

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



OFFICE OF
AIR AND RADIATION

December 9th, 2011

Dear Usability Test Laboratory or Other Interested Party,

As you may know, the U.S. Environmental Protection Agency (EPA) is developing an ENERGY STAR specification for residential climate controls that will involve a new ease of use test. Given the similarity of these products to programmable thermostats, EPA regards usability as a key feature for delivering on their energy saving potential. The new test method must be able to reliably differentiate highly usable products, which are more likely to deliver savings and comfort, from those that are more difficult to program and use.

The purpose of this letter is to invite a broad assortment of laboratories to participate in the final stages of the development and validation of the ease of use test method for residential climate controls. EPA estimates that the average homeowner who does not currently schedule their heating and cooling would save, on average, \$180 a year if they did so. On the order of 50% of U.S. homes now have a programmable thermostat, but previous research has shown that fewer than half of those are in use as intended. That's a lot of money, and energy, being left on the table.

EPA views usability as a critical barrier preventing users from accessing these savings. Highly usable residential climate controls must, of course, be easy to program but must also provide easy access to energy saving modes for those with irregular schedules, or when schedules change. We would like to recognize advanced residential climate controls that are also easy to use with the ENERGY STAR label. The opportunity to differentiate products that are most usable and thus have the greatest potential to deliver savings is better than before, as new thermostat designs have emerged.

EPA considers [the ease of use test for residential climate controls](#) as a test case for rating a product's usability. Assigning an absolute score to ease of use as a measure of ability to facilitate energy savings has never been done, as far as we know. While it presents many challenges, it also presents many opportunities. Many ENERGY STAR labeled products rely on the interaction between the products and their users to save energy, and a select set may be ripe for considering usability. EPA is keeping tabs on the home energy monitor market as it develops, and also sees usability as key to energy savings in this product segment.

A successful rating method will distinguish between units with differing usability, be repeatable at a given facility and reproducible at different test facilities. A program relying on it will

require that test facilities be proficient at administering and running the test. EPA sees roles for both laboratories currently involved with ENERGY STAR qualification and verification testing, and for usability test labs with special expertise in this area. In the long run, products that earn the ENERGY STAR will need to exhibit an acceptable usability rating based on this test, and at least 10% of all climate controls will need to be retested for usability each year as part of the verification program.

In the short run, EPA invites laboratories to develop competence in performing ease of use testing, and participate in completion of the initial test development process, by joining in a structured round robin test program. This exercise will help to determine if the test method produces a reasonable level of inter-lab reproducibility.

In order to rely on the results of the round robin, at least three units will be tested at each participating lab, spanning the expected range of usability. Each unit will be tested with an independently selected user group of 28 individuals, chosen to reflect the demographics of the US population. EPA will consider for inclusion models submitted by stakeholders. EPA expects labs to fund participation of products that are not offered by stakeholders.

EPA will host a call on **Tuesday, December 20 at 1PM Eastern** to discuss this round robin and EPA recognition for labs. Please RSVP to climatecontrols@energystar.gov, or contact Dan Cronin at ICF International (dcronin2@icfi.com, 202-862-1150) or Abigail Daken at EPA (daken.abigail@epa.gov, 202-343-9375), by **December 16, 2011**.

Thank you for your continuing participation in the development of the groundbreaking Residential Climate Control Usability Test. We look forward to talking to you soon.

Sincerely,



Abigail Daken
U.S. Environmental Protection Agency
Climate Protection Partnerships Division
ENERGY STAR Program