



October 25, 2012

Owen Howlett
California Energy Commission
1516 Ninth Street, MS-37
Sacramento, CA, 95814-5512



Subject: Proposed Voluntary California Quality LED Lamp Specification

Dear Mr. Howlett,

Cree has reviewed the draft version of the Proposed Voluntary California Quality LED Lamp Specification received via email on September 27th, 2012. We recognize the importance of the California Energy Commissions (CEC) efforts to develop and release a specification which encourages the adoption of energy-efficient LED lighting among residential consumers. CREE respectfully submits the following comments and request that each be carefully considered when revising the document.

Thank you in advance for your consideration. Please contact Tim Henning at (919) 407-5047 with any further questions that you may have.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tim Henning". The signature is stylized and cursive.

Tim Henning

Specialized Testing Manager | ENERGY STAR Program Manager

Cree fully supports and shares the goal of encouraging the adoption of energy-efficient LED lighting among residential consumers. We feel as though this goal is best achieved if these consumers are satisfied with LED lighting products from both a performance and price perspective. We feel that a balanced approach, where both aspects are considered equally, will foster the best adoption rates. The industry is currently in a period of rapid technology advances and widespread innovation. This balance will evolve and we need ensure that whatever standards we propose do not inhibit future innovation.

We understand the CFL experience where an over-emphasis on cost while sacrificing product performance caused widespread consumer dissatisfaction with CFL products. However, consumer dissatisfaction with CFL products goes well beyond light quality and lifetime to start-time (warm-up), audible buzz, lack of dimming and toxicity concerns.

It is our opinion that the industry must approach the balance with care so that we do not increase costs / prices and slow down the adoption and deployment of energy-efficient residential LED lighting. Additionally, we need to ensure that we do not slow down the rate of new product introduction, discourage innovation and limit the options available to the consumer.

The following comments represent our input as it relates to the draft version of this specification.

Product Performance at Temperature (Various Pages): Throughout the specification it mentions that the products must meet the requirements under both 25°C and 55°C ambient temperatures. If this specification gets adopted, it may be an issue to provide data supporting photometric performance at these elevated temperatures. Manufacturers would need a temperature controlled integrating sphere, leverage thermal elements (which have significant limitations) or build custom boxes that allow the ambient temperature around the unit to be controlled while being measured within the sphere. While we understand the intent of this requirement, a sound methodology needs to be established as it will likely be an expectation that many manufactures may not readily be able to support.

Color Consistency (Page 18): The color consistency requirement indicates that lamps of the same model number must fall within a 2-step Macadam ellipse of the average chromaticity of the tested sample. This requirement will require that manufacturers use LEDs out of very narrow bins which will result in premium pricing due to the small yields associated with these LEDs. Cree strongly recommends that the requirement be expanded to all products to fall within a 4-step Macadam ellipse.

Color Rendering (Page 19): The color rendering requirement in this specification calls for products to have a CRI of 90 or better. A number of different technologies are currently being leveraged on the market today and innovation continues to cause the costs associated with 90+ CRI products to drop dramatically. CRI is one of the greatest contributors to light “quality” and we fully support this requirement. Additionally, Cree recommends that the requirement for the R9 value be increased to >50.

Light Distribution (Page 19): Cree fully supports that the CEC align the omni-directional requirements to be in line with the ENERGY STAR Lamps specification.

Dimmability (Page 20): The specification proposes that the product packaging shall indicate on the exterior of the packaging the manufacturer and model number for three (3) or more compatible dimmers with which the lamp can be operated to fulfill the requirements of the Specification. Given the large number of available dimmers in the marketplace and the fact that these products will continue to change and evolve, we feel as though the best approach is for the manufacturer to reference a website that the consumer can go to for a full list of compatible dimmers. This will reduce the amount of packaging space that is required and allow for the manufacturers to update and maintain an accurate list of compatible products.

Warranty (Page 20): The specification indicates that all LED lamps, whether they are residential or commercial, shall carry a minimum five-year, free replacement warranty. Cree fully supports this requirement.

Start Time (Page 35): Cree strongly believes that the start time should be reduced to at most 250ms, or at most 500ms. By having a 1 second start time, consumers may think that the light source is defective and may attempt to restart.

Appendix B – Flood lamps (Page 40): Cree requests that the CEC align the directional requirements to be in line with the ENERGY STAR Lamps specification.