

ENERGY STAR CAC/HP Final Draft Version 6.0 Comment Matrix

Topic	Stakeholder Comment Summary	EPA Response
General	<p>One commenter expressed support for the final draft specification.</p> <p>Four commenters remained opposed to the Final Draft as it remains too restrictive. Stakeholders expressed concern that the number of products able to meet the specification will remain low due to the installation requirements, and these products will be financially unfeasible for most consumers. One stakeholder advocated to modify the specification to align with the program's Guiding Principles, or sunset the program on December 31, 2022. Three stakeholders advocated that the ENERGY STAR specification should not include prescriptive requirements</p>	<p>Thank you for these comments, received prior to the publication of the Limited Topic Proposal. As a result of concerns that the installation criteria remained too restrictive, EPA limited their applicability to variable capacity products. EPA believes that the final specification will recognize an appropriate percentage of the market in 2023.</p>
EER Requirements	<p>One stakeholder advocated to raise the EER/EER 2 requirement to 13.0 EER/12.5 EER2.</p> <p>One stakeholder advocated for products complying with AHRI Standard 1380 should not be required to meet the EER/EER2 metric.</p>	<p>EPA has received a wide range of comments from stakeholders on the EER criteria throughout this process. As there is large variation in requests for a higher or lower EER requirement for central air conditioners and non-cold climate heat pumps, EPA is maintaining the current EER requirement.</p>
EER2 Proposed Level	<p>One stakeholder stated that the 12.0 EER2 requirement would be out of reach for all but single-stage equipment and requested that the EER2 level for central air conditioners and non-cold climate heat pumps be lowered.</p>	<p>EPA understands that the proposed translation from 12.5 EER to 12.0 EER2 may require revision, but at this time does not have adequate data to revise this proposal. EPA encourages stakeholders to provide test data on the EER2 rating of units at or above the current EER level, and may revise the EER2 requirement before the changeover to Appendix M1.</p>
SEER2 Requirement	<p>One stakeholder recommended rounding the SEER2 requirement to 15.0 to maintain round numbers.</p>	<p>EPA appreciates this comment but will maintain the criteria as proposed to have a level that is consistent as possible from the proposed SEER level of 16.0.</p>

Staged or Variable Capacity Requirement	Two stakeholders appreciated the removal of the requirement for two or more stages of operation and the more reasonable levels for SEER2 and HSPF2.	Thank you for this comment.
Certification to M1 after Jan. 1, 2022	Three stakeholders expressed that requiring products to comply with the Appendix M1 test method by January 1, 2022 will mean that products manufactured after that date but intended to be discontinued after 2023 will not be eligible for ENERGY STAR.	Only new products certified after January 1, 2022 will be required to comply with the Appendix M1 before the effective date of the specification. Products that certify to Version 6.0 before January 1, 2022 will be able to use the current metrics and test method and will only be required to update their certification by January 1, 2023. Products can continue to be manufactured and marketed as ENERGY STAR during the course of 2022 using the Appendix M test method and metrics. All currently certified products will be recognized until the effective date of Version 6
Cold Climate		
General	Three stakeholders opposed having cold climate heat pump requirements.	<p>Based on comments and discussions with industry, EPA has eliminated the “Moderate and Hot” climate designation. Instead, the base ENERGY STAR criteria for heat pumps will not be tied to a specific climate.</p> <p>EPA is aware of strong market pressure to recognize heat pumps that are appropriate for installation in cold climates and that can serve a larger portion of the heating load in a home. The Cold Climate criteria remains fairly exclusive in the final specification, and EPA anticipates that only a small percentage of products will earn this label.</p>
COP @5°F	One stakeholder requested that the COP @5°F requirement be specified as “at maximum capacity”.	EPA believes the language is adequate. The COP @5°F should be as rated per Appendix M1, or reported by manufacturers as expected to perform in that test. The CVP does not specify the compressor speed to be used as an input parameter, as the procedure should be conducted with the unit operating under native controls.

Connected Criteria		
Operational State reporting in OpenADR	Four stakeholders stated that operational state reporting is not required in AHRI 1380 via OpenADR 2.0b and should not be required in the ENERGY STAR specification.	EPA has consulted with stakeholders involved in the development of AHRI 1380 and has been assured the intention was to require the use of operational state codes as defined in section 6.1.2.2.1. EPA has included Tables 7 and 8 in Appendix A to further clarify how operational state reporting in OpenADR 2.0b should be performed.
Power Draw Reporting	Four stakeholders stated that reporting of power draw is not required in AHRI 1380 and should be removed from the ENERGY STAR specification.	Energy reporting is standard across all ENERGY STAR connected products, as it can facilitate integration into a home energy management system and provide valuable information to homeowners. EPA also would like to clarify that the energy reporting capability will not require additional testing or verification but can be met through examination of product literature.
ENERGY STAR Connected Thermostats	<p>One commenter advocated for an additional pathway for CAC-HPs to be recognized as Connected by complying with the ENERGY STAR Connected Thermostat requirements.</p> <p>One stakeholder encourages EPA to expand its current ENERGY STAR Connected Thermostat specification to recognize products that provide capabilities beyond typical set-back DR approaches</p>	The Connected Criteria for CAC-HP specification focuses on advanced capabilities that can be achieved by specific control of variable capacity units that cannot be achieved by products currently recognized by the Connected Thermostat Specification. EPA will be revising the Connected Thermostat specification in the near future, however, and will consider these capabilities in that specification.
Connected Criteria for Most Efficient	One commenter stated that the demand response criteria should also be part of the Most Efficient criteria.	EPA will consider including Demand Response criteria in future revisions for the Most Efficient criteria.
Installation Criteria	One commenter suggested EPA move the installation criteria to the Connected Criteria.	Thank you for these comments, received prior to the publication of the Limited Topic Proposal. While products that are connected may be able to more easily fulfill the installation criteria, the two sets of criteria serve different purposes. The Limited Topic Proposal addressed the underlying concern that led to this proposal by restricting installation criteria to variable capacity products which can be expected to be installed with proprietary communicating controls.

ENERGY STAR Draft Cold Climate Heat Pump Controls Verification Procedure

Comment Matrix

Topic	Stakeholder Comment Summary	Response
General	One stakeholder supported the CVP as an important interim step until a load-based test is developed.	Thank you for this comment.
Additional CVP test points	One stakeholder advocated for additional test points to be included in the CVP, including part-load heating and cooling conditions.	Part-load conditions have not yet been evaluated with CVP testing for cold-climate heat pumps. In addition, the development of these tests is out of scope of the current revision effort.
Test Chamber Temperatures	One commenter stated concerns that test chambers may not be able to maintain temperatures at 5 degrees for the period required for the test.	EPA believes that modern psychrometric chamber designs are capable of maintaining temperatures at or below 5°F for extended periods of time. For older test chambers, upgrades necessary for conducting low-temperature heating tests will be commensurate with systems conducting M1 H4 ₂ testing.
Reproducibility of the CVP	Three commenters expressed concern about reproducibility of the test. One of those commenters advocated against including the CVP until the test method can be proven to provide accurate results.	EPA appreciates all of these comments. EPA did not receive feedback on specific aspects of the draft CVP method that would result in issues with test repeatability or uncertainty. Additionally, the CVP will not be required until 2023, which can allow partners to vet the CVP method and convey test results and additional concerns if they arise.
Defrost Time	One commenter requested clarification on defrost time and frequency response capability.	Defrost timing is described in section 3.10 of Appendix M1. A defrost cycle must be conducted immediately after the pretest interval and before the official data collection period. The defrost period may be manually or automatically initiated but can only be terminated automatically by the test unit's own controls, so the length of the defrost period will vary. Per section 3.10, the official test period shall begin no sooner than 10 minutes following the termination of the defrost cycle. Regarding "frequency response capability", EPA agrees it is vague and furthermore realizes that the test is well defined without using the concept. Thus, reference to it has been removed.

ENERGY STAR Limited Topic Proposal on Installation Comment Matrix

Topic	Stakeholder Comment Summary	Response
General	<p>Once commenter supported limiting the installation criteria to equipment with three or more capacities, or equipment with fully variable capacity.</p> <p>Four stakeholders did not support the proposed installation criteria for variable speed products. These commenters did not support additional requirements that would prevent some very efficient variable capacity systems from certifying as ENERGY STAR. One of these stakeholders opposed adding unnecessary complexity to the qualification process in calling for examination of the product and associated documentation. Another stakeholder stated concern that this would create confusion in the market if some multi-capacity systems did not meet ENERGY STAR.</p>	<p>As stakeholders stated in their comments and discussions, EPA believes that most variable speed products are capable of two-way communication and would either meet these requirements or could meet these requirements with minor adjustments. EPA believes these features are valuable to consumers and that installation is an important aspect of ultimate efficiency, and is maintaining the criteria to support the continued presence of these features in the market.</p>
Standard Reporting Protocol	<p>One stakeholder recommended developing and implementing a unified standard or communications protocol that would require systems to report the same data in the same format, in accordance with recognized American National Standards Institute standards.</p>	<p>While EPA would support an effort to develop an industry standard for reporting information on installation quality, this would take time and industry support to develop. EPA will consider a similar requirement for future specification revisions once these installation related features have more time to develop in the market. EPA would welcome industry technical standards that regularize reported fault data.</p>