

AeroVironment submits the following comments and suggestions on the Draft 1 version 1.0 EVSE Eligibility Criteria:

1. Listing by an NRTL should be a requirement for any EVSE to be eligible for Energy Star rating. Without this requirement, there is the chance that some EVSE manufacturers could compromise product safety in order to reduce energy consumption in order to qualify for Energy Star requirements.
2. Auto Power Down (APD) is not sufficiently defined in the document. It is not clear what functions of an EVSE would be powered down in this mode and how the EVSE would be expected to exit from APD mode. We suggest revisiting whether this mode is appropriate for EVSEs.
3. Energy losses in the EVSE while the vehicle is drawing power from the EVSE (On Mode) are noted in the Eligibility Criteria as outside of the scope of the EVSE Energy Star program. Yet, the Idle Mode requirement includes a power allocation of  $0.25 * \text{Max Current}$  as an allocation for the power required for relay or contactor when it is closed. But the relay or contactor is rarely closed when the vehicle is not drawing power. When the relay or contactor is closed (state C) the vehicle is usually drawing power, and is thus in On Mode -- which as noted above is outside of the scope of Energy Star. Therefore, we suggest that the definition of Idle Mode be limited to state B2, not both states B2 or C as in described in the current proposal. If this change is made, then the allocation for the  $0.25 * \text{Max Current}$  should be removed from the Idle Mode requirement as the relay or contactor would no longer ever be closed in idle mode. (Note also that with this change to Idle mode it becomes essentially identical to Partial On Mode, so it might be better to eliminate Idle Mode entirely given how little time an EVSE would typically be in this mode -- just a transition between Partial On mode and On Mode.)
4. We recommend that the base power levels for Idle and Partial On Modes be reevaluated using data from a larger and more diverse sample of current EVSE products and with all EVSE samples tested to uniform test protocols (such as the test protocols proposed for Energy Star testing of EVSE). Testing of EVSEs should be carried out in collaboration with the EVSE manufacturers to assure that EVSEs are set up properly and are in the correct state for each test.

A note about terminology: Energy Star's definition of the Primary Function of an EVSE is "providing current to a connected load". But note that it is the vehicle that controls the current drawn from the EVSE. The EVSE's primary function would be better described as controlling the connection of the vehicle to a source of external power. When the EVSE makes this connection, the vehicle sees voltage present on the vehicle's charging inlet. The vehicle has control over when it requests the EVSE to close its relay or contactor and vehicles usually do so only when they need to draw power. Once the contactor is closed and voltage is present at the vehicle inlet, the vehicle has control over how much current is drawn and when. Many EVSEs do not even know whether or not current is flowing when the relay or contactor is closed.

Thank you,

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