PHILIPS

via e-mail: lighting@energystar.gov

February 26, 2018

Ms. Taylor Jantz-Sell
ENERGY STAR Program Manager
US Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

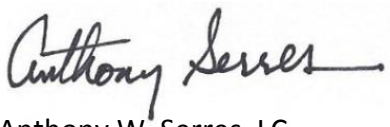
RE: ENERGY STAR™ Luminaires 2.1 Draft Comments

Dear Ms. Jantz-Sell:

Philips Lighting appreciates the opportunity to provide the attached comments on the proposed changes in draft 1 of the ENERGY STAR™ Luminaires v2.1 Requirements.

Please contact me if you have any questions.

Sincerely,



Anthony W. Serres, LC

Manager, Technical Policy
Philips Lighting

202-412-6143
anthony.serres@philips.com

PHILIPS

Comments on Draft 1 - ENERGY STAR™ Luminaires v2.1

February 26, 2018

Philips Lighting appreciates the opportunity to offer the following comments on draft 1 of the Energy Star Luminaires v2.1 Program Requirements.

General
We appreciate that Energy Star is using NEMA 77 in the luminaire specification. We also appreciate the additional flexibility by allowing directional fixtures to certify using Energy Star certified lamps.

Section 2 – Effective Date
The implementation date for this revision is not clear. While the draft states that the flicker metrics P_{ST} and SVM need to be reported beginning June 1, 2018, Section 2 mentions v2.0 and June 1, 2016. Your intent would seem to be to make the changes effective June 1, 2016. Please clarify.

Section 5.1 - Testing Color Tunable Luminaires
We suggest that Energy Star change the specifications for testing color-tunable luminaires to be consistent with the testing of color-tunable lamps in the Lamps v2.1 specification. We suggest these changes to the bullets in section 5.1:

- All tests and evaluations shall be performed at the ~~Least Efficient~~ most consumptive white light setting included in this specification (Section 9.3).
- Additionally, watts, lumens, chromaticity, and CRI shall be tested and reported for Default and Most Consumptive white light settings as applicable ~~(if different from least efficient white light setting)~~.

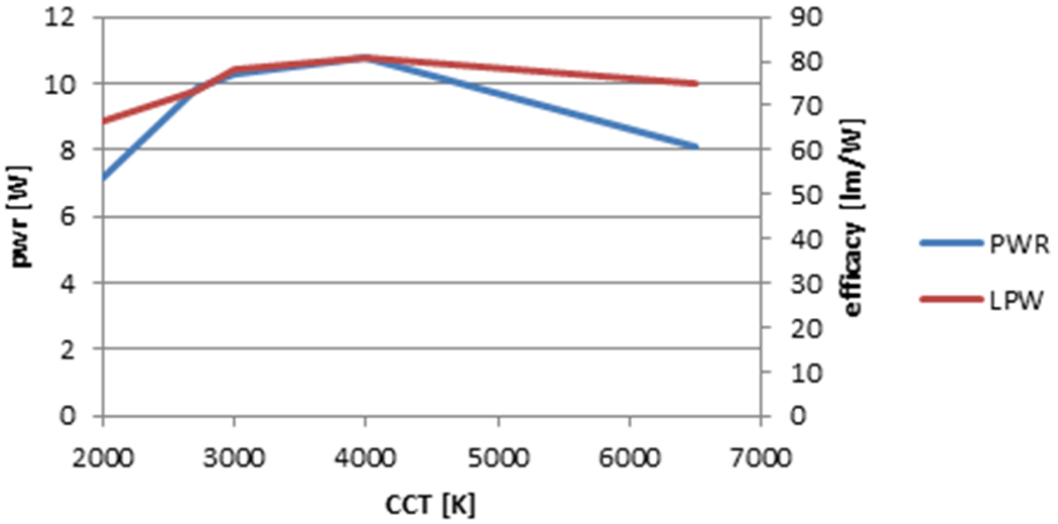
The rationale for these changes follows below.

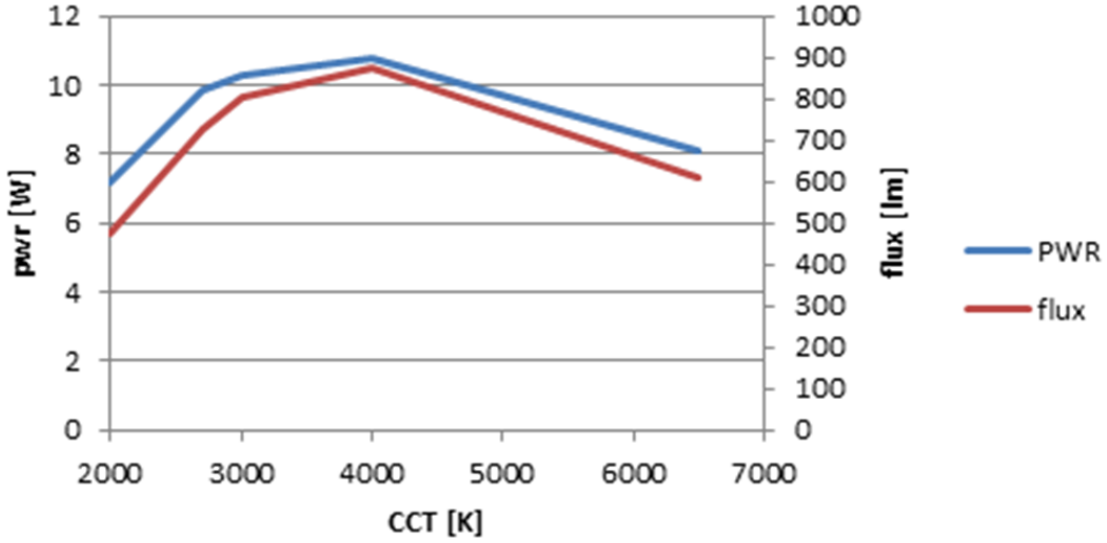
We appreciate that full photometric testing is required at only one point and that point is one of the ANSI points on the BBL. Simply reporting the maximum power, light output, chromaticity and CRI at the default setting seems reasonable.

The “least efficient white light setting” is likely to be one of the ANSI endpoints (2700K or 5000K from Section 9.3) in most foreseeable designs. It is also likely to be a point with relatively low power consumption and low light output, and therefore will present some challenge for luminaire design. The figures below show how power, efficacy and light output will vary with CCT, for a hypothetical color-changing lamp. In the top figure, efficacy is lowest (of the ANSI white points) at 2700K. From the lower figure, at 2700K the flux is about 720 lm. The flux at 4000K, in contrast, is nearly 900 lumens (about 100 lumens higher than necessary to meet a specification of 800 lm, for instance). In order for this product to qualify for Energy Star in the

"surface mounted retrofits for diffused ceiling mounted lights" category, based on the least efficient white point, it would have to be over-designed to produce at least 980 lumens at the most consumptive point (higher actually, to allow some margin in the design).

We suggest that Energy Star require the complete photometric testing to be done at the most-consumptive ANSI white setting (with watts, lumens, chromaticity, and CRI reported at the default and minimum efficacy white points), instead of requiring full photometric testing and evaluation at the least efficient white light setting. This will be consistent with the Energy Star Lamps specification. This is likely to result in light output meeting the Energy Star specification at the most consumptive setting, but light output that may be lower than the specification at other ANSI white settings. It will, however, result in a lamp that is less over-designed, and lower power overall. Furthermore, because power is lower at all other white points, energy is being saved relative to the condition that the luminaire was qualified and tested for, no matter what the efficacy is at that setting.





Section 11.6 – Flicker

Now that flicker has been added to the specification, we think that the following text in the requirements section may create confusion:

> "Dimming operation shall meet the requirement at all light output levels."

While this was in the v2.0 specification and originally applied to frequency, it appears to imply that flicker measurements have to be made at all dimming levels. We suggest that flicker data (and potential compliance) be gathered with at full output.

END COMMENTS