



GREENCREATIVE

March 13, 2015

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

Subject: Comments on ENERGY STAR Lamps Specification V2.0 Draft 1

Dear Ms. Jantz-Sell,

The GREEN CREATIVE product development and certification team has reviewed the ENERGY STAR Lamp Specification V2.0 Draft 1 and appreciates the opportunity to provide comments.

We look forward to working with the EPA on the development of the ENERGY STAR Lamp specification and recognize the importance of the EPA efforts to develop and update requirements to promote products integrating the latest technological advancements. These values are at the core of our company culture and beliefs.

If you have any questions, please feel free to contact me. Thanks in advance for your consideration.

Sincerely,

Guillaume Vidal
Principal
guillaume@greencreative.com



9.1 Luminous efficacy

While we support the overall increase in efficacy for omnidirectional lamps and have always offered products far exceeding ENERGY STAR's efficacy requirements, we would like the EPA to reconsider the 65 Lumens Per Watt requirement for the Directional Lamp category. We recommend this requirement be revised to 50 Lumens Per Watt for the following reasons:

Firstly, the fact that directional lamp equivalence is solely calculated based on Center Beam Candela Power in the benchmark tool clearly shows that the EPA has long understood that lumen output was not the most relevant metric when evaluating directional lamps. While we can argue with the necessity of the efficacy requirement, it should certainly not become a decisive factor in the qualification of a lamp. However, we do agree that efficacy should be kept at a reasonable level. Other requirements could be introduced and we would be open to discuss them, but we also understand the complexity of introducing completely new requirements. So for now, we at least recommend to revise the efficacy requirement.

We would also like to point out the latest advancements in technology on an LED package level where higher density packages with lower lumen output are becoming available from all major COB and High Power LED manufacturers. Such packages are designed to be integrated in directional lamps or fixtures and clearly prioritize candela over lumen on a light engine level. This results in superior performing directional products with lower efficacies than their predecessors, which use traditional packages and sometimes even less appropriate packages that should not be used in directional applications.

GREEN CREATIVE and other commercial and specification grade manufacturers have also made great progress on optical beam control design. The latest designs allow for better light distribution within the beam, reducing unnecessary spill and largely benefitting CBCP for directional applications. However, this design results in an



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overall lower lumen output, which again impacts the efficacy. This is especially relevant for narrower beam angles such as Narrow Flood and Spot products, both of which are still widely used and necessary.

Another factor to take into account is the market trend for higher color rendering products. For instance, the California Energy Commission requires a CRI of 90 and an R9 above 50 for products to qualify. As a manufacturer specializing on the commercial and specification market, GREEN CREATIVE does not necessarily think that CRI 90 is required for all applications, but we do find a benefit in providing a higher color rendering product. However, there is a tradeoff inherent to the current LED color conversion process: higher color rendering, until further advancement, will always come at the expense of efficacy. Therefore, we could argue that a high efficacy requirement for directional lamps mainly used in applications where a higher color rendering is beneficial is going to impact adoption and satisfaction.