



**OFFICE OF  
AIR AND RADIATION**

October 12, 2020

**Overview of Certification Process for ENERGY STAR Connected Thermostats  
V1.0**

This outline summarizes the key steps involved in certification of ENERGY STAR Connected Thermostat (CT) products. It is not intended to impact or replace any ENERGY STAR requirements. For more details about the testing and certification process, please refer to the ENERGY STAR [Third Party Certification webpage](#).

Definition: A Connected Thermostat product is defined in the specification to consist of the thermostat device (hardware) in the home as well as the CT service supporting the device from outside the home.



**Process for Certifying Connected Thermostat Products (CTs)**

- 1) Collect at least 12 months of interval data to demonstrate **CT product** field savings as outlined in Section 3.C of the [ENERGY STAR Product Specification for Connected Thermostat Products Version 1.0](#) before seeking ENERGY STAR certification.
  - a. Field data must include the following, as outlined in Section 3.C.1:
    - i. Annual heating run time
    - ii. Annual cooling run time
    - iii. Average resistance heat utilization data for heat pump installations (must be collected for submission although there are no performance requirements for such in Version 1).
  - b. Average resistance heat utilization data for heat pump installations must be collected for submission although there are no performance requirements for such in Version 1
  - c. All installations of a product family, with the varied device/service within it, are considered as a single population for determining field savings.
    - i. A product family is defined in the specification to be a group of closely related CT products sharing a primary strategy for delivering savings and using similar CT devices.

- d. Partners may propose an A/B Study, as outlined in Section 3.C.2, in lieu of meeting performance metrics. The study must be pre-approved by EPA.
  - i. Field data as previously described must still be collected and submitted, but performance metrics need not meet criteria as outlined in the specification.
- 2) Apply to become an ENERGY STAR Partner (if not already)
  - a. Apply as a Brand Owner Applicant/Partner and obtain a valid ENERGY STAR Organization ID (OID).
    - i. Ensure that the organization is the brand owner of a connected thermostat service as defined in the current ENERGY STAR specification for Connected Thermostats
    - ii. Complete and return the [ENERGY STAR Partnership Agreement](#) and [ENERGY STAR Participation Form \(Brand Owner\)](#) to [join@energystar.gov](mailto:join@energystar.gov).  
Note: Designation as an ENERGY STAR Partner is granted after at least one product is certified and offered for sale in the U.S. and/or Canada.
- 3) Generate field savings and device performance data through an EPA-recognized laboratory
  - a. Use the [ENERGY STAR Method to Demonstrate Connected Thermostat Field Savings](#) to analyze and aggregate the collected 12-month field savings data, resulting in two output files. Note that Field data must show a % improvement over national averages as outlined in Section 3.C.1 for the following:
    - i. Annual heating run time
    - ii. Annual cooling run time
  - b. Facilitate testing of the **thermostat device** through an [EPA-recognized laboratory](#) approved to test Connected Thermostats
    - i. Test procedures follow the most recent version of the [ENERGY STAR Product Specification for Connected Thermostat Products](#)
    - ii. A first-party laboratory may be used for testing if enrolled in an EPA-recognized CB witnessed or supervised manufacturer testing laboratory (W/SMTL) program.
  - c. Submit device test data, product documentation and the 2 output files (and the result of the A/B study, if using) to the CB for initial certification.
- 4) An [EPA-recognized Certification Body \(CB\)](#) approved to certify Connected Thermostats will determine whether your product meets the specification requirements. CBs review lab reports and field data to ensure devices meet the following criteria per the current Connected Thermostat specification:
  - i. Functionality in absence of connectivity (Per Sections 4.D and 4.F)
  - ii. Static Temperature Accuracy (Per Sections 4.D and 4.F)
  - iii. Network Standby Average Power Consumption (Per IEC 62301, Ed. 2.0, 2011, Household electrical appliances – Measurement of standby power, subject to clarifications in Sections 4.D and 4.G)
  - iv. Time to enter Network Standby after user interaction (Per IEC 62301, Ed. 2.0, 2011, Household electrical appliances – Measurement of standby power, subject to clarifications in Sections 4.D and 4.G)
  - v. Demonstration of field savings based on data collected in Step 1 (or the A/B Study, if accepted)

- 5) Products that meet all certification requirements will earn ENERGY STAR certification. Ensure you provide the CB with all product identifying information and required data.
  - a. The data provided to the CB on certified products is submitted to EPA and displayed on the ENERGY STAR Qualified Product List, which is used by utilities, retailers and others to promote ENERGY STAR models.

## To Maintain Certification

- Provide aggregate savings data and associated statistics to EPA by sending documentation to [ConnectedThermostats@energystar.gov](mailto:ConnectedThermostats@energystar.gov) every 6 months in accordance with the ENERGY STAR Method to Demonstrate Connected Thermostat Field Savings. Note that a new sample from the population of installations using products in a product family must be selected for each re-submission.
  - These submissions take place every February 1 for the previous January 1 through December 31 period and every July 1 for the previous June 1 through May 31 period.
- Submit unit shipment (subscription) data to EPA or an EPA-authorized third party annually by March 1<sup>st</sup> using the forms available at [www.energystar.gov/unitshipmentdata](http://www.energystar.gov/unitshipmentdata). Direct any questions to [unitshipmentdata@energystar.gov](mailto:unitshipmentdata@energystar.gov). Per the *Providing Information to EPA* section in the *Partner Commitments* portion of the Version 1.0 Specification, this includes:
  - The total number of units newly subscribing to the CT service portion of ENERGY STAR certified CT products within the calendar year or an equivalent measurement as agreed to in advance by EPA and Partner.
  - Subscription data segmented by meaningful product characteristics (e.g., controlled system types, presence of additional functions) as prescribed by EPA.

## Adding Products to a Family

Each **CT device** that is part of a **CT product** within a product family is required to be tested separately, as outlined in this document, to meet device requirements as outlined by the V1.0 specification.

- Capabilities of each CT device/service combination must meet requirements as outlined in the specification.
- Organizing devices into product families and adding new devices to existing product families is performed by the Certification Body.

For questions regarding the ENERGY STAR certification process for Connected Thermostats, please contact [certification@energystar.gov](mailto:certification@energystar.gov). For technical questions regarding the Connected Thermostat product specification, please contact [ConnectedThermostats@energystar.gov](mailto:ConnectedThermostats@energystar.gov).