



ENERGY STAR Smart Thermostat Certification and Statistics Form

Instructions

To maintain the ENERGY STAR certification, performance data must be submitted to EPA or EPA authorized third party twice yearly (February 1, July 1). Aggregate field savings data for one year and associated statistics must be submitted to EPA-authorized third party by sending the required documentation to ConnectedThermostats@icf.com. Data are generated in accordance with the [ENERGY STAR Method to Demonstrate Connected Thermostat Field Savings](#), which provides a detailed process to gather performance data. Please see below for a summary of key steps in the process.

1. Install and configure the most recent release of the **ENERGY STAR CT Field Savings Software** using the [open-source code](#) and [instructions](#).
2. Generate a metadata file that includes all instances of a fielded CT Product in the US, with appropriate information like thermostat id, equipment type, zip code, date etc.
3. From the above metadata file, generate a new metadata file that eliminates CTs according to various rules such as invalid data, null zip code, incorrect reporting period etc.
4. From the above metadata file, split CTs into 5 climate zone metadata files, using the file which maps U.S. ZIP codes with the Energy Information Administration (EIA) climate zones.
5. Using Python Natsort, sort each climate zone metadata file by the unique thermostat id assigned to each thermostat.
6. Using the Python Numpy random number generator, set a seed (supplied by EPA) for each climate zone manually with `numpy.random.seed (number)` and record these numbers.
7. For each of the five EIA climate zones, generate metadata files with 250 CTs using the Numpy function `numpy.random.choice`, using `replace=False` to prevent sampling duplicates. If there are fewer than 250 thermostats in an EIA climate zone from which to sample, include all thermostats for that climate zone.
8. Using the above metadata files, generate files that follow the requisite file format and content requirements.
9. Verify that the data set consists of one metadata file and n interval data files (one interval data file for each CT in the sample)
10. Process the data set using the ENERGY STAR CT Field Savings Software and submit the required files.



This collection of information is approved by OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. (OMB Control No. 2060-0528). Responses to this collection of information are voluntary (Section 103(g) of the Clean Air Act). An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The public reporting and recordkeeping burden for this collection of information is estimated to be **XX** hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden to the Regulatory Support Division Director, U.S. Environmental Protection Agency (2821T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

What files need to be submitted as a part of performance data submission?

The following files must be submitted as a part of performance data submission:

1. thermostat_certification
2. thermostat_stats

Note: In order to test the software and evaluate performance metrics EPA may request additional optional datasets from partners.

What are Random Number Seeds?

Computer random number generators use “seeds” so that they do not produce the same list of random numbers every time. Most of them are set up to use a seed, like the date or something that mimics randomness of the computer algorithm, so that the resulting list of random numbers varies unpredictably from use to use. However, EPA wants the list of random numbers to vary, but be predictable, so that the process of developing field data is reproducible and auditable. Thus, EPA provides random number seeds before each performance data submission for random sampling.

When to submit performance data?

These submissions take place every 6 months.

1. Every February 1 partners must submit results derived from customer data for the previous January 1 through December 31 period.
2. Every July 1 partners must submit results derived from customer data for the previous June 1 through May 31 period