

Energy Star EVSE Program Requirements

Version 1.0 Feedback

V 1.0

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EVSE Functions

The organization of the functions are confusing. I believe that it would be more clear if there were 2 divisions of functions: those necessary for basic EVSE operation as specified by the pertinent standards (primary) and those that add additional features not required by the standards (secondary).

By definition in the current program requirements, a secondary function is a “function that enables, supplements or enhances a primary function”. By this definition, there would be no such thing as a tertiary function. All other, non-primary functions on the EVSE would enhance the primary functions. Therefore, there would and should be no tertiary functions.

Thus I believe it would be more clear if the functions were defined and organized as shown below:

- 1) Primary Function: Function required for basic EVSE functionality as required by the SAE J1772 and other standards required for listing by a Nationally Recognized Testing Laboratory (NRTL). (for reference: supplying voltage to valid connected load, CCID, ground fault detection, control pilot signal, etc. It is not necessary to list them since they are defined in the referenced standards.
- 2) Secondary Function: Function that enhances a primary function. Examples of Secondary Functions are:

- a) Public access control (RFID card, authorization, etc.);
- b) Automatic Brightness Control (ABC): The self-acting mechanism that controls the brightness of a display or lamp as a function of ambient light.
- c) Full Network Connectivity: The ability of the EVSE to maintain network presence while in Partial On Mode.
- d) Occupancy Sensing: detection of human or object presence in front of or in the area surrounding an EVSE.
- e) Optional digital communications with the vehicle (exp. ISO15118); (NOTE: this should be modified to be shown as it is here. Analog communications like control pilot are a required part of EVSE functionality and would therefore be a primary function. This would cover optional forms of communication with the vehicle that enhance functionality).
- f) Illumination of display, indicator lights, or ambient lighting;
- g) Wake-up function.

Additional notes of explanation on EVSE functions:

Safety function and control pilot signal should be removed from secondary function list and made as primary functions. If Energy Star requirements state that an EVSE must meet the standards and be UL listed as stated later in the document, then these functions are absolutely required at all times and should be primary functions. As required by the standards, the EVSE would never stop safety functions or control pilot unless the EVSE is powered off.

There should be a base allowance for power for the primary functions, then an additional power allowance for each added secondary function. I believe this would help clarify a lot of questions and create a clearer delineation.

Along with this point, the power allowances for the primary functions should be increased. This is not an area where power saving should be emphasized. We do not want to cut corners here because the primary functions are imperative for the safe operation of the EVSE. This is not an area of large energy consumption so I do not believe the emphasis should be here. There can be no “sleep mode” as the EVSE must constantly be monitoring to meet the safety requirements.

EVSE Operation Modes and Power States

These modes as defined and organized I believe create unnecessary confusion. There should be no hierarchy of modes since the EVSE can only be in one mode at a time. Below are some proposals on how to make it more clear.

No Vehicle Mode should be removed entirely. Safety functions are defined in the document as being secondary functions (and should be primary as previously discussed). No Vehicle Mode is defined as only providing tertiary functions. There should not be a mode in which safety functions are not enabled. This goes against standards required at the end of this document. The safety functions should be enabled at all times.

1) No Power Mode: Condition of the equipment during which all connections to power sources supplying the equipment are removed or galvanically isolated and no functions depending on those power sources are provided. The term power source includes power sources external and internal to the equipment.

2) Idle Mode: Condition during which the equipment is connected to external power and only providing primary functions (secondary functions can be in sleep mode). Idle Mode is intended to be the lowest-power mode of the EVSE that can only be entered or exited through manual intervention (product is physically disconnected from vehicle).

Note: The vehicle-EVSE interface is in State A of SAE J1772, where the vehicle is not connected.

3) Connected-Not Ready: Condition during which a valid load is connected but is not ready to accept energy.

Note: The vehicle-EVSE interface is in State B1 or B2 of SAE J1772, where the vehicle is connected but not ready to accept energy and the EVSE is or is not ready to supply energy.

4) Connected-Ready Mode: Condition during which a valid load is connected and ready to accept energy. The equipment can promptly supply voltage but is not doing so.

Note: The vehicle-EVSE interface is in State C of SAE J1772, where the vehicle is connected and ready to accept energy.

5) Charging Mode: Condition during which the equipment is supplying voltage to a valid connected load.

Note: The vehicle-EVSE interface is in State C of SAE J1772, where the vehicle is connected and accepting energy.

**Table 1: Operational Modes and Power States will have to be updated to be as shown above.

High Resolution Display

Our display is 320x240, so by the definition in the program requirements our display does not qualify as a "High Resolution Display" and we therefore cannot add in the extra display power allowance. I would recommend that the minimum resolution be removed.

Power Allowance Calculations

As noted in the EVSE functions section, there should be an increased base allowance for the primary functions (safety functions cannot be turned off). There should then be an additional power allowance for each secondary function in the product.

We have two different models of our non-connected products: one with local RFID authorization and one without. Public Access Control is listed as one of the secondary functions but is not added into the power allowance calculations like the display power and the wireless connectivity power. Therefore, this product with an added feature is expected to have the same power consumption as a product without that feature. There should be an additional power allowance for this and all secondary functions to accommodate for added features.