

Summary and Response to Stakeholder Comments Received on the ENERGY STAR Version 4.0 Draft 1 Room Air Conditioners

Ref. No.	Topic	Summary of Comments	EPA Response
1	Certification Criteria	<p>Two stakeholders supported the proposed criteria level of 10% more efficient than the 2014 Federal standard, indicating the proposed level would offer differentiation within the market and enable cost-effective rebate programs.</p> <p>One stakeholder encouraged EPA to consider whether it may be more accurate to use different run hour assumptions based on the size of the unit.</p> <p>Two stakeholders expressed concerns about safe adoption of climate-friendly, flammable refrigerants. While manufacturers are researching these refrigerants, there are still concerns about their adaptability for RAC applications. Other concerns focused on safety for the consumer, particularly as consumers remove the product each year.</p>	<p>EPA appreciates the support for the proposed criteria. In response to the suggestion about adjusting considerations based on unit size, EPA does not see a need for deviating from a 10% ENERGY STAR level across all product classes. DOE already distinguishes between product classes when determining federal minimum standards.</p> <p>EPA is not prescribing the use of alternative refrigerants that may be flammable. Rather, EPA encourages their adoption in accordance with the Significant New Alternatives Policy (SNAP) program which includes requirements to ensure safe use, as one of a variety of technological advances that manufacturers may employ in an effort to meet the proposed ENERGY STAR levels.</p>
2	Certification Criteria	<p>One stakeholder expressed concern regarding the Energy Saver mode requirement. While the feature does have the potential to provide consumer energy savings, the feature has prompted consumer complaints.</p>	<p>The Energy Saver mode requirement is not new to Version 4.0. EPA regrets that the commenter is experiencing consumer complaints and is open to hearing more about the nature of the concern. If confusion about Energy Saver mode proves to be a broader issue among manufacturers, EPA may be able to help with consumer education. Please see the Draft 2 Version 3.0 Data &amp; Analysis package for supporting information on the estimated savings associated with Energy Saver mode.</p>

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3	Certification Criteria	<p>Three stakeholders expressed their support for the proposed installation requirements, and noted that RACs can increase whole house air leakage by 10-20%. One requested clarification that the list of installation materials for window units is not intended to be exhaustive. A few asked for additional insight into EPA's description of the properties that RAC installation with an adequate seal would possess. One commenter suggested that EPA either require that the installation materials be sufficient to fit most windows, or that the product indicate the window sizes that the installation materials can adequately cover.</p>	<p>EPA agrees that proper installation can offer significant energy savings and contribute to consumer comfort. In Draft 1, EPA did not intend to specify an exhaustive list of material types to be used for window unit installation. Instead, EPA provided examples of materials that would work well for this purpose. In response to the inquiry about material types, as well as the request for additional clarification on what is meant by an adequate seal, in the Final Draft, EPA is indicating that the list is not exclusively limited to the material types specified, and is providing guidelines on what the material must be able to deliver, namely, resistance to air and water infiltration, and UV degradation. EPA is not requiring any indication on the product regarding the window size(s) the installation material is able to cover, as EPA understands that window AC units are designed to fit certain window sizes. Instead, EPA is clarifying that the included installation materials should be sufficient for those typical window sizes that match the particular AC unit.</p>
4	Certification Criteria	<p>One stakeholder strongly supported the proposed requirement for side curtains with a minimum R-value for insulation. The stakeholder requested additional performance specifications, such as a requirement for maximum total leakage and/or heat transfer. Another stakeholder questioned whether manufacturers would be required to switch from plastic to fabric side curtains, noting that such a switch would add cost, and that fabric may shrink or mold in response to exposure to temperature or humidity extremes.</p>	<p>In this Final Draft, EPA is maintaining the side curtain requirement with a minimum R-value for insulation, as proposed. EPA's approach to the installation requirements is to clarify the properties that installation materials must possess (i.e., resist air and water infiltration, as well as UV degradation) without limiting manufacturers' options for material types. EPA is not prescribing that a product must switch material types, e.g., from plastic to fabric side curtains. Rather, EPA is setting a minimum threshold for side curtain insulation value regardless of material type.</p>

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5	Certification Criteria	<p>Two stakeholders questioned the portion of installation-related savings that would be associated with use of insulating covers in Through-the-Wall (TTW) units. These stakeholders also cautioned that there will be additional cost compared with the current installation designs, expressing concern that this cost may have not been included in the payback analysis.</p> <p>One stakeholder supported the proposed requirement for covers, and commented that EPA should consider a more stringent R-value requirement. In addition, the stakeholder would like to see the language specify that covers must not only insulate, but also air seal units.</p>	<p>EPA is not including a requirement for covers for TTW ENERGY STAR room air conditioners at this time. EPA is requiring that Installation Instructions for TTW units recommend use of appropriately sized covers that insulate and seal. The Agency intends to continue evaluating available information on cost, associated savings, and cover designs, for consideration of a requirement to include covers in the box in a potential future revision.</p>
6	Certification Criteria	<p>EPA received varied responses on the proposed sound performance criteria, with one stakeholder supporting EPA's efforts and others noting that EPA should continue to focus its efforts on energy efficiency. Commenters also indicated that there is significant test burden associated with measuring sound performance and currently limited test facility availability.</p>	<p>EPA received varied feedback regarding the proposed sound performance criteria which were intended to harmonize with the EcoDesign regulations mandated by the European Union. Comments and additional conversations with manufacturers revealed that labs are not yet able to complete the proposed test and building the needed facilities is costly. Further, EPA has learned that there is not an industry agreed upon means of completing a lower burden test. As such, EPA has removed the sound performance criteria from the Final Draft specification. However, EPA remains very interested in ensuring ENERGY STAR RAC do not trade sound performance for efficiency. Thus, EPA will monitor the market to further understand the relationship between sound performance and efficiency, and consumer satisfaction, as well as sound levels associated with ENERGY STAR room air conditioners. As needed, in the next revision, EPA will set requirements to guard against noise such as limits on attributes that contribute to noise (e.g., fan speed) or limits on sound levels. EPA strongly encourages manufacturers to consider impacts to sound performance as they seek to meet the ENREGY STAR efficiency levels, and to avoid significantly increasing fan speeds where possible, in the interest of maintaining a positive consumer experience.</p>

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7	Connected	EPA received varied responses regarding the connected allowance proposed. One stakeholder supported the inclusion of the connected allowance, while one stakeholder expressed concern regarding the justification for the 5% allowance, noting that ENERGY STAR products must continue to deliver cost-effective savings.	EPA has retained the five percent allowance in the Final Draft for room air conditioners with connected functionality, to help drive near-term, consumer value through the availability of new energy savings and convenience features. This functionality may also provide future benefits to the electric grid and additional consumer savings once the supporting infrastructure is built. This temporary incentive is designed to help 'jump start' the market.
8	Connected	<p>One stakeholder supported the simplified Section 4G Demand Response (DR) criteria and consumer DR override-ability criteria, indicating that this approach will provide the desired energy reduction while significantly reducing test burden.</p> <p>A second stakeholder expressed concerns with both Delay Appliance Load criteria and the energy related messages criterion in relation to the consumer experience. In particular, the commenter noted that in order to provide messaging consistent with the proposed criteria there could be consumer confusion with the additional interface and advanced software needed.</p>	EPA is glad to receive support for the demand response approach. The DR criteria was developed with significant stakeholder input. EPA expects the proposed criteria will enable predictable load shed for utilities, while limiting consumer impact and reducing manufacturer test burden. In the Final Draft, EPA has retained the proposed language for both Delay Appliance Load (DAL) and for Operational Status, User Settings & Messages. EPA notes that the DAL criteria is expected to enable significant grid benefits while limiting comfort impacts to consumers. EPA notes that manufacturers are encouraged to implement energy related messaging that is appropriate for their products; EPA has included clogged filter and abnormal energy use messages as illustrative examples, only. Also, EPA reiterates that the connected criteria are optional for those manufacturers and products that wish to provide that functionality to their consumers.
9	Connected	One stakeholder urged EPA to mandate use of open, non-proprietary connectivity within the bounds of the consumer's premises.	Currently, a range of connected approaches are being explored in the nascent connected appliance market. Accordingly, EPA believes it is ultimately in the consumer's interest for the market to be free to test a range of options, constrained only by the consumer-oriented objectives the ENERGY STAR program is seeking to advance. Accordingly, in the Final Draft, EPA has continued to indicate a preference for products that enable on-premises open standards connectivity, while allowing alternate approaches that allow open standards connectivity only outside of the consumer's premises to also comply.

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10	Connected	<p>One stakeholder recommended consideration of information-based "behavior change" demand response programs that may depend upon open-standards connectivity in the home.</p>	<p>In its approach to connected, EPA has developed broad criteria designed to capture both direct consumer benefits associated with energy management as well as longer-term benefits that will accrue when the connected product is enrolled into a signal-based DR program.</p> <p>Regarding behavior change programs, EPA envisions that connected appliances can provide behavioral energy management functionality in a system environment that leverages price and grid status information, as well as operational status and consumption reporting functionalities to encourage behavioral change. Optionally, such an implantation could additionally use remote management or Demand Response functionality to automatically delay wash cycles in accordance with pre-set consumer preferences.</p>
11	Connected	<p>One stakeholder encouraged EPA to mandate connected products to support all major communication pathways using open-standards connectivity in the home to enable information-based "behavior change" demand response programs. This stakeholder noted that not all consumers have broadband and/or Wi-Fi, and in regards to cloud connectivity, expressed concerns with reliability, consumer privacy, security, and reliance on 3rd parties for maintenance. This stakeholder recommended that EPA mandate that all connected products either support all major communication pathways or provide a standardized modular port.</p>	<p>Stakeholder engagement as appliance connected criteria were developed revealed strong but divergent opinions on whether EPA should specify that a product must have on-premises open standards-based communications. In the Final Draft specification EPA continues to recommend that products with connected functionality provide on-premises open standards connectivity, but also allows alternate approaches to also qualify. EPA plans to monitor the market, including interconnection of connected products by utilities, and may consider associated criteria revisions to support realization of opportunities from Smart Grid interconnection.</p> <p>EPA does not require products be able to "communicate via all major communication pathways," and as such, EPA recognizes that in the near term, protocol translation by in-home hubs, gateways, in the cloud, or by other means may be necessary until the market coalesces around a more limited set of communication protocols.</p>

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12	Connected	One stakeholder recommends development of a test method that evaluates the appliance's ability to respond to price signals.	EPA appreciates this feedback on the importance of connected end devices being responsive to variable pricing signals, and/or schedules as time of use and other dynamic pricing programs become more prevalent. While the current capabilities have been mainly considered as responses to an event / reliability-based signals, the specification does not define the signal -- only a minimum response from the appliances. It is therefore feasible that price responsiveness could also be enabled in connected appliances at a system level using, for example, an upstream energy management app that monitors price schedules and/or price signals and leverages Demand Response and /or Remote Management capability to signal the appliance to respond in accordance with pre-set consumer price sensitivity preferences.
13	Connected	One stakeholder supported use of a DOE test procedure that covered all energy related aspects of connected and expressed concern with a reliance upon examination of the product and product literature for connected criterion not related to Demand Response.	EPA notes that while the DOE test procedure will be limited to demand response criteria, all connected criteria will be subject to evaluation by a recognized third party lab in order to be certified as ENERGY STAR. EPA appreciates this feedback and will consider it as the communication plan to support newly identified connected features is developed in collaboration with stakeholders. EPA believes ENERGY STAR recognition of products with connected functionality can help to facilitate consumer adoption of these products and enable utility program sponsors and other interested parties to identify and possibly provide some incentive for products that are capable of participating in smart grid/ energy management programs.
14	Connected	One stakeholder supported inclusion of a limit to protect consumers from conditions that could be detrimental to their health. This stakeholder commented that EPA should take relative humidity into account when setting a maximum set temperature limit for demand response criteria.	EPA is maintaining the proposed 85 degree adjusted set point limit for Delay Appliance Load and mandating that the product not respond to a Temporary Appliance Load Reduction signal if the set temperature is greater than or equal to 85 degrees. While the Agency recognizes that a variety of factors such as relative humidity affect thermal comfort, the intent of the maximum set temperature for RAC is binary rather than complex. EPA simply wishes to guard against extreme temperatures that might be detrimental to human health, e.g., in situations where the consumer is physically unable to override.

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15	Connected	<p>One stakeholder supports criteria that ensures consumers have access to data from their connected products. This stakeholder further encourages EPA to include criteria that enables consumers to grant/authorize 3rd party access to this data. The stakeholder commented that the connected criteria will not undermine the ability of manufacturers to find innovative means to interpret or disaggregate energy data.</p>	<p>EPA appreciates the commenter's viewpoint. While EPA is not revising the Section 4E Remote Management criteria for this Final Draft Version 4.0 specification, the Agency will continue to monitor the situation. EPA understands the interest in providing consumer-approved access. In these early days of connected appliances, the Agency finds it most practicable to continue to seek a balance between potential consumer benefits and potential impact for manufacturers, and looks forward to continuing the conversation.</p>
16	Effective Date	<p>One stakeholder agreed that fall is the appropriate transition time for room air conditioners. However, the stakeholder commented that EPA should target the Fall of 2016 as the effective date for the Version 4.0 RAC specification, in light of development time and time required for certification.</p> <p>Two other stakeholders expressed concerns about product availability. One suggested that the specification effective date be contingent on availability of products. The other noted that, for the sake of consumers and utility partners, only products currently available on the market should appear on the ENERGY STAR Qualified Products List.</p>	<p>EPA intends to finalize the Version 4.0 specification in February 2015, with an effective date nine months later on October 26, 2015. Based on continued outreach with manufacturers, EPA believes that multiple approaches exist for products to achieve the efficiency levels, thereby enabling Version 4.0 to be relevant for the 2016 cooling season and enable significant differentiation for ENERGY STAR products compared to the federal minimum. EPA intends for certified products to appear on the Qualified Products List as soon as they are available on the market.</p>