



Carrier Corporation
7310 West Morris Street
Indianapolis, IN. 46231

June 9, 2016

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

Re: UTC-CCS (Carrier) Comments on Draft 1 Version 3.0 Product Specification for ENERGY STAR Qualified Light Commercial HVAC Equipment

Dear Ms. Daken:

These comments are submitted by United Technologies Corporation's Climate, Controls, & Security Carrier Commercial Systems business unit (UTC-CCS/Carrier) in response to the US Environmental Protection Agency (EPA) request for comments on Draft 1 Version 3.0 Product Specification for ENERGY STAR Qualified Light Commercial HVAC Equipment which was issued on May 12, 2016.

We have the following comments on Draft 1 Version 3.0 Product Specification for ENERGY STAR Qualified Light Commercial HVAC Equipment:

1. EPA has proposed efficiency levels for light commercial air conditioners (AC), heat pumps (HP) and VRF multi-split systems that are generally higher than what is currently achievable. EPA has selected the minimum federal efficiency levels for AC and HP equipment that are scheduled to become effective in 2023; 7 years away. While this is a commendable solution because it offers consistency, these levels are too high at this time and manufacturers would be severely challenged to meet such a significant jump in efficiency. Products currently compliant with the proposed levels account for only 4% to 11% of the AHRI Directory listings, depending on type.

Instead, Carrier proposes that, where possible, EPA harmonize its proposed levels with CEE to ensure the ENERGY STAR levels do not add a source of confusion for end-users, installers, specifiers, and utilities by adding an additional set of levels.

Specifically, Carrier recommends the following:

- a. Light commercial AC: Carrier proposes that EPA align the proposed levels with the existing CEE Tier 2.
- b. HP: Unfortunately, there is not an appropriate CEE Tier for these products. Therefore, Carrier recommends that EPA align its proposed levels with the following AHRI recommended levels:

Size Category	Heating Type	Energy Star Ver 3, Draft 1 Proposal	AHRI Recommendation
65,000- 135,000 BTU	Electric Resistance (or None)	11.8 EER 14.1 IEER 3.4 COP*	11.8 EER 12.8 IEER 3.4 COP*
	All other (gas)	11.6 EER 13.9 IEER 3.4 COP*	11.6 EER 12.6 IEER 3.4 COP*
135,000- 240,000 BTU	Electric Resistance (or None)	10.9 EER 13.5 IEER 3.3 COP*	10.9 EER 12.0 IEER 3.3 COP*
	All other (gas)	10.7 EER 13.3 IEER 3.3 COP*	10.7 EER 11.8 IEER 3.3 COP*

- c. VRF: Carrier does not have a recommendation for VRF levels and acknowledges that there is not an appropriate CEE Tier level. However, a DOE rulemaking to revise efficiency level is expected to be initiated this year. EPA may want to consider awaiting the outcome of this DOE rulemaking before proposing ENERGY STAR levels for VRF products, thereby mitigating potential confusion by end-users, installers, specifiers, and utilities with a different set of energy levels.
2. 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. Unlike residential products, these commercial products are special order and very costly, and therefore are not mass produced. Although the single sample approach could be utilized to avoid retaining samples, this option, however, offers no testing tolerance, which is unreasonable. Ratings are determined by a population of tested samples, so it is only statistically possible to ensure a single test will pass without a tolerance if a product is underrated. This would be problematic as underrating commercial equipment could cause a commercial building to be designed with oversized equipment, which in turn could waste energy if the equipment is not operating at the optimal condition. Instead, Carrier proposes EPA consider an additional approach for commercial products where a 5% testing tolerance is provided without retaining three samples.

We thank you for the opportunity to make comments and are open to further discussions in regard to this matter at your convenience.

Regards,

A handwritten signature in black ink, appearing to read "John Gibbons". The signature is fluid and cursive, with the first name "John" being larger and more prominent than the last name "Gibbons".

John J. Gibbons
Sr. Director, Regulatory Affairs
HVAC Americas
Carrier Corporation
UTC Climate, Controls & Security

CC: Mr. Chris Nelson, President, HVAC Americas, UTC-Carrier
CC: Mr. Greg Alcorn, Vice-President, Carrier Commercial Products
CC: Mr. Matt Thornblad, Director, UTC Government Affairs
CC: Mr. Jim Del Toro, Commercial Unitary Engineering Manager