



via e-mail: lighting@energystar.gov

August 5, 2019

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

RE: ENERGY STAR Luminaires V2.2 Draft Specification Comments

Dear Ms. Jantz-Sell:

Signify appreciates the opportunity to provide the attached comments on the proposed changes in draft 1 of the ENERGY STAR™ Luminaires v2.2 Requirements.

Please contact me if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Anthony Serres'.

Anthony W. Serres, LC

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Comments on Draft 1 – Energy Star™ Luminaires v2.2

August 5, 2019

Signify appreciates the opportunity to offer the following comments on draft 1 of the Energy Star Luminaires v2.2 Program Requirements.

Section 1.1 – Excluded Products

We appreciate the clarification that fixtures with integral battery packs can be certified. Could you please clarify if these fixtures will require any additional testing?

Section 1.2 – Included Products

We understand that the intention in adding the word “other” to Inseparable SSL Luminaires was for clarification. This word seems to have created a separate category for Inseparable Other SSL Luminaires. Was this your intent? If not the definitions for inseparable and inseparable other should be merged.

If so, then the definitions for Inseparable SSL Luminaire and Inseparable Other SSL Luminaire should be merged. Otherwise there may be confusion and misinterpretation that these are two separate categories. Also, all references to Inseparable SSL Luminaires throughout the specification should be updated to Inseparable Other SSL Luminaires.

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:

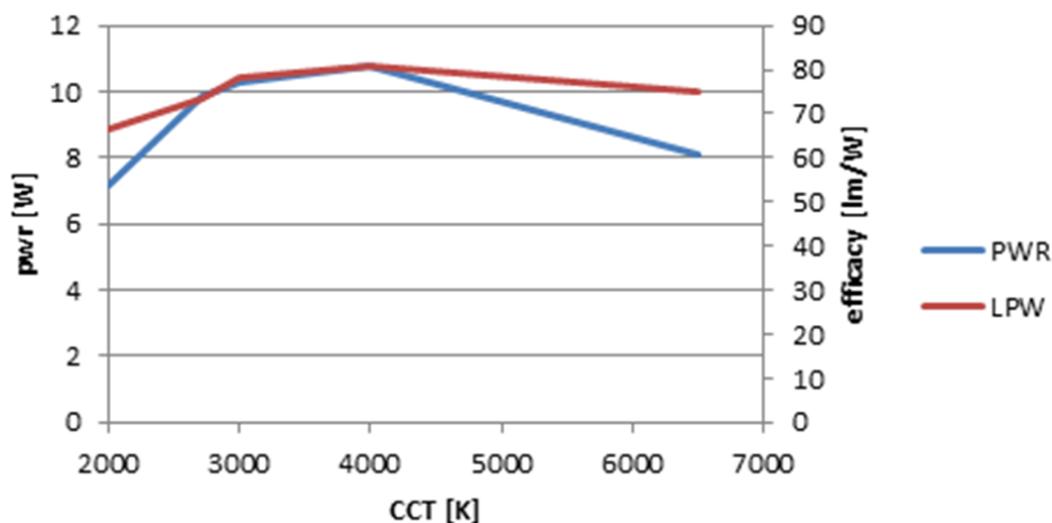
- All tests and evaluations shall be performed at the ~~Least Efficient~~ **most consumptive** white light setting included in this specification (Section 9.3).
- Additionally, watts, lumens, chromaticity, and CRI shall be tested and reported for Default and Most Consumptive white light settings as applicable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

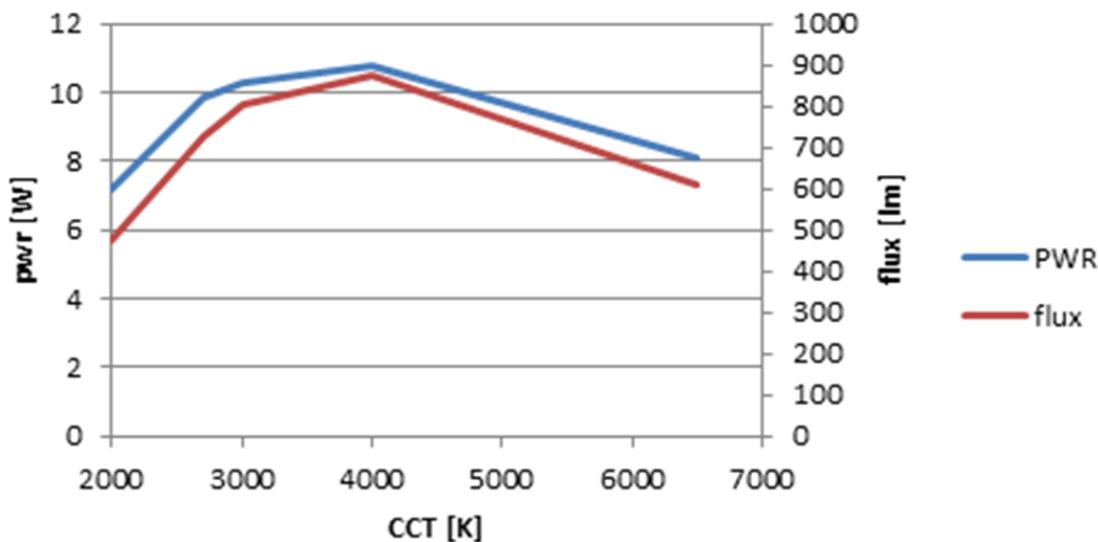
The rationale for these changes follows below.

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 product 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 7 – Methods of Measurement

We concur with ensuring that the latest methods are referenced.

Section 9.3 – Correlated Color Temperature

We propose that Energy Star allow the certification of luminaires that fall into the ANSI Extended Nominal CCT Specification (Annex E of C78.377-2017). To further elaborate, the request is to expand the specification to include the five extended quadrangles currently recognized (2700K through 5000K). There are “Specialty Color” LED options in the market that we would like to integrate into our luminaires. Customers desire the performance attributes of these options, but they also require Energy Star. Expanding the CCT requirement would allow both Signify and Energy Star to further penetrate the luminaire market.

Section 9.4 – Color Rendering Index

We propose that the $R9 > 0$ requirement be changed to $R9 > -5$. We offer the following arguments for this change:

- a. While there are LED sources readily available that meet this requirement, once integrated at a fixture level (w/mixing chambers, lenses, reflectors, etc.) there can be significant $R9$ losses. This places a burden on LED and luminaire manufacturers to specify custom $R9$ values to overcome the losses.
- b. The quality of light is dependent on the full color gamut, not just the $R9$ values.
- c. Customers who have a need/want for higher $R9$ values can always choose 90 CRI options.

Section 11.4 – Transient Protection

Signify proposes that Energy Star permit luminaire manufactures to submit the driver/ballast transient test results as proof of meeting this requirement. Driver/Ballast manufacturers perform surge tests with a load. Requiring luminaire manufacturers to also perform surge tests is a duplication of effort.

END COMMENTS