

April 3, 2014

US Environmental Protection Agency  
ENERGY STAR Lighting Program  
Attention: Taylor Jantz-Sell, Program Manager  
Re: ENERGY STAR Luminaires V2.0 Specification Draft 2

Submitted via email: [jantz-sell.taylor@epa.gov](mailto:jantz-sell.taylor@epa.gov)

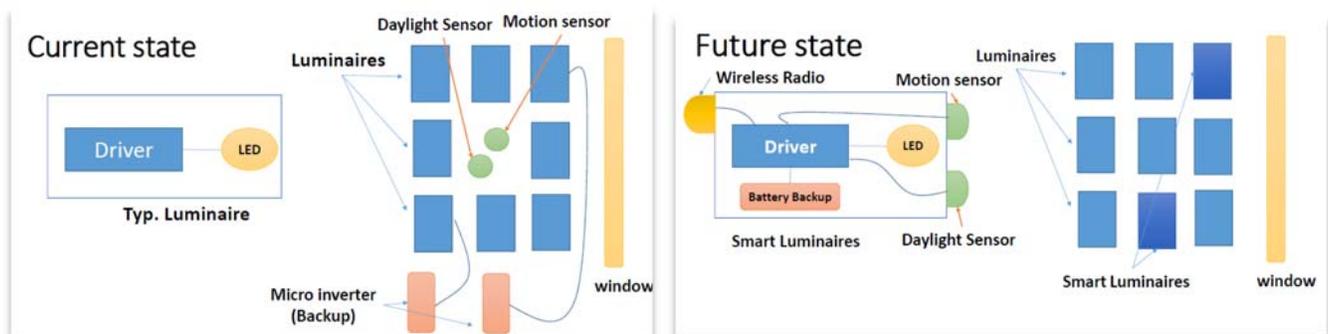
## Acuity Brands Comments on ENERGY STAR Luminaires V2.0 Specification Draft 2

Dear Ms. Jantz-Sell,

Thank you for the continued opportunity to participate in the development process of the ENERGY STAR Luminaires Specification and for holding additional stakeholder meetings on March 17, 2015 in Washington, DC, and webinar on connected products on April 1, 2015. Acuity Brands offers the following comments in response to the Luminaires v2.0 specification proposals reflected in Drafts 1 and 2:

- 1. Standby Power Consumption (Standby Mode):** The proposed reduction of standby power consumption from 1W to 0.5W for luminaires with integral motion sensors, photosensors, or connected functionality will require luminaire designs to be extremely efficient and will limit consumers' choice of smart lighting fixtures.

Lighting control devices such as daylight and motion sensors, and wireless radios can be installed independent of the luminaire, but with smart lighting, these devices are embedded on the luminaire. The power consumption of the "smart" luminaire increases slightly, and the luminaire may not meet the standby requirements. However, in some cases the overall standby power consumption in the space will go down as individual devices are eliminated and embedded on a single power supply. See Current State and Future State examples below.



Additionally, the specification does not adequately define standby mode, and it is not clear how the integration of radios, sensors, networking and data hosting devices into a luminaire will be evaluated. A motion sensor may provide a function when it is monitoring for motion and it is not

clear if this act of “monitoring” is interpreted as standby. Radios are required in many cases to “check in” to the main control system for status changes, diagnostics, and to provide mesh network or connected functionality. It is not clear if the specification interprets these functions as standby power consumption.

**Recommendation:** Establish a definition of standby mode power consumption that recognizes the functionality of the next generation of smart luminaires which may contain many forms of sensors, power supplies, and control end points. Secondly, increase the power consumption budget for luminaires incorporating these accessories in order to encourage overall energy savings in the space since combining sensors and peripherals into a single device will improve overall power consumption. A power consumption budget should be additive, so if a luminaire incorporates an integral motion sensor, a photosensor, and has connected functionality, the maximum standby power should be in the range of 1.5W to 2.5W. The standby power consumption of a photocell alone can be 0.6W to 0.7W.

2. **Connected Luminaires:** Acuity Brands applauds the Agency’s effort in introducing connected luminaires in the specification, however, we are concerned that the connected luminaire requirements have been written based on the anticipated performance of connected LED lamps, not luminaires. We believe the nuances from lamps to luminaires should be reviewed and incorporated into the specification.

**Recommendation:** Increase the requirement for power in standby mode to 1.5W to reflect the needs of this emerging technological application.

3. **Certifying Screw Base Luminaires when Shipped with ES lamps:** We do not agree with the ENERGY STAR bulb in a box pathway for certifying screw based luminaires. It is unnecessary step since consumers can readily purchase the ENERGY STAR lamps they want. It will also force luminaire manufacturers to maintain multiple listings for the same fixture when using ES lamps with different CCTs. There is also the potential for poor light distribution such as hot spots and shadows depending on the construction of the ENERGY STAR lamp shipped with the luminaire. And ultimately, the luminaire could be relamped with incandescent or halogen lamps and still be listed in the ENERGY STAR product finder.

**Recommendation:** Maintain ENERGY STAR’s eligibility policy that only with the exception of some outdoor luminaires, luminaires employing screw base lampholders are not eligible to earn ENERGY STAR certification.

4. **Automatic 20% Increase in Efficacy Levels Every 2 Years:** While we understand the Agency’s desire to maintain an upward trend in the efficacy requirement for all products without having to facilitate a specification development process, the proposed 20% increase in efficacy every 2 years places the burden on luminaire manufacturers to redesign products every two years and recertify products. We also question the use of efficacy projections instead of the Agency monitoring the landscape to determine if efficacy increases are needed.

**Recommendation:** Continue the established specification development process, including conducting research, surveys, etc. before implementing higher LPW values, which aligns with the practice for adjusting other lighting quality metrics in the specification. Efficacy should not be treated any differently just because there are forecast studies to reference. Forecast are not always accurate and don’t take other metrics like CRI, start time, etc. into account. Projections of future performance may not be achievable due to uncontrollable or unpredicted issues associated with sourcing or manufacturing limitations. This forecast will require many ENERGY STAR certified luminaires to meet 100 LPW in only six (6) years, and controlled lighting is likely to pay a

bigger role in future energy reductions than increases in efficacy, especially when the efficacy curve starts to level off.

- 5. Start Time:** Luminaires enabled with dimming and other connected or control strategies require more than 500 ms to turn on. DALI specifications describes that there is a typical 600 ms 'wait' for the controller and driver communicating before the light is turned on, to allow a controlled start-up of the system. Additionally there could be other elements in a fixture (sensors or other network devices that need direct attention for scale and/or setpoint to influence the first light coming out of the luminaire) that have a certain reaction time as well, and the time could be additive.

As mentioned in our comment letter to Draft 1, we agree that shorter start times are preferable to users, but contend that a consumer's idea of "instant on" is based on the milliseconds experience from incandescent sources. A reduced start time requirement of 500 ms maximum will not ensure consumers are satisfied with how quickly the luminaire turns on after activating the lighting control device. Furthermore, the circuitry of the control device may also affect the start time experienced by the user. Even incandescent sources can experience a short delay in starting when paired with certain dimmers. Also since the new test method for start time has been introduced in the proposed draft, it has yet to be determined how products will fare using the newly defined method.

**Recommendation:** Maintain the Start Time requirement at the maximum value of 1 second. Also, we recommend that luminaires do not need to be retested to the newly introduced test method in order to be recertified to Luminaire v2.0.

- 6. Color Maintenance Evaluation:** The change in the evaluation of color maintenance will now require all chromaticity test points in the LM-80 data set for LED chips, modules and arrays to be re-checked by the 3<sup>rd</sup>-party certification body and luminaire manufacturer will have to bear the cost.

**Recommendation:** Maintain the existing evaluation method for determining compliance with the color maintenance requirement or provide a data-supported rationale for the inclusion of a reevaluation that manufacturers.

- 7. Cost of Recertification:** During the specification development process for the Lamps v1.0 specification, EPA developed a testing and evaluation guide to assist manufacturers in discussions with their 3<sup>rd</sup>-party certification body regarding the price and timing of recertification. Based on some initial inquiries, there appears to be a wide swing in quoted baseline fees per family for recertification.

**Recommendation:** Provide a testing and evaluation guidance document for the Luminaires v2.0 specification development.

Thank you for the opportunity to provide this input. Acuity Brands is anxious to help promote solutions to achieve greater energy savings with quality lighting solutions. Please feel free to contact me with any questions.



Tanya Hernandez, PE, LC  
Manager, Energy and Environmental Standards | Acuity Brands  
[Tanya.Hernandez@AcuityBrands.com](mailto:Tanya.Hernandez@AcuityBrands.com) | 770-860-2793