

Stakeholder Comment Response  
Draft 1 Version 5.0 Residential Dishwasher Specification

REF No.	Topic	Comment	EPA Response
1	Definitions	Cookware should be mentioned in the Residential Dishwasher definition since the soils on these items are generally baked on and tougher to remove.	As proposed in Draft 1, EPA has harmonized the ENERGY STAR residential dishwasher definition with the DOE dishwasher definition from 10 CFR 403.2. EPA anticipates keeping this definition for the foreseeable future, unless circumstances prompt a review.
2	Definitions	Recommend that the specification explicitly state whether or not countertop or portable models are included.	EPA has clarified in the Draft 2 specification that portable and countertop dishwashers are eligible for ENERGY STAR qualification.
3	Definitions	Suggest adding a note that product families of dishwashers can include front panel colors and interior rack upgrades for easier loading.	EPA is now using a basic model approach rather than a product family approach. Changes to the front panel colors would be considered as part of a basic model. However, EPA believes that an upgrade to the interior rack may impact the cleaning performance score that will ultimately be required in Tier 2. For this reason, EPA will address the issue of rack design once a cleaning performance test is chosen.
4	Definitions	Agree with most of the rounding principles. However, EPA should allow rounding help; suggest that 4.03 gallons be considered equivalent to 4.0 gallons and should therefore be allowed to be listed as 4.0	EPA requires that compliance with ENERGY STAR specification limits be evaluated using exact values, without any benefit from rounding. This principle is consistent across all ENERGY STAR product specifications, and is meant to ensure that products meet consumer expectations.
5	Definitions	Definitions should be identical to DOE. There is a small additional phrase in the proposed definition for a residential dishwasher, "used in a residential setting." Also notes minor differences in the definitions for compact dishwasher, standard dishwasher, and basic model.	In Draft 2 Version 5.0, EPA revised definitions for basic model, compact dishwasher, and standard dishwasher, to further harmonize with the corresponding DOE definitions. The clause "used in a residential setting" is included to distinguish a residential dishwasher from dishwashers that are covered in the ENERGY STAR Commercial Dishwasher program.
6	Definitions	Recommend removing the definition for standby power since it is a complex concept; this definition does not add anything beneficial to the ENERGY STAR criteria, and may result in confusion. It is sufficiently defined in the DOE test procedure cited by ENERGY STAR. Suggests the same is true for energy factor.	EPA removed these definitions from the Draft 2 Version 5.0 specification.
7	Effective Date	December 2011 is too soon for Version 5.0 to take effect. It will not be beneficial to the program if manufacturers rush products to market that do not perform adequately. Recommend January 1, 2013 so manufacturers have enough time to prepare, and since it is the same level as the tax credit, manufacturers will be further assisted in developing and marketing products at that level.	EPA is aware of the tax credit timing, however, it is important to revise the energy- and water- requirements to ensure that the ENERGY STAR label is meaningful as a differentiator for the most efficient products in the market. EPA will address concerns over performance by incorporating a cleaning performance test into the criteria. In the Draft 2 specification, the effective date for the Tier 2 cleaning performance test is January 1, 2013.
8	Effective Date	Fall 2011 is discouraged as an effective date due to revisions to both AHAM-DW-1-2009 and the IEC 60436. The proposed levels should be delayed until all surveys, "round robin" testing, and comments are completed, collected and analyzed to ensure that wash performance is not negatively affected. The DW-1 task force is expected to complete its process by 2013.	EPA has proposed a two-step approach to implement cleaning performance requirements within the ENERGY STAR specification. Under Tier 1, cleaning performance must be tested and reported for each qualifying product, though no requirements have been proposed. Under Tier 2, minimum cleaning performance requirements will be developed based, in part, on the data received from Tier 1 product submissions.
9	Effective Date	EPA is encouraged to maintain the originally planned July 1, 2011 specification and to set a future ENERGY STAR specification at the levels of the Draft 1, Version 5.0 proposal with an effective date of January 1, 2013. This would coincide with the new standards.	EPA remains concerned that the ENERGY STAR label will not be a meaningful differentiator to consumers if high market share persists. EPA has taken stakeholder comments into account when developing the Draft 2, Version 5.0 proposed levels.

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10	Cleaning Performance Testing	EPA should not allow multiple cleaning performance tests to be used. Cleaning performance measurements must produce consistent and comparable results - a challenge that multiple cleaning performance tests may not ever overcome.	EPA plans to work with AHAM and IEC to develop a single cleaning performance test procedure for use by the ENERGY STAR program in time for the Tier 2 effective date of January, 2013.
11	Cleaning Performance Testing	The ability of 3rd-party labs to conduct cleaning performance tests is questionable given their lack of experience or test equipment. EPA should consider reaching out to labs to get comments to understand the impact of adding such a metric as to additional costs, testing time, training, etc.	EPA appreciates this feedback and plans to engage third-party laboratories to discuss cleaning performance testing.
12	Cleaning Performance Testing	Although the necessary revisions are underway for both AHAM-DW-1 and IEC 60436, both will take a significant amount of time to be completed. AHAM is working to harmonize with the IEC procedure, where appropriate in the US market, and also to do round robin testing. This process can not be fast tracked while still achieving the necessary results. AHAM has committed to having their revisions process complete by 2013, when a new ENERGY STAR criteria is expected.	EPA recognizes that both AHAM DW-1 and IEC 60436 are currently being revised. With this in mind EPA has proposed that minimum cleaning performance requirements not be established until 2013.
13	Cleaning Performance Testing	The introduction of a cleaning performance test is premature and it is not EPA's role to develop test procedures. DOE, per the MOU, is the body with that responsibility and is the proper agency to decide whether and how to incorporate performance into the test procedure for residential dishwashers. EPA should not circumvent DOE's expertise by deciding what test procedure should measure performance and, necessarily, any performance test must be integrated with the applicable test procedure for the product. Should EPA move forward without DOE's assistance, EPA is urged to wait until there is a test procedure robust enough to provide a solid foundation - neither AHAM-DW-1 or IEC 60436 have been validated as precise enough to be used to qualify for ENERGY STAR or to be subjected to the rigorous enforcement associated with enhanced testing and verification program.	In practice, for test procedure purposes EPA looks first to consider whether there is an established DOE test procedure that will meet the needs of the program. Otherwise, EPA looks to and considers vetted industry test procedures. EPA plans to consider all available industry test procedures for cleaning performance for use in the Tier 2 ENERGY STAR specification. EPA is proposing to delay implementing a minimum cleaning performance requirement until 2013 to allow sufficient time for test procedure validation.

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14	Cleaning Performance Testing	<p>AHAM-DW-1 - PROS</p> <ul style="list-style-type: none"> <li>- is by far the most representative of American consumer behavior in terms of food soil types, soil amounts, and cleaning practices.</li> <li>- is recommended, however soils should be baked on to better discriminate between machines. The AHAM method uses a number of different soils, which is good.</li> <li>- is an excellent test to measure the ability of the dishwasher to remove large amounts of food and to reduce re-deposition of soil.</li> <li>- good performance typically correlates to consumer satisfaction. Data could be collected through AHAM regarding the correlation between scores and consumer satisfaction.</li> <li>- was developed in transparent, open manner and is a practical test that allows high output for labs. There is a great deal of experience with the AHAM test in labs today.</li> </ul>	<p>EPA is proposing AHAM DW-1-1992 for Tier 1 cleanability testing and reporting. This will allow the cleaning score to be linked to the energy and water consumption of the unit.</p> <p>EPA will consider the most recent revisions of the IEC and AHAM test procedures available for use in Tier 2, in advance of the Tier 2 effective date.</p>
15	Cleaning Performance Testing	<p>AHAM-DW-1 - CONS</p> <ul style="list-style-type: none"> <li>- is an outdated filtration test that points out the strengths of an old technology that used massive amounts of water.</li> <li>- weaknesses include food soils that are loosely attached and testing that may not be representative of consumer use and may result in overrepresented energy measurements.</li> <li>- has not undergone full-scale round-robin testing, which may take up to a year to complete. This is required to validate repeatability and reproducibility along with determining an acceptable test score threshold.</li> </ul>	<p>EPA is interested in considering data regarding the correlation of cleaning performance test results with consumer satisfaction.</p>
16	Cleaning Performance Testing	<p>IEC 60436 - PROS</p> <ul style="list-style-type: none"> <li>- is the only test that is repeatable and reproducible from lab to lab, due to an established reference machine.</li> <li>- has undergone round robin testing and is therefore more refined than AHAM.</li> <li>- uses a standardized detergent and rinse aid rather the test market detergent.</li> </ul>	<p>EPA appreciates this feedback and is aware that the AHAM-DW-1 test is being revised to be more consistent with the IEC test procedure. EPA is in favor of U.S. harmonization with international test standards and believes that the industry is best positioned to develop a U.S. localization of IEC 60436.</p>
17	Cleaning Performance Testing	<p>IEC 60436 - CONS</p> <ul style="list-style-type: none"> <li>- uses a dishwasher cycle program structure that does not correspond in all respects with US usage</li> <li>- use of the procedure in the US is not mature.</li> <li>- requires the purchase of new equipment, including soil drying cabinet, specified reference machine, specified microwave oven, specified dishware, and food soils for which substitutes will likely be necessary.</li> <li>- requires labs to implement heightened controls on ambient conditions.</li> </ul>	<p>EPA is interested in further information on how IEC test scores correlate with consumer satisfaction. For example, what is the minimum score that a product could achieve, which will correlate to consumer satisfaction? Would this be an "A", which is the minimum score in Europe?</p>

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18	Cleaning Performance Metric	All attributes must be considered to properly evaluate a dishwasher. This includes energy, water, cleaning performance, number of place settings, time, and noise. All of these factors relate to each other. While ENERGY STAR and its general direction is supported, it is believed that ENERGY STAR should only implement with proper development and consideration for all aspects.	EPA will take the recommendations into consideration for future specifications. At this time, EPA believes that it is most important to add a cleaning performance metric to the Dishwashers specification to supplement the current energy and water performance criteria and ensure that ENERGY STAR continues to represent top performing products in the marketplace.
19	Cleaning Performance Metric	Support the inclusion of a cleaning performance metric. EPA is encouraged to require any test to use highly-rated, commercially available detergents. Detergent requirements will ensure that cleaning performance is consistent with consumer experience.	EPA agrees that it is important for a standard detergent formulation to be specified in a cleaning test procedure and will include this item in its recommendations to AHAM for harmonization with the IEC test procedure.
20	Cleaning Performance Metric	Cleanability should be the metric used by EPA. The alternative statistical approach needs to be clarified, choosing between the traditional Analysis of Variance used in the DOE energy test procedure and the IEC test procedure.	EPA appreciates this feedback and will take this recommendation under consideration.
21	Cleaning Performance Metric	Recommend using the cleaning index outlined in the AHAM procedure. One idea would be to have a score per gallon of water used to show those machines that provide the best performance for the least water. A minimum acceptable score is preferred to tolerances.	EPA plans to establish a minimum cleaning performance requirement (score) for Tier 2 and will evaluate all available cleaning performance metrics and scores when finalizing the Tier 2 requirements.
22	Cleaning Performance Metric	Dishwashers should not have a score of less than 80% on the AHAM test procedure. Scoring methodology should be written as in the test procedure. It would be in the best interest of all labs involved in energy qualification and verification testing, to have a standard spreadsheet for calculation and submittal of the wash performance metric.	EPA will take these recommendations under consideration when establishing a Tier 2 minimum cleaning performance requirement.
23	Cleaning Performance Metric	A scoring threshold will depend on which test is selected and would need to be established through market research, correlation of existing data, and round robin testing on all available brands at all EPA approved washability labs. If the test is not repeatable from lab to lab, the threshold should be lower to account for variation. Based on an IEC test, a conservative threshold is recommended in order to allow manufacturers time to adjust cycle structures. without round robin testing, A score of C is a recommended starting point.	EPA is aware of the importance of round-robin testing for minimizing lab-to-lab and test-to-test variations. For this reason, EPA is requiring only that cleaning performance scores be reported for Tier 1, with no minimum performance requirements. EPA will continue to assess the progress made by the AHAM DW-1 and IEC working groups before finalizing Tier 2 minimum cleaning performance requirements.
24	Cleaning Performance Metric	Any tolerance should be constrained by a confidence level.	EPA will take this recommendation into consideration in establishing a future minimum cleaning performance requirement.
25	Energy & Water Performance	Support EPA's effort to achieve its intended target of the top 25% of products in the market, and believe that more-stringent energy and water consumption requirements are needed to maintain that target.	EPA appreciates this feedback and agrees that more stringent energy- and water- performance requirements are necessary to enable consumers to identify top-performing products in this category.

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26	Energy & Water Performance	Until an accurate, repeatable cleaning performance test procedure is developed and evaluated against different efficiency levels, EPA is encouraged to adopt a slightly less stringent energy and water consumption requirement.	Due to concerns raised over product availability, EPA has eased the energy- and water requirements in the Draft 2, Version 5.0 proposed levels. EPA will continue to work with the AHAM DW-1 and IEC working groups to develop cleaning performance metrics and scores that may be used in the ENERGY STAR criteria as part of a Tier 2 requirement.
27	Energy & Water Performance	The CEE Tier 2 requirement will be more achievable in a one year timeframe for many brands than the proposed limits. One suggestion is to use the CEE Tier 2 requirement with no cleaning performance measure, effective Fall 2011. EPA could then reserve the option to consider cleaning performance and energy and water limit revisions in the future when adequate test methods and cleanability comparisons are available.	EPA has taken this feedback into account when developing the Draft 2, Version 5.0 proposed levels.
28	Energy & Water Performance	The Version 5.0 criteria levels proposed by EPA and the implementation date of Fall 2011 are acceptable.	EPA appreciates the feedback on the proposed Draft 1, Version 5.0 energy- and water- requirements.
29	Energy & Water Performance	Changing the specification requirements at this late date is disruptive to manufacturers. EPA should retain the previously set increase for 2011 which manufacturers have been planning towards and investing significant program resources in reliance upon, since 2008. At least 24 months are needed to recoup the original investment and make subsequent investments to develop the technologies needed to meet significantly greater ENERGY STAR criteria.	EPA commends manufacturer's investments to increase the energy and water efficiency of their product lines. EPA is also committed to serving its role of helping consumers identify the leading products when it comes to efficiency. Consequently, EPA believes more stringent energy and water requirements are necessary to reduce the market share of qualified dishwashers and maintain the relevance of the ENERGY STAR label.
30	Energy & Water Performance	By undermining manufacturer's reliance on the criteria previously set for 2011, EPA's proposal runs the risk of undermining the major agreement on federal minimum energy conservation standards for certain provisions that manufacturers recently reached with energy efficiency advocates. The July 2011 dishwasher specification was used as a transition point for the new standard. EPA's proposal to drop the July 1, 2011 specification and further increase the eligible criteria will make the transition to the 2013 energy efficiency standard much more difficult. The levels proposed by EPA were developed as tax credit levels with the idea of working towards long term development and growth of the super-efficient market. By making this the ENERGY STAR level will unnecessarily speed up the process and cause problems for manufacturers and consumers. Furthermore, these models compose only a small fraction of the market, certainly far short of the 25% goal.	EPA acknowledges the importance of this agreement to the manufacturing community. However, EPA continues to be concerned about the integrity of the program if market share continues to be well above the market share trigger. EPA also notes that about 21% of products meet the Draft 2 Version 5.0 proposed Tier 1 levels, while about 11% meet the proposed Tier 2 levels.

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31	Energy & Water Performance	In order to have equal or greater performance with increased efficiency a performance testing requirement will be needed. With no cleaning performance test other manufacturers may attempt to game the system and put products in the marketplace that do not clean dishes properly. If consumers are unhappy with the performance of their dishwasher, they will begin pre-rinsing their dishes, which will use greater amounts of water.	EPA acknowledges the importance of a cleaning performance test and is taking steps to ensure that a test is implemented in a reasonable amount of time. At this time, a number of factors are being considered that will ensure that consumers will be satisfied with their ENERGY STAR qualified dishwasher performance. This includes implementing a test that is both reliable and repeatable.
32	Energy & Water Performance	<p>EPA likely does not have wash performance from those models (ENERGY STAR, CEE Tier 1, and CEE Tier 2) that are currently in the market. Performance may have already been impacted by higher efficiency levels, which means higher numbers of consumers choosing to pre-rinse their dishes or forced to select a longer cycle or additional options.</p> <p>An independent marketing survey is needed to gather wash performance data from consumers with respect to their satisfaction with the current purchase of an ENERGY STAR dishwasher. Questions to consider are if these units are sensor-based and how do these units perform in consumer homes with respect to wash performance?</p>	EPA encourages partners to share any available cleaning performance data that will help inform future specification revisions.
33	Energy & Water Performance	In concept, a 5% credit may be supported, however it is premature for EPA to consider the credit at this time. EPA should delay allowances for Smart Grid credits.	EPA is currently evaluating opportunities to achieve energy and water savings by encouraging the development of "smart" appliances and smart grid capabilities.
34	Energy & Water Performance	Contests the payback numbers indicating that a consumer would be able to recoup the price premium of the product.	EPA believes that consumers will be able to recoup the price premium of an ENERGY STAR qualified product within a reasonable time period. This is based on consideration of incremental cost data from prior DOE analysis, current retail prices, and the historic price premium that has been associated with ENERGY STAR dishwashers. EPA notes an average household will recoup approximately \$80-100 over the lifetime of their dishwasher under the proposed Tier 1 levels.
35	Energy & Water Performance	Contests the part of the analysis the uses tested values rather than listed values. Due to their role in ensuring maximum compliance, it is not believed that the tested values should be used.	EPA is committed to posting only listed values. However, for the purposes of spec settings, EPA believes it is important to consider not only the listed values, but also tested values. This approach is followed for all product categories. For dishwashers, EPA notes that the test results show that products can be as much as 33% more efficient than their listed values. EPA understands that manufacturers typically build in some small buffer when deciding on listed values and will take this into consideration when reviewing tested values.
36	Energy & Water Performance	Some of the design options listed in the analysis would add considerable cost to the consumer.	EPA encourages partners to share any incremental cost data to better inform EPA on the cost impact of various design options. The design options that were presented in the draft were included as examples.