

March 13th, 2015

Taylor Jantz-Sell
US Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Subject: ENERGY STAR® Lamps V2.0 Specification DRAFT 1

Dear Ms. Jantz-Sell,

Cree has reviewed the ENERGY STAR® *Lamps V2.0 DRAFT 1* Specification released in February 13th 2015. Cree recognizes the importance of the EPA and industries efforts to progress and improve the specification for lamps in an effort to promote energy efficiency within the lighting industry for one of the most recognized product categories in the ENERGY STAR portfolio. Cree respectfully submits the following comments and request that each be carefully considered prior to finalizing the specification for release.

Thank you in advance for your consideration. Please feel free contact me at 919.407.4077 with any further questions that you may have.

Sincerely,



Jonathan Vollers
Manager of Testing Services / Lighting

GENERAL

Cree believes that the ENERGY STAR *Lamps V2.0* specification needs focus on helping drive energy efficient lighting adoption rather than just increased performance for performance sake. Therefore, much of the comments enclosed are trying to balance performance with cost so that consumers get the functionality they desire at a cost that moves the market and actually pulls watts off of the grid.

The goal of ENERGY STAR is to help businesses and individuals save money and protect our climate through superior energy efficiency which will be further advanced by mass adoption over superior performance on a smaller scale.

SECTION 2 – FUTURE SPECIFICATION REVISIONS

3.1 Considerations for Future Revisions (Page 3): Cree requests the *Allowable Product Variations - CRI* be mentioned here as a possible future revision to help keep this topic present and possibly spur other manufacturers to provide data in support of this allowable variation.

SECTION 3 - EFFECTIVE DATE

Effective Date (Page 2): Cree agrees with the 9-month grace period (for products qualified to *Lamps v1.1*) from the date of release of *Lamps v2.0*.

SECTION 4 - DEFINITIONS

Color Tunable Lamp (Page 5): Cree requests the definition be updated to the following to clarify the color change to be controlled and not simply by dimming the product and to qualify the comment “along the blackbody curve”:

For the purpose of this specification, a color tunable lamp has functionality that allows the end user to alter the color appearance of the light generated by the lamp via a control feature, independent of dimming function. This tuning must include white light that is capable of meeting the specification’s CCT requirements, and can alter the color appearance along the black body curve (within the boundaries defined in ANSI C78.376-2001 or C78.377-2011 as applicable) , or may also extend to colors beyond the ANSI defined correlated color temperature ranges.

Connected Lamp (Page 5): Cree requests the definition be updated to a more simplified version:

A connected lamp includes elements (hardware and software or firmware) required to enable communication in response to consumer-authorized energy or performance related commands.

SECTION 5 – TESTING CRITERIA

5.1 Testing Color Tunable Lamps (Page 7): Cree requests that the EPA remove the repetition of the definition (to reduce confusion and risk of differences between definition and paragraph) and remove the requirement for the default testing. The least efficacious ANSI CCT bin should be satisfactory but I think some justification as to why it is the least efficacious should be provided to the CB’s to ensure compliance.

SECTION 9 – PHOTOMETRIC PERFORMANCE

9.1 Luminous Efficacy (Page 12): Cree requests that the EPA consider a 65 LPW across all product categories except for decorative products that are less than 8W...the basic requirements of the drivers have a certain amount of energy that is required for power conversion that proportionately becomes a larger % of the total power of the system in lower power/lumen bulbs making it unreasonable to expect these units to achieve the same efficacies as higher output bulbs. Please see the following chart de-noting our proposal:

ES Specification Version	Lamp Type	Input Power (W)	Efficacy (lm/W)
V1.0	Omni-directional	<15	55
		>15	65
ES V2.0 DRAFT1 Proposal		Any Power	70
V2.0 CREE DRAFT1 Proposal		Any Power	65
V1.0	Directional	<20	40
		>20	50
ES V2.0 DRAFT1 Proposal		Any power level	65
V2.0 CREE DRAFT1 Proposal		Any power level	65
V1.0	Decorative	<15	45
		15<W<25	50
		>25	60
ES V2.0 DRAFT1 Proposal		Any power level	65
V2.0 CREE DRAFT1 Proposal		< 8W	50
		>8W	65

9.6 Correlated Color Temperature (Page 16): Cree would agree to the addition of the 2200K and 2500K CCT bins as those are finalized.

SECTION 10 – LUMEN MAINTENANCE

10.1 Lumen Maintenance (Page 20): Cree recommends maintaining the 3% tolerance allowance due to test uncertainty from 0-6000 hr. (250 days)...this allows for any minor variations in power, temperature and sphere condition over the lifetime testing while not penalizing the product for statistically performing for that long which would be approximately 5 ½ years at 3 hr/day typical usage. This is a critical component to driving cost without value to the consumer. This requirement change will increase cost of developing products and, in the end, hurt adoption and slow the mission of ENERGY STAR.

Another impact, of the loss of this tolerance, is that this change is further distancing what is allowed for CFLs vs. what is allowed for LEDs.

Cree is acceptable to the increased temperature testing for lifetime as we believe that this will drive some increased cost but will provide increase quality and value to the consumer. Negatively, this change may also increase the use of restrictions (“not for use in totally enclosed or recessed fixtures”) on lower and lower wattage equivalent products which may impact consumer satisfaction.

10.2 Rated Life (Page 21): Cree recommends maintaining the 9 out of 10 surviving units at 6000 hr (10 of 10 at 3000 hr). Since driving out that minor failure rate will drastically increase cost of the overall product without real appreciable gain by the consumer. Due to the time it takes to get ENERGY STAR certification manufacturer’s will be forced to overdesign (i.e. cost) products to reduce the risk of failure. This concern will pretty much eliminate the use of early certification due to the risk of 1 unit failing after that initial certification and the efforts to re-design, start testing, and the downstream effects of a model number changes. This will hurt adoption of LED’s and energy efficient products as it will slow time to market of ENERGY STAR eligible products and increase the cost of those products. This will also reduce the portion of the product’s life-cycle with which they will actually be viable on the qualified products list.

10.3 Rapid Cycle (Page 22): Cree agrees with the removal of the Rapid Cycle for LED products as it does not stress the product and just adds testing and sample cost for little to no value to the consumer.

SECTION 11 – ELECTRICAL PERFORMANCE REQUIREMENTS

11.4 Start Time (Page 24): Cree requests that the Start Time be reduced by no more than 250ms to 750ms from application of power. This provides 25% reduction in the requirement but still allows for some design innovations which may increase customer functionality and/or allow better performance

in other areas but may be near the proposed 500ms requirement. Cree would advocate that by driving reductions in Start Time this may hurt the performance of other characteristics that have more impact and importance on the consumer lighting experience.

If the time is reduced to the proposed 500ms, Cree would request re-examining the definition of Start Time as the current definition seems to be somewhat ambiguous and there may be a need to ensure compliance more accurately.

SECTION 12 – CONTROLS REQUIREMENTS

12.8 Open-Standards & Open-Access (Page 27): Cree believes a connected lamp should be held to the same photometry, electrical and mechanical (ANSI dimensions) specifications as a standard SSL lamp would per this specification.

Energy Consumption Reporting (calculates, store, and reports) will add considerable cost and development time which would adversely affect energy efficient lighting. Energy management and reporting seems to have little to no value in the residential lighting market. Therefore, Cree requests that this section of the paragraph be removed.

12.9 Energy Consumption Reporting (Page 27): Cree requests to strike this paragraph from the proposed requirements as this provides little to no value with respect to residential lighting. Furthermore this will hinder energy efficient lighting adoption due to added cost and development time.

12.10 Operational Status Reporting (Page 27): Cree believes this paragraph needs clarification and/or simplification. Cree proposes “At a minimum, the product needs to have an application that allows the user to be informed of the status of the lamp (on/off, light-output, color temperature, etc...) as applicable to the functionality provided”.

12.11 Remote Management (Page 27): Cree requests to strike this paragraph from the proposed requirements as this provides little to no value with respect to residential lighting. Furthermore this will hinder energy efficient lighting adoption due to added cost and development time.

SECTION 15 – LAMP LABELING, PACKAGING & WARRANTY REQUIREMENTS

15.2 Lamp Packaging (Page 29): Cree applauds the EPA’s taking a lead in trying to “standardize” the verbiage utilized around describing the color of the light, lamps and luminaires provide. Note – Soft and Warm White have been used interchangeably to describe the 2700K color point and therefore neither of these terms should be used to describe the 3000K color point as it will cause considerable confusion to the consumer.

Cree would propose the following standard terms that should not only be applied to *Lamps V2.0* but the Luminaires specification to drive a consistent message that all manufacturers' and partners to ENERGY STAR could adopt:

2200K & 2500K (if added) = Candlelight

2700K = Warm White

3000K = Bright White

3500K = Neutral White

4000K = Cool White

5000K = Daylight

6500K = Blue White