SWITCH™

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Taylor Jantz-Sell

ENERGY STAR Lighting Program Manager
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
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Re: ENERGY STAR Lamps V1.0 Fourth Draft Comments

Dear Ms. Jantz-Sell:

We appreciate the opportunity to comment on the ENERGY STAR Lamps Version 1.0 Fourth Draft. The following represents Switch Lighting's comments in response to the April 19, 2013 ENERGY STAR Program Requirements Product Specification for Lamps: Eligibility Criteria Version 1.0, Draft 4 ("***Draft***").

BACKGROUND

Switch Lighting™ is dedicated to innovative design and technologies that create cost-effective light-emitting diode ("***LED***") lighting solutions for consumers and businesses, replacing ordinary incandescent and compact fluorescent lamps ("***CFL***") with long lasting, reliable, energy-efficient solutions.

The company's high-performance products are designed to contribute to human and planetary health with their efficiencies and reclaimable components. Using unique cooling technology, Switch Lighting is the first to announce a full line of A19 incandescent replacement bulbs for the residential, commercial, and hospitality markets. Switch Lighting is backed by VantagePoint Capital Partners and endorsed by Cradle to Cradle writer and sustainability expert Bill McDonough. The company is privately held (incorporated as Switch Bulb Company, Inc.) and headquartered in San Jose, California.

General Comments

With guidance from ENERGY STAR certification programs there are a significant number of high quality lamps on the store shelves today. We appreciate the elimination of the non-standard category of ENERGY STAR lamps and the efforts being undertaken to define and standardize dimming performance which will continue to provide lamps that meet or exceed consumer expectations. It is also encouraging to note that CFL and LED products are being treated under one set of guidelines and that RoHS compliance is being included. With the implementation of this new version slated for the middle to end of 2014 we encourage ENERGY STAR to continue to raise the bar on lighting performance with successive revisions, providing stretch goals for technology neutrality, lifetimes, light distribution and color quality, thereby letting the best products be qualified. We would like ENERGY STAR to be regarded as a mark of excellence that eliminates consumer confusion and disappointment rather than a consensus of industry participants.

Comments

Product Variations

CCT Variation

In order to eliminate non-value added testing we would like to see variation of lamps with higher CCT allowed based on test results of lower CCT versions of the same lamps. An example would be to allow a 5000K version of a specific lamp model based on test data of the same lamp and a 2700K CCT. The lower efficacy, 2700K LEDs will stress the bulb greater from a power and thermal perspective than the higher efficacy 5000K LEDs.

Luminous Intensity Distribution

SSL lamp Distribution

Many SSL "A" lamp manufacturers currently have lamps available on store shelves that meet the current ENERGY STAR LED Lamp Version 1.4 for standard omnidirectional luminous intensity distribution which requires "Luminous intensity at any angle within this zone shall not differ from the mean luminous intensity for the entire 0° to 135° zone by more than 20%." These lamps from the SSL community surpassed the incandescent lamp performance, having put in the investment to adhere to this standard. By proposing to relax this specification to "90% of the luminous intensity measured values shall vary by no more than 25% from the average of all measured values" allows the introduction of lamp that are inferior to what is commonly available to consumers as a standard omnidirectional today. So while the technology and the manufacturing cost structure necessary to meet the tighter specifications exists, it seems like the specification change is an effort to include inferior lamps and more lamp manufacturers under the ENERGY STAR banner. As a concession we would recommend moving to a variation of 100% of the data points to be within 25% from the mean luminous intensity. Allowing 90% of the data points to be within 25% variation would only weaken the mark of ENERGY STAR.

Lumen Maintenance and Rated Life Requirements

Lumen Maintenance

The wording in the Supplemental Testing Guidance is unclear in terms of defining how lamps are tested across the various lamp form factors, (decorative or omnidirectional) power ratings, (< 10 watts, ≥ 10 watts, ≤ 20 watts) and labeling ("not for use in recessed fixtures", "not for use in enclosed fixtures"). We would recommend that a table be used to clarify these alternatives and identifies the required ENERGY STAR Ambient Temperature Life Test.

Rated Life

There remains a sizable gap between what the consumer will experience between and Energy Star Certified SSL Lamp, ≥25,000hrs and a CFL, ≥10,000hrs and failure rates. We understand that the CFL is a legacy technology but in order to compete with today's SSL performance we recommend reducing the gap between the two technologies by specifying CFL minimum lifetime as ≥15,000hrs to 70% of the initial lumens.

Electrical Performance Requirements

Power Factor Requirements

Due to environmental concerns, over the next year the ability to generate power worldwide will become increasingly more difficult and expensive. A high power factor means that the energy we harvest will be used efficiently, which reduces the strain on our resources, which in turn benefits utilities, consumers and the environment. Money saved by utilities often results in rebates to consumers, incentivizing the further adoption of energy efficient technologies (informed by the ENERGY STAR label). For the past several years the power factor specification has not progressed with the growing concern for clean energy generation. We recommend making some progress on this important specification by raising power factor to a minimum of ≥0.75 across all technology categories.

Dimming Performance

Flicker

As ENERGY STAR Lamps Version 1.0 will be the first version with a flicker index specification we recommend the following change in specification "Lamps shall have a light output waveform periodic frequency of ≥ 120 Hz and have a flicker index less than or equal to 0.15." We would also recommend that the measurement could be made by either photodiode or LED current test methods.

Lamp Toxics Reduction

Lamp Toxics Reduction

Switch supports the inclusion of mercury reduction and RoHS compliance to the specification.

Thank you for your consideration of these issues.

Sincerely,

David H. Horn
Chief Technology Officer
Switch Lighting