SAVE TODAY. SAVE TOMORROW.
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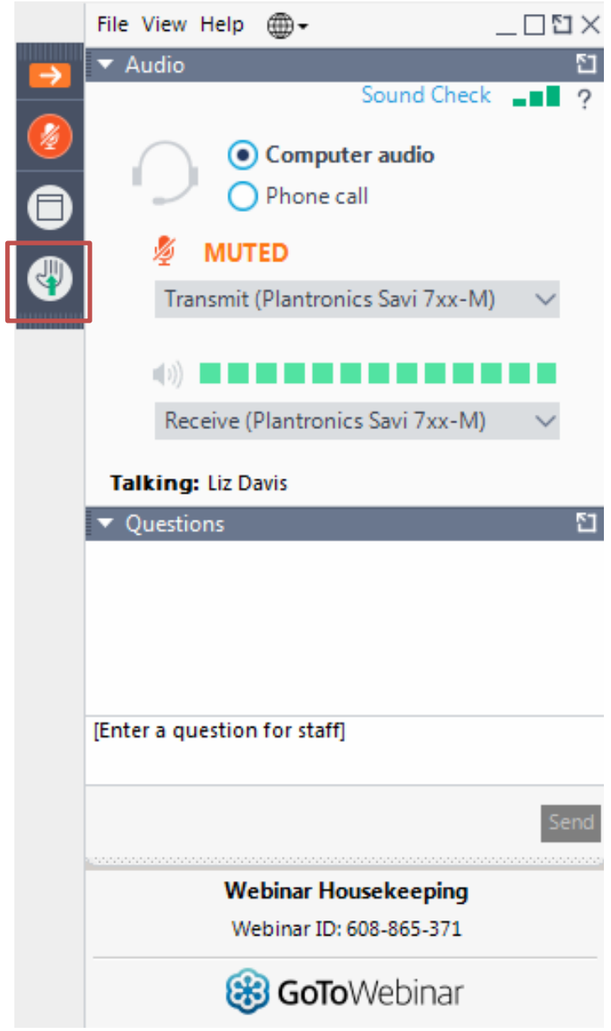
ENERGY STAR® Certified Electric Vehicle Charging Stations

January 24, 2023

EPA

Webinar Participation

- Please mute yourself when you are not speaking (use local mute or dial *6)
- Submit written comments to evse@energystar.gov by Feb 6, 2023



Introductions

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Agenda

- Why ENERGY STAR certified chargers?
- ENERGY STAR Version 1.1 EVSE specification
- Allowances offered in Version 1.1 specification
- Proposed requirements from the State of California
- ENERGY STAR AC EVSE Specification Revision
- Definition of Public vs Residential EVSE
- PLC (ISO 15118)
- Credit Card Readers
- NFC/ RFID Systems
- Additional Allowances Requested by Stakeholders
- Contact the ENERGY STAR team

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Why ENERGY STAR EV Certified Chargers

- Safety tested and certified - convenient path to code compliance
- Save energy and money for EV charger owners/operators
- Encourage open standards for communication protocols
- The ENERGY STAR brand is known and recognized
- ENERGY STAR provides educational resources

ENERGY STAR EV Charger Specification V1.1

Level 1 (110V) and Level 2 (240V) AC chargers

- Energy savings of 40% in standby mode (85% of the time)
- Safety certification
- Unit savings are around 30 kWh/year
- **Over 50 manufacturers with ~150 qualified models**

Full specification available at:
https://www.energystar.gov/products/spec/electric_vehicle_supply_equipment_version_1_1_pd

Allowances offered in existing Version 1.1 specification

- No Vehicle and Partial-On Mode Allowance

Equation 1: Calculation of Maximum No Vehicle Mode Power Requirement

$$P_{NO\_VEHICLE\_MAX} = 2.6 + P_{WAKE} + P_{DISPLAY}$$

Where:
- $P_{NO\_VEHICLE\_MAX}$ *is the Maximum No Vehicle Mode Power Requirement;*
- P_{WAKE} *is the No Vehicle Mode power allowance for the network connection with wake capability enabled during testing listed in Table 2; and*
- $P_{DISPLAY}$ *is the No Vehicle Mode power allowance for a High-Resolution Display enabled during testing listed in Table 2.*

Table 2: No Vehicle Mode Power Allowances

Product Function	No Vehicle Mode Power Allowance (watts, rounded to the nearest 0.1 W for reporting)
In-use Wi-Fi or Ethernet Interface with Wake Capability (P_{WAKE})	$\frac{1.0}{n}$, *Where:* • *n* is the number of outputs.
In-use Cellular with Wake Capability (P_{WAKE})	$\frac{2.0}{n}$, *Where:* • *n* is the number of outputs.
Other In-use LAN (Local Area Network) Interface with Wake Capability (P_{WAKE})	$\frac{1.0}{n}$, *Where:* • *n* is the number of outputs.
In-use High Resolution Display ($P_{DISPLAY}$)	$[(4.0 \times 10^{-5} \times \ell \times A) + 119 \times \tanh(0.0008 \times [A - 200.0] + 0.11) + 6.0]/_n$ *Where:* • *A* is the Screen Area in square inches; • ℓ is the Maximum Measured Luminance of the Display in candelas per square meter, as measured in Section 4) C) of the ENERGY STAR Test Method for Determining Electric Vehicle Supply Equipment Energy; • *tanh* is the hyperbolic tangent function; and • *n* is the number of outputs. **Example**: For a single-output EVSE with a maximum measured luminance of 300 candelas/m² and a 5×5-inch screen, the allowance for the in-use display would be 2.7 watts.

- Idle Mode Allowance

Equation 3: Calculation of Maximum Idle Mode Power Requirement

$$P_{IDLE\_MAX} = (0.4 \times Max\ Current) + 2.6 + P_{WAKE} + P_{DISPLAY}$$

Where:
- P_{IDLE_MAX} *is the Maximum Idle Mode Power Requirement, in watts;*
- *Max Current is the Nameplate Maximum Output Current, in amperes;*
- P_{WAKE} *is the Idle Mode power allowance for the network connection with wake capability enabled during testing listed in Table 4; and*
- $P_{DISPLAY}$ *is the Idle Mode power allowance for a High-Resolution Display enabled during testing listed in Table 4.*

Table 4: Idle Mode Power Allowances

Product Function	Idle Mode Power Allowance (watts, rounded to the nearest 0.1 W for reporting)
In-use Wi-Fi or Ethernet Interface with Wake Capability (P_{WAKE})	$\frac{1.0}{n}$, *Where:* • *n* is the number of outputs.
In-use Cellular with Wake Capability (P_{WAKE})	$\frac{2.0}{n}$, *Where:* • *n* is the number of outputs.
Other In-use LAN (Local Area Network) Interface with Wake Capability (P_{WAKE})	$\frac{1.0}{n}$, *Where:* • *n* is the number of outputs.

Proposed Requirements from the State of California

EPA is considering updates to the ENERGY STAR AC EVSE specification in order to provide potential adders for public chargers in response to proposed requirements from the State of California regarding:

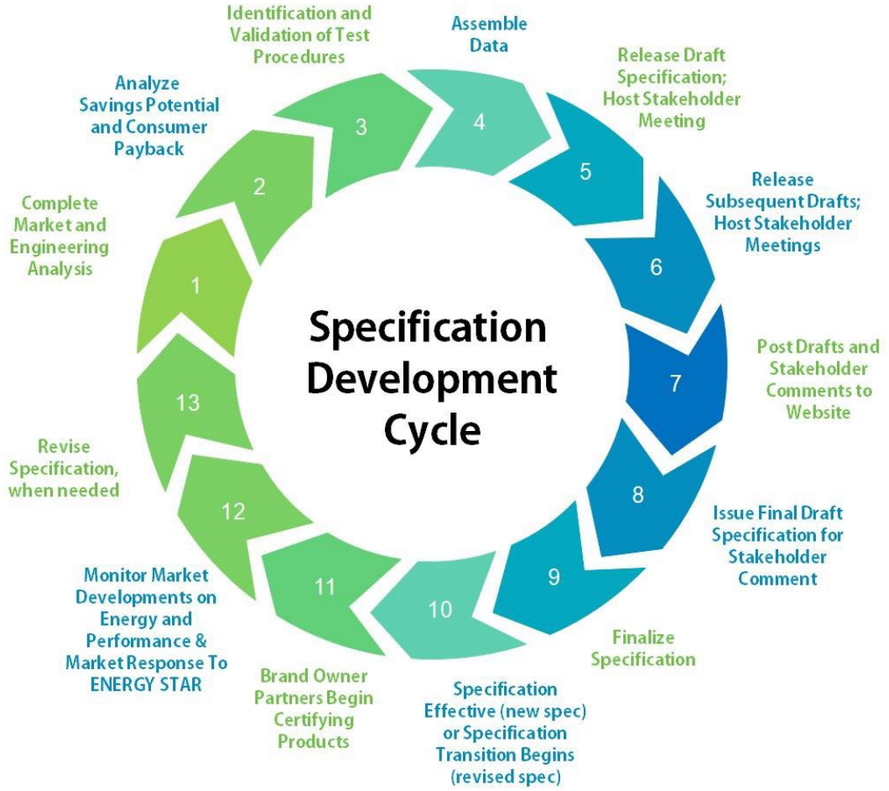
- PLC boards (ISO 15118)
- Credit Card Readers
- NFC/ RFID Systems

ENERGY STAR AC EVSE Specification Revision

Anticipated Timeline:

Event	Date
Draft Specification	Feb 2023
Comment Deadline	2 weeks
Version 1.2 Effective Date	March 2023

Note : This is a dot revision and will be significantly quicker compared to the conventional revision process going from draft directly to final specification.



Definition: Residential vs Public EVSE

EPA would like to seek stakeholder input on what constitutes a 'Public EVSE' to better define the boundary in the specification

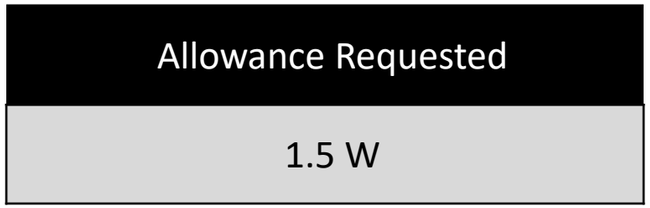
- If so, is there existing industry language that can be leveraged to aid in these revisions?
- No additional allowances to be granted for residential EVSE
- Any limit on Amps to better define residential EVSE?
- Can EPA better define Public EVSE by listing some use cases?
  - Workplace and Fleet charging
  - Public Access Charging
  - Multi-Unit Dwelling with at least 5 residential units
  - Educational campus charging

PLC boards (ISO 15118)

Allowances Requested	Standby Mode
0.5-4.5 W	No vehicle
1.0-4.5 W	Partial on

- Do manufacturers/partners agree that the power consumption of PLC boards varies across different modes?
- Is there supporting data that can be made available to EPA as there is significant variability in the data received?

Credit Card Readers



- Stakeholder feedback indicates that no variation in power consumption across various modes
- Can some stakeholder comment if they're following industry updates with regards to energy savings of this component?
- Can stakeholders provide any additional data to expand EPA's current view of the allowance requested?

NFC/ RFID Systems

Allowance Requested
1-1.5 W

- Can stakeholders provide any insight on the proposed NFC/ RFID system allowance? Is there evidence that conflicts with this proposition?
- Are there opportunities to power down this component and activate the same after user input is received?
- Can stakeholders provide any additional data to expand EPA's current view of the allowance proposed?

Additional allowances requested by stakeholders

- Revenue grade metering
  - Can someone speak to the regulatory requirements on this topic?
- Area and Status lighting
  - Significant variability and not a primary function
  - Can be easily disabled during testing
  - EPA has determined to not grant any allowance
- Cellular vs Wi-Fi enabled during testing
  - Test sequence
  - Is cellular dominant over Wi-Fi when a single module is deployed?
- Bluetooth
  - In other electronic specifications EPA has determined that Bluetooth modules consume significantly low power
- Can stakeholders think of any other features/ allowances?

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Contact the ENERGY STAR EV Charging Team

Marketing & Promotion

https://www.energystar.gov/products/other/ev_chargers

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Technical Specification Development

https://www.energystar.gov/products/spec/electric_vehicle_supply_equipment_version_1_1_pd

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