

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF AIR AND RADIATION  
WASHINGTON, D.C. 20460

**Subject: 2015 Proposed System Status and Messaging Requirements for ducted and ductless CAC/ASHP, Furnaces, and GHPs**

Mitsubishi Electric Cooling & Heating, a division of Mitsubishi Electric US, Inc. (“MEUS”), a manufacturer of ductless mini-splits, multi-splits and Variable Refrigerant Flow (VRF) heating and cooling systems, appreciates the opportunity to submit the following comments to the Environmental Protection Agency regarding the proposed system status and messaging requirements for the 2015 Most Efficient Program for ducted and ductless CAC/ASHP, Furnaces, and GHPs.

**MEUS General Comments:** The timing for this proposal does not leave sufficient time for manufacturers to effectively respond to any changes or upgrades to the Most Efficient requirements. These proposed requirements should be for a 2016 program to allow manufacturers time to make changes. This timing places significant disadvantage on foreign manufacturers who import their products, specifically ductless systems. As an example; for MEUS to have systems imported that meet changes in the requirements the systems would have to be manufactured in October at the latest; to be manufactured in October the new materials requirement orders must be placed in early August. If we had the new requirements today, this leaves engineering three weeks to re-engineer the systems, revise the drawings, order sample parts, test the changes, make revisions, re-order parts, test again, conduct a pilot run, and write new installation and operations manuals. There just is not enough time even if the changes are simple and that is if we had the new requirements today.

**Automatic Setup Requirements**

**Unit Setup Information:** Units shall be capable of transmitting setup information to at least one controller on the market, including capacity, stages of cooling and heating and default air flow requirements. The controller may be a thermostat or an on-board controller designed to coordinate operation of an entire HVAC system.

**MEUS Comments:** Our question is “What will be done with this information?” Is the intent only for a type of electronic registration? If the intent is for communication to other devices or to receive commands from utility companies then that should be stated.

There does not seem to be a need to communicate the capacity of the system unless it is just for electronic annotation if the system size. Also if the system is a multi-split how would the capacity be communicated?

Additionally it needs to be noted that inverter driven compressor systems have essentially infinite steps between low and high operating conditions and there should be recognition of this operating characteristic.

**Monitoring Requirements**

**Static Pressure:** Ducted units which include a blower fan will provide a signal that can be used to estimate the static pressure across the fan.

**MEUS Comments:** Just a reminder that this requirement should not apply to ductless systems. If the system is a multi-split with 3 different capacity ducted indoor units how would the ESP of each be communicated? This is a requirement that would take significant engineering work.

**Refrigerant Charge:** Units shall be capable of transmitting signals from which errors in refrigerant charge may be estimated, such as subcool or superheat, to at least one controller on the market. The controller may be a thermostat or an on-board controller designed to coordinate operation of an entire HVAC system.

**MEUS Comments:** The first question is how much loss of refrigerant charge would be considered an error? Should it also be capable of reporting if the initial charge, in the case of split-systems, is correct? This needs more definition and possibly significant engineering work depending on the detail of the requirements.

**Fault History:** Service personnel shall be able to access a log displaying fault history in plain text. The product may enable access through any mechanism, for example: 1) a text-based display (e.g. LED) permanently incorporated into the unit, 2) at least one thermostat available on the market, 3) a diagnostic tool available on the market which can be brought to the work site by the service personnel. Other equivalent mechanisms are also acceptable.

**MEUS Comments:** The difficulty with this proposal is that some of the fault code descriptors are long – would they have to be displayed all at one time? Examples:

- P.C. board temperature thermistor
- Outdoor heat exchanger temperature thermistor
- Gas pipe temperature thermistor A

What is the minimum font size of the words in the display?

It seems that a fault code display would be much more effective. If a manufacturer would have to change from a flash display or fault code display the engineering time would be at least one year.

### **Message Requirements**

**Resident Alerts in Plain Text:** Units shall facilitate display, in plain text, of messages to residents. This will include, at minimum, that the air filter needs changing, and that the unit needs professional service. This may be through display on the thermostat or other control device in occupied space in the home, or through any other system that can reach residents directly. Displays on a unit inside a closet, basement or attic, or outside of conditioned space, will not be sufficient.

**MEUS Comments:** A clarification is requested for this requirement – if the message is in plain text what would draw the attention of the resident to read the plain text? Will there also need to be a flashing LED? If that is the case it would be easier to have those 2 or 3 phrases printed in the thermostat next to an indicator LED.

**MEUS urges EPA to reconsider the timing of these requirements to be introduced in the 2016 program to allow sufficient engineering and manufacturing time to make these significant changes and not disadvantage manufacturers who have the additional time requirements associated with importing systems.**

Please feel free to contact me if you have any additional questions.

Sincerely,



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