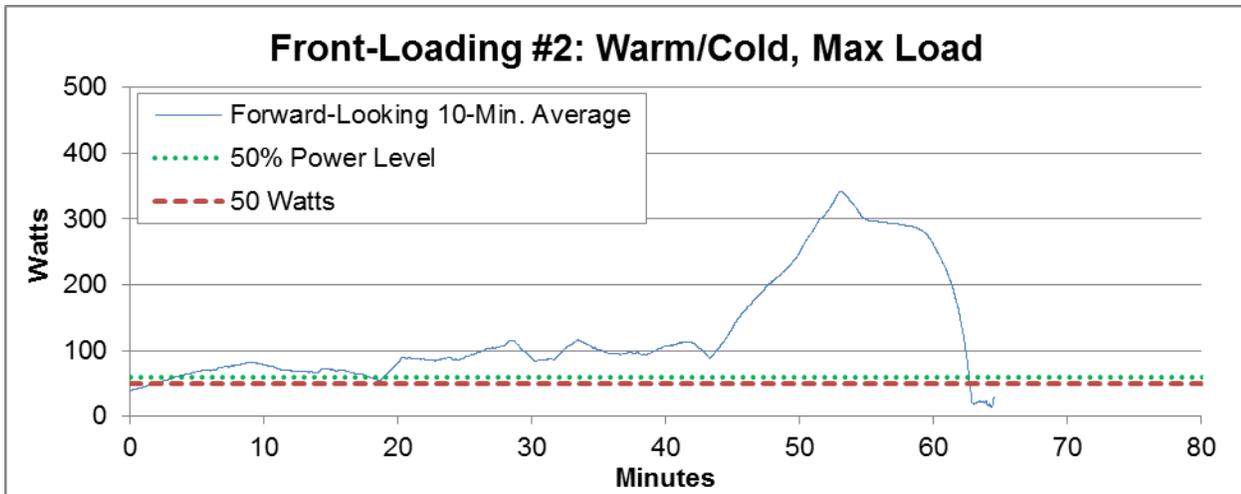
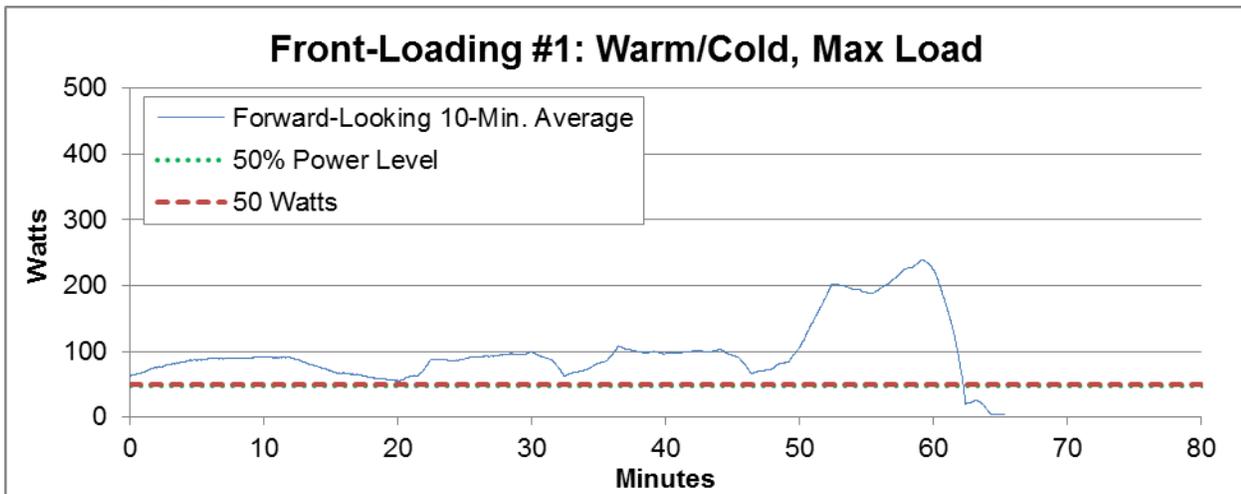
Katharine Kaplan
Manager, ENERGY STAR Product Development and Program Administration

Encl. Clothes Washer Power Draw Plots

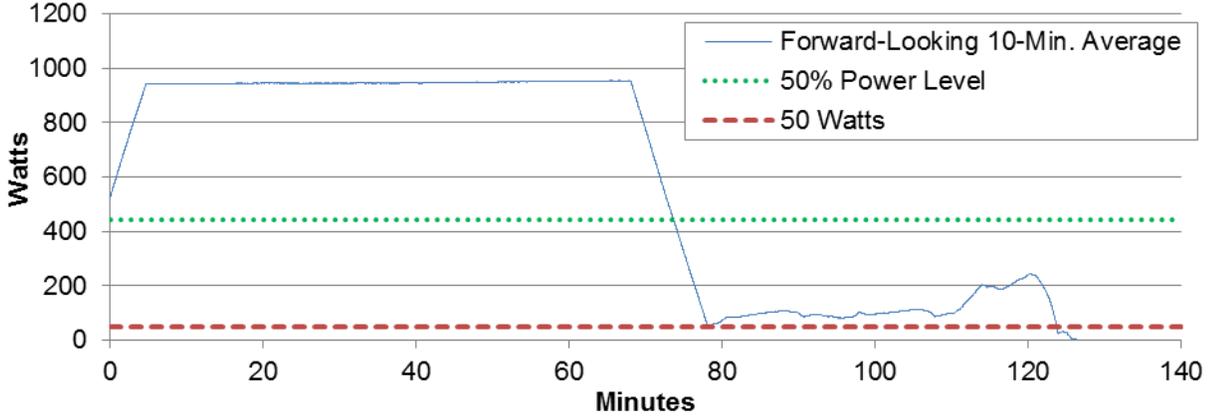
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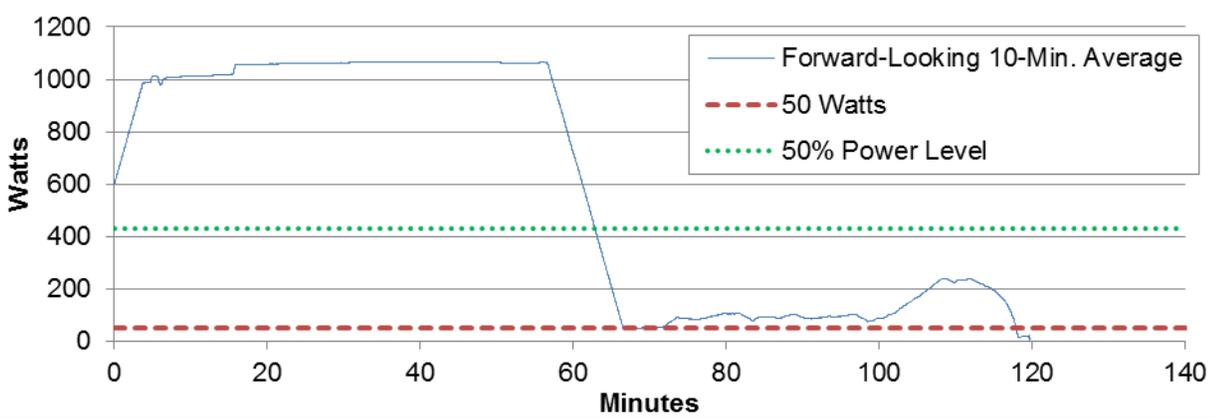
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Front-Loading #3: Sanitize, Max Load

