

ENERGY STAR EVSE Final Draft Stakeholder Comment Summary and Response

Topic	Stakeholder Comment	EPA Response
General	<p>A stakeholder supported the improvements, changes, and clarifications made to the Final Draft Specification and Final Test Method. The stakeholder noted support for gearing the program toward Level 2 EVSE, but still supports the latest version of the specification so that EVSE equipment can be recognized as energy efficient.</p>	<p>EPA appreciates this stakeholder feedback and support. EPA does believe that choosing between a Level 1 and a Level 2 EVSE is a consumer choice but does recognize the multiple benefits and advantages that Level 2 offers consumers. As a result, EPA plans to emphasize these benefits in marketing materials released with the Version 1.0 Specification. In addition, EPA will monitor the market for Level 1 EVSE to determine whether including Level 1 EVSE within the scope of this specification continues to offer meaningful differentiation in energy performance to the consumer into the future.</p>
Definitions	<p>A stakeholder noted that there is only one State C, although two are listed in Table 1, and State C is defined as the relay, or connection between the EV and EVSE, being closed. The stakeholder noted that whether the vehicle draws power is not under the control of the EVSE, and should not be considered a separate state.</p> <p>In addition, this stakeholder noted that for Level 1 and 2 ac charging, there is no digital communication between EV and EVSE, it is an analog signal, so the word 'digital' should be removed from the aspect of the secondary function definition that relates to communication with the vehicle.</p>	<p>EPA believes that the Idle and Operation Modes are distinct and measurable and will retain both modes, since the power consumption of the EVSE in both modes will be different.</p> <p>EPA has removed the term digital when referring to communication between the EV and EVSE. It was suggested by a different stakeholder in the previous draft that the word digital could help differentiate between communication with the pilot and communication between the EV and EVSE. However, EPA intends for this definition to be as clear as possible and will therefore retain a broader definition to prevent any confusion between analog and digital communication.</p>
Network Connected	<p>A stakeholder requested that EPA enable multiple network capabilities, if available, during testing to ensure that the power consumption of all protocols are captured. In addition, this stakeholder suggested that EPA ensure network activity is consistent with allowances claimed by manufacturers. This commenter noted that some networked EVSE offer 3G communications to receive and transmit information to and from an offsite service provider, in addition to Wi-Fi to link to other local end nodes. The stakeholder noted that other ENERGY STAR specifications that use this procedure likely serve as an end node to communication. In addition, other ENERGY STAR products most likely do not connect with the use of cellular communications so this power consumption would not be captured. This stakeholder also recommended that EPA lower the allowances for communication protocols.</p> <p>Another stakeholder mentioned that the power use of network connected products is highly variable with time, depending on whether the device is communicating. As a result, the stakeholder suggested that EPA measure energy use over a longer period of time to capture a better representation of the power use of network connected products.</p>	<p>As noted, testing a model with only one network protocol engaged is consistent with many of the ENERGY STAR specifications for testing simplification. EPA does not believe that it will be a significant issue to test only one communication protocol based on the list of preferences in the test method. It is expected that when networked models are non-active, they should have the ability to stay in a lower power state. However, EPA is adding language in the considerations for future versions to revisit this item and to continue to monitor the power consumption associated with different network connections to determine if it is necessary to test all connections in the future. Should EPA find that a substantial number of models with multiple network protocols do use all protocols, then EPA will consider requiring EVSE to test with all available protocols enabled in the next version. Also, EPA is clarifying in the Final Specification that models with multiple network protocol capabilities will only claim an allowance for the protocol that is enabled during testing.</p> <p>EPA has maintained the allowances for network protocols and believes that, based on research in electronics catalogues, these allowances capture the best performing network modules available. However, EPA will continue to monitor the energy performance of network modules for future revisions.</p> <p>To address the variability of power draw from network connected products, depending on whether the device is communicating, the test method references International Electrotechnical Commission (IEC) Standard 62301 Ed. 2: Household electrical appliances – Measurement of standby power. This standard provides instructions for checking the stability of modes, or for unstable or cyclical modes, for measuring over a sufficient number of cycles or length of time to ensure a valid result.</p>
NRTL Listing	<p>Several stakeholders noted that the language regarding requiring NRTL listing was confusing and it was not clear that this was a requirement.</p>	<p>EPA has now clarified this requirement in the specification to require models to be NRTL Listed.</p>

ENERGY STAR EVSE Final Draft Stakeholder Comment Summary and Response

Topic	Stakeholder Comment	EPA Response
Powering Down Features	A stakeholder recommend that EPA encourage rapid transition to a low power state if user activity is not occurring in No Vehicle Mode. This stakeholder also recommended that EPA research the potential for communications functions to power down when not actively communicating in No Vehicle Mode.	EPA has heard from stakeholders that it is important to have a display powered on while there is no user activity to communicate to end users that the EVSE is operational. EPA encourages manufacturers to ensure that EVSE transition to a lower power state from Idle Mode into Partial On and No Vehicle Modes with the 2 minute-delay in the Test Method. In this 2 minute delay, EPA offers manufacturers the flexibility to power down any unnecessary features or at least transition into a lower power state (e.g., dimming a display).
Modal Approach to EVSE	A stakeholder noted that in requiring compliance to several modes, separately, there may be a possibility that actual daily power consumption could be higher for ENERGY STAR EVSE than for non-ENERGY STAR EVSE that are barely missing the criteria. This commenter stated that the No Vehicle Mode base allowance of 2.6 W is quite stringent, while the allowance for Idle Mode may be more generous than is necessary due to the relay power allowance (0.4 * Max Current). In an example provided, a model that just misses the No Vehicle Mode requirement but has much lower Idle Mode power consumption that the requirement, may have lower typical energy consumption than a model that meets all criteria, taking into account the hours of operation in each mode. The stakeholder suggested that EPA set criteria in terms of maximum daily energy use rather than using a modal power approach.	<p>EPA understands possible limitations of a modal approach for any given specification. However, EPA does not believe that this will cause a significant issue, as the dataset that EPA used to set this criteria does not have any models that are barely missing the 2.6 W base allowance for No Vehicle Mode. EPA would have to raise the No Vehicle and Partial On Mode base allowance criteria above 3.6 W to allow one additional model, that is closest to the current criteria, to meet. This would also increase the pass rate to almost 40% from the current pass rate of 32% of EPA dataset. EPA typically seeks for the pass rate to be closer to capturing the top quartile of products in the market.</p> <p>EPA does set criteria based on typical energy consumption in several other ENERGY STAR specifications. In order to do so effectively, EPA will need to gather duty cycle (i.e., usage profile) assumptions for each mode in both residential and commercial settings before being able to use a total energy consumption approach accurately. As a result, EPA has added an item into the future considerations section to determine if a typical energy consumption is the more appropriate way to set criteria in the next revision to the specification. EPA welcomes any data stakeholders can provide in the interim.</p>
Operation Mode	<p>A stakeholder recommended that EPA remove the requirement to conduct Operation Mode testing for several reasons:</p> <ol style="list-style-type: none"> 1. The specification does not set criteria for Operation Mode 2. Operation Mode power consumption can be calculated with good accuracy from cable length and cable gauge. Using this approach would reduce testing burden. 	<p>While EPA understands the test burden of the Operation Mode test, modeling the losses using just the input and output cable lengths and gauges does not appear to be accurate enough. EPA modeled the Operation Mode losses of six models as a sum of the power draw measured in Idle Mode and conductive losses (I^2R, using the gauge and twice the length of the input and output cords) and compared the results to measured data. The modeled results were 9% to 36% (1 to 51 W) less than measured, potentially due to losses across the contactor or connectors.</p> <p>Due to the magnitude of these inaccuracies, EPA will retain the Operation Mode measurement in the test method and reporting requirements, but welcomes future input on ways of modeling the active mode losses more accurately to reduce the test burden.</p>
Connected Functionality	A stakeholder recommended that EPA only list certified products as 'Connected' if they have Demand Response (DR) capabilities that are enabled when the product is shipped. If doing so not a requirement, then the stakeholder suggested that manufacturers be required to provide the steps necessary to enable these capabilities. As it is written in the Final Draft, this information is only a recommended item for manufacturers to include in the Connected Functionality Capabilities Summary that will be featured on the ENERGY STAR website for purchasers. In addition, this stakeholder suggested that EPA substantially increase the 250 word limit to this summary to allow for more description for purchasers.	EPA has added the requirement in the Connected Functionality Capabilities Summary that a description of DR support be included and whether or not the product's DR capabilities are enabled upon shipment and, if not, what steps are needed to enable them. In addition, EPA has revised the word limit to 4000 characters, or approximately 500 words.

ENERGY STAR EVSE Final Draft Stakeholder Comment Summary and Response

Topic	Stakeholder Comment	EPA Response
Effective Date	<p>A stakeholder noted that EPA only gave stakeholders one week to respond to the Final Draft and EPA will only have 10 days to review comments before finalizing the specification. They noted that this accelerated timeline could have a negative impact on the level of support EPA receives from key stakeholders. They suggested that EPA have longer comment periods in the future as well as turnaround times for new iterations of a specification.</p>	<p>EPA greatly appreciates all stakeholder involvement during this specification development process and that all major stakeholders were able to provide written or verbal input to the Final Draft, which EPA has considered. EPA understands this stakeholder concern and typically allows two weeks of comment on a Final Draft, before issuing a Final specification. For this Final Draft however, EPA issued just over a week for comments, not anticipating any major substantive changes due to engaging multiple key stakeholders prior to issuing the Final Draft. EPA shortened the comment period to keep its commitment to stakeholders to finalize the specification by the end of 2016. EPA thanks stakeholders for new ideas expressed in response to the Final Draft and will consider them for future revisions to this specification.</p>