
From: Brent Huchuk <brenth@ecobee.com>
Sent: Monday, July 27, 2015 5:53 PM
To: ConnectedThermostats@energystar.gov
Subject: Connected Thermostats Version 1.0 Draft Comments

To whom it may concern,

We at ecobee applaud the efforts of the EPA for attempting to introduce an ENERGY STAR rating for the emerging sector of connected thermostats. Further we acknowledge the difficulties in attempting to get a program started that relies so heavily on data not collected by EPA or its partners but rather units in being used by consumers on a day-to-day basis. We have stated our review and comments of the Draft v1.0 of the ENERGY STAR® Program Requirements for Connected Thermostat Products below.

Regards,

Brent Huchuk
Building Energy Analyst

ecobee
250 University Ave, Suite 400
Toronto, ON M5H 3E5



[ecobee Comments for Draft version 1.0 of the ENERGY STAR® Program Requirements for Connected Thermostat Products](#)

Using the ENERGY STAR Name and Marks

“ ...

6.2. All ENERGY STAR Connected Thermostat applications and web interfaces must bear electronic certification marks at minimum 1” square and legible, in cyan, black or white, as applicable:

- *The mark shall appear on the control application’s main screen or main settings screen for at least 3 seconds when a user first encounters the screen; and*
- *the mark shall appear on the web interface’s main screen or main settings screen for at least three seconds when the interface is first activated.*

6.3. All ENERGY STAR Connected Thermostat devices must bear certification marks as applicable:

6.3.1. An electronic label, consisting of the certification mark, at minimum 1” square and legible, in cyan, black or white, shall appear on the device’s main menu screen by default for at least 3 seconds when the menu is activated.

6.3.2. For products that use a dedicated hardware device (i.e., the device is only for use with services provided by a single service provider),

- *The certification mark must appear on product packaging.*
- *The electronic label requirement (6.3.1)*

...

The laid out guidelines for use of the ENERGY STAR Name and Marks are very explicit in their description of sizing, colors and frequency not just on packaging and product literature but also the applications, web interfaces and actual CT device. These guidelines could prove to be hindering to efforts in applying for ENERGY STAR certification because of their direct degradation of the user experience both visually and functionally as users attempt to access their CT by multiple means. A number of more agreeable strategies exist but could include:

- 1) The placement the ENERGY STAR logo on all packaging.
- 2) The highlighting of the ENERGY STAR certification in general and for the product. This could be seen on corporate websites and other promotional materials that are deemed appropriate for brand awareness and added value to the consumers.

Draft 1 Eligibility Criteria version 1.0

Eligibility Criteria

“ ...

2) *Meet requirements set out in Table 1, below.*

Parameter	Performance Requirement	Applicable Products
<i>Droop</i>	$\leq 0.5^{\circ}\text{F}$	<i>All</i>
<i>Operating differential</i>	$\leq 2^{\circ}\text{F}$	
<i>Static temperature accuracy</i>	$\pm 0.5^{\circ}\text{F}$	
<i>Network standby average power consumption</i>	$\leq 2\text{ W average}$	

...”

The droop parameter most likely is corrected by software processing by any vendors who found this to be an issue. It may then be difficult to gauge properly and may be best omitted as a part of the criteria.

The eligibility criteria for “Static temperature accuracy” needs to meet a performance requirement of $\pm 0.5^{\circ}\text{F}$. The most commonly available temperature sensors for thermostat applications come with a $\pm 1^{\circ}\text{F}$ accuracy (which is in line with the NEMA guideline). Since accuracy is consistent over the life of the sensor it seems unlikely that many manufacturers would have incurred the costs of a higher accuracy device. Especially when considering that devices with lower accuracy would most likely have been corrected by occupants through changed behaviours or setpoint selection. It is recommended that the EPA consider increasing the tolerance to be in line with the commonly used accuracy or remove the condition completely.

“ ...

2) *Automatic determination of occupants’ presence in the home (e.g., through direct sensing of 81 motion, or indirectly via geolocational devices such as smart phones). ...”*

It is recommended that the criteria should be more rigorous with the explicit definition that there needs to be a function/utility derived from this detection else it could easily be included simply for meeting the defined criteria.

Metric Baseline Calculation

The difficulty in selecting a baseline approach that is both reasonable and which does not allow itself to be manipulated by selective data sampling is apparent. A possible solution would be the selection of

setpoints that seasonally are reflective of the accepted literature on comfort, such as ASHRAE Comfort Standard 55-2010 (see page 6, Fig 5.2.1.1), and which could be used to compare individual savings to those in an area. An alternative solution would be the development of regionally defined comfort baselines which, with enough participation, could provide more representative savings nationally.