

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460



OFFICE OF  
AIR AND RADIATION

October 18, 2016

Dear Connected Thermostat Provider or Other Interested Party:

The U.S. Environmental Protection Agency (EPA) is pleased to share the attached Draft 3 Version 1.0 ENERGY STAR® Connected Thermostats (CTs) specification. We appreciate the extensive contributions stakeholders have made to develop the specification. Stakeholders are encouraged to submit comments on this proposal to EPA no later than **November 14, 2016**.

### **Field Savings Requirements**

The most notable change in the Draft 3 specification is the inclusion of specific field savings metric performance requirements. EPA, with valuable stakeholder participation, has now made sufficient progress in developing and implementing a metric for product savings based on aggregated analysis of CT customer data. Data developed by providers using the beta release of the metric calculation software are the basis of the Draft 3 proposals. EPA estimates that the proposed performance requirements reflect at least a 5% HVAC energy savings annually for the average home.

EPA proposes requirements based on the lower 95% confidence bound of the national results, derived as a weighted average of regional results, for both heating and cooling metrics. An additional minimum requirement on the 20<sup>th</sup> percentile of heating and cooling metric scores is included to ensure that most households save energy.

EPA is also able to make definite proposals at this time regarding several aspects of the metric calculation. These decisions will be reflected in software updates in the next software release. They include:

- The method to calculate heating and cooling metrics will be a linear fit to  $\Delta T$ .
- The filtering to be applied before calculating statistics will be first physically sensible “free heat”, then goodness of fit, and lastly top and bottom 1% outliers.
- All regions will be included in the weighted average to calculate a national score for heating, and all except the marine region for cooling. The minimum run time to include a day as a core heating/cooling day is 30 minutes.

EPA welcomes stakeholder feedback on these proposals.

EPA received mixed feedback on the proposal to provide an alternative path to demonstrate field savings using an A/B study comparing HVAC run time (or energy use) for groups of homes with and without the full capabilities of the connected thermostat available. Some stakeholders encouraged EPA to eliminate the option; others thought it was too difficult to meet as written and

not parallel to use of the ENERGY STAR Method to Demonstrate Field Savings. EPA continues to believe the option is important at least for the present, as there are a number of strategies to save consumers energy that the metric will not capture. The requirements and test method for this alternative path were modified slightly to be more parallel to those for the field savings metric.

### **Other Changes**

There are a number of other changes in the Draft 3 specification based on comments on Draft 2 and on extensive subsequent conversations with a wide variety of stakeholders. These include:

- Definition of Product Families and specific guidance as to their certification.
- Line voltage thermostats are proposed to be out of scope for Version 1 as additional research and analysis is needed to structure appropriate requirements for them.
- Slightly updated static temperature accuracy test.

### **Labeling**

In addition to changes in the specification itself, EPA has included an updated proposal specific to ENERGY STAR labeling requirements. The updates are based on extensive discussion with stakeholders, and on additional internal discussion at EPA. This product category calls for a different approach than that used for most ENERGY STAR categories. This is the case because savings will be driven by the service, and EPA will sign partnership agreements only with service providers, not the device manufacturers. As such, EPA is focusing these requirements on electronic labeling of mobile device interfaces and web portals, both of which are in the control of the service provider. Stakeholders will find these requirements clarified and simplified in this draft.

However, EPA recognizes the critical role the ENERGY STAR can play at point of purchase in helping consumers recognize the more efficient choice. EPA typically relies on physical labeling of products and boxes at retail to educate consumers about efficient choices. However, since connected thermostat devices cannot in and of themselves earn the ENERGY STAR without an associated service, EPA is seeking other ways to educate the consumer at point of purchase that avoid consumer confusion. In the coming months, EPA looks forward to a robust exchange of ideas with our stakeholders about how to best reach consumers at the time and place of their connected thermostat/service purchase.

### **Comment Submittal**

EPA thanks stakeholders for their continued participation in the specification and field savings method development processes. The exchange of ideas and information between EPA, industry, and other interested parties has been invaluable as we develop a specification that is meaningful in the marketplace and contributes to reductions of CO<sub>2</sub> emissions. Stakeholders are strongly encouraged to review and provide input on the attached Draft 3 specification and send written comments to [ConnectedThermostats@energystar.gov](mailto:ConnectedThermostats@energystar.gov) by **November 14, 2016**. All comments will be posted to the ENERGY STAR Connected Thermostat development web site unless the submitter requests confidentiality.

**Stakeholder Webinar**

EPA will host a stakeholder webinar to discuss the Draft 3 Version 1.0 Connected Thermostat specification on Thursday, November 3, 2016 from noon to 2:00 pm Eastern time. Please [register here](#) if you are interested in attending.

Thank you for taking the time to review the specification. If you have any questions regarding the Draft 3 proposal, please feel free to contact me at [daken.abigail@epa.gov](mailto:daken.abigail@epa.gov) and 202-343-9375, or Doug Frazee, ICF International, at [dfrazee@icfi.com](mailto:dfrazee@icfi.com) and 443-333-9267.

Sincerely,

Abigail Daken, Product Manager  
ENERGY STAR for HVAC