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Ms. Abigail Daken
U.S. Environmental Protection Agency
(LCHVAC@energystar.gov)

Re: MEUS Comments on Draft 1 Version 3.0 Product Specification for ENERGY STAR Qualified Light Commercial HVAC Equipment

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Dear Ms. Daken:

Mitsubishi Electric Cooling & Heating, a division of Mitsubishi Electric US, Inc. ("MEUS"), a manufacturer of variable-speed mini-splits, multi-splits and Variable Refrigerant Flow (VRF) heating & cooling systems, appreciates the opportunity to submit comments in response to the Environmental Protection Agency (EPA) request on Draft 1 Version 3.0 Product Specification for ENERGY STAR Qualified Light Commercial HVAC Equipment which was issued on May 12, 2016.

Our comments on Draft 1 Version 3.0 Product Specification for ENERGY STAR Qualified Light Commercial HVAC Equipment follow:

1. EPA has proposed efficiency levels for VRF multi-split systems that are significantly higher than what is being proposed for light commercial air conditioners (AC) and heat pumps (HP). For those systems EPA has selected the minimum federal efficiency levels for AC and HP equipment that are scheduled to become effective in 2023. According to the Air-conditioning, Heating, and Refrigeration Institute (AHRI) in their comments "these levels are too high at this time and manufacturers are not prepared for this jump in efficiency." Given this assertion, we ask EPA to reconsider the proposed increases handed to VRF manufacturers and allow the VRF manufacturers to work with EPA to develop levels that would be more consistent with ASHRAE 90.1 and CEE Tier 1 levels. The table below illustrates the significant increases for VRF heat pump systems (cooling mode).

Size Category	Subcategory or Rating Condition	ASHRAE 90.1-2013 Mandatory Minimum Efficiencies	CEE 2016 Tier 1	ENERGY STAR Light Commercial (Ver 3 Draft 1)
≥65,000 Btu/h and <135,000 Btu/h	VRF multisplit system	11.0 EER 12.9 IEER (before 1/1/17) 14.6 IEER (as of 1/1/17)	11.3 EER 14.2 IEER	~~11.3~~ 13 EER ~~11.4~~ 20 IEER
	VRF multisplit system with heat recovery	10.8 EER 12.7 IEER (before 1/1/17) 14.4 IEER (as of 1/1/17)	11.1 EER 14.0 IEER	12.8 EER 19.8 IEER
≥135,000 Btu/h and <240,000 Btu/h	VRF multisplit system	10.6 EER 12.3 IEER (before 1/1/17) 13.9 IEER (as of 1/1/17)	10.9 EER 13.7 IEER	~~10.9~~ 12 EER ~~11.0~~ 18.5 IEER
	VRF multisplit system with heat recovery	10.4 EER 12.1 IEER (before 1/1/17) 13.7 IEER (as of 1/1/17)	10.7 EER 13.5 IEER	11.8 EER 18.3 IEER

2. For consistency, where possible it would be better to align the proposed levels with the newly released CEE Tiers and ASHRAE 90.1 levels. Alignment with CEE and ASHRAE 90.1 will ensure the ENERGY STAR levels do not add a source of confusion for users and installers by adding an additional set of levels. In a way, the proposed levels, which far exceed CEE Tier 1, can be compared to the Energy Star Program for systems less than 65,000 BTU where there is a "standard" level and significantly above that level is the "most efficient" level for high performing systems. MEUS does not have a specific recommendation at this time but we believe than an appropriate recommendation can be worked out with the VRF manufacturers working through AHRI.

3. MEUS agrees with the following comment submitted by AHRI:

   > "The ENERGY STAR multiple sample approach as described in Directive No. 2011-04, published 5/09/2011, was specifically developed for residential products. This approach is not appropriate for commercial equipment as it is not reasonable to retain three additional samples because these products are expensive and are not mass produced. The single sample approach could be utilized to avoid retaining samples; however, this option offers no testing tolerance, which is unreasonable. Ratings are determined by a population of tested samples, so it is only statistically possibly to ensure a single test will pass without a tolerance if a product is underrate. Underrating commercial equipment could cause a commercial building to be designed with oversized equipment, which could waste energy if the equipment may not operating at the optimal condition. EPA should consider an additional approach for commercial products where a 5% testing tolerance is provided without retaining three samples. The cost of ENERGY STAR Certification may not be justified at this time for commercial market, particularly due to the additional cost of retaining multiple samples."

MEUS appreciates the opportunity to provide these comments. If you have any questions regarding this submission or would like to discuss any of these points further, please do not hesitate to contact me.

Sincerely,

Paul L. Doppel

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