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May 27, 2014

Ms. Brenda Edwards  
U.S. Department of Energy  
Building Technologies Program, Mailstop EE-2J  
1000 Independence Avenue SW  
Washington, DC 20585

Re: Energy Conservation for Program: Test Procedures for Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps [*Docket Number EERE-2012-BT-TP-0032*]

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Dear Ms. Edwards:

These comments are submitted by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) in response to the U.S. Department of Energy's (DOE) notice of proposed rulemaking (NOPR) on the test procedure for Packaged Terminal Air Conditioners (PTAC) and Packaged Terminal Heat Pumps (PTHP) appearing in the *Federal Register* on March 13, 2014.

AHRI is the trade association representing manufacturers of heating, cooling, water heating, and commercial refrigeration equipment. More than 300 members strong, AHRI is an internationally recognized advocate for the industry, and develops standards for and certifies the performance of many of the products manufactured by our members. In North America, the annual output of the HVACR industry is worth more than \$20 billion. In the United States alone, our members employ approximately 130,000 people, and support some 800,000 dealers, contractors, and technicians.

AHRI appreciates the opportunity to comment on issues in which the DOE has expressed interest.

**1. Optional Break-in.**

We agree that a break-in period is necessary and must be added. However, experience from our certification program indicates that this break-in period should be at a minimum 24 hours to provide for more consistent and accurate efficiency measurements. However, we also understand that the break-in period cannot be unlimited and recommend a maximum of 72 hours. Break-in does not need to be conducted in the test chamber.

## **2. Sealing wall sleeves.**

AHRI recommends that the equipment wall sleeve be sealed to the wall sleeve test facility dividing wall in accordance with the manufacturer's installation instructions. If it is not possible to seal in accordance with the provided instructions, the test procedure should specify that adhesive tape, such as duct tape or brown packaging tape, be used to seal the entire perimeter of the wall sleeve to the test facility dividing wall. It is important to note that the equipment must be sealed to the wall sleeve in accordance with the manufacturer's installation instructions.

## **3. Pre-filling drain pan.**

While mineral content of the water is not a concern for running an accurate test, the temperature of the water used fill the drain pan is important. AHRI's third-part test lab for the PTAC and PTHP Certification Program, Intertek, recorded the temperature of condensate drain pan for three recent test samples. The measurements ranged from 79.9 °F to 87.9 °F with an average temperature of the condensate in the drain pan of 84.0 °F. These data should be recorded and documented as part of the test records underlying certification.

AHRI recommends that DOE align with standard practice for the laboratory and to specify in the test procedure that the condensate pan be filled with distilled water between 70 °F to 85 °F. The mineral content is not a concern because of the short test period that would not allow for scaling to build up.

## **4. 14-inch deep wall sleeve.**

AHRI supports the proposal to require testing using 14-inch deep wall sleeves and standard filters. For cases where the equipment cannot be tested with a 14-inch deep wall sleeve, AHRI supports the proposal to use the closest size to 14-inches.

## **5. Filters.**

AHRI supports the testing of units shipped with filters, but questions why DOE has chosen MERV-3 as the default filter for PTACs and PTHPs that do not ship with filters. MERV-1 filters are electrostatic, self-charging woven panel filters which typically control textile fibers and carpet fibers. This may be more representative of filters found in PTACs or PTHPs.

## **6. Barometric pressure correction.**

AHRI supports the use of barometric pressure corrections for PTACs and PTHPs.

## **7. Cooling efficiency test standard.**

AHRI is concerned that manufacturers will experience a significant test burden resulting from the DOE's proposal to designate ASHRAE Standard 16, *Method of Testing for Rating Room Air Conditioners and Packaged Terminal Air Conditioners*, as the sole test method for measuring cooling efficiency for PTACs and PTHPs. It appears that DOE misunderstood AHRI's comments to the framework document for packaged terminal air conditioners and packaged terminal heat pumps appearing in the Federal Register on February 22, 2013 on this subject. To clarify, AHRI supported the elimination of the reference to ASHRAE 37, *Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment*, only if the revised version of ASHRAE 16 were to include a psychrometric method to obtain the cooling capacity of PTHPs. As that has not happened, AHRI does not support the removal of ASHRAE 37.

ASHRAE 37 provides a valid method to obtain the cooling capacity of PTHPs without requiring the units be set up in two different test chambers. Calibrated or balanced ambient room calorimeters are required to test to ASHRAE 16. ASHRAE 37, alternatively, requires testing in psychrometric rooms. The psychrometric set up outlined in ASHRAE 37 allows manufacturers to obtain both cooling and heating capacity. Testing in psychrometric rooms is significantly faster than testing in calorimetric rooms because the room comes to steady state conditions in about one-quarter of the time. Further, some manufacturers may not have calorimetric testing capabilities.

AHRI disagrees with DOE's assessment of the differences between the two test methods and requests that the test data be released to the public with manufacturer name and model number removed. Despite differences between the two standards (including the correction for barometric pressure in ASHRAE 16), AHRI has observed good correlation in testing for the purposes of rating PTAC and PTHP units have shown consistency between calorimetric and psychrometric rooms. All AHRI cooling verification tests conducted as part of the PTAC and PTHP certification programs are in calorimetric rooms and in accordance with ASHRAE 16.

## **8. Seasonal efficiency metric.**

AHRI supports DOE's proposal not to develop seasonal efficiency metrics that would evaluate part-load operation of PTACs and PTHPs or the impact of electric resistance heating in low ambient temperatures for PTHPs. First, there is no existing test procedure for such part load testing for this equipment. Second, since PTACs and PTHPs are mostly used in hotels/motels, and are "on" only when rooms are occupied, the use of part-load or seasonal efficiency metrics are not relevant.

AHRI appreciates the opportunity to provide these comments. If you have any questions regarding this submission, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'LPG', with a long horizontal flourish extending to the right.

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AHRI Packaged Terminal Equipment Members:

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