

June 21, 2010

Alex Baker
ENERGY STAR Lighting Program Manager
US EPA

Dear Mr. Baker,

We appreciate the opportunity to comment on Version 1.0, Draft 1 of ENERGY STAR Program Requirements for Luminaires.

We have the following concerns about the specifications in the document:

-850 Minimum Light Engine Lumen requirement for Non-Directional engines or luminaires
This requirement will make small products such as step lights and wall sconces need to meet unnecessarily high levels of light just to meet program requirements. This could lead to some products being over-illuminated especially products such as wall sconces which are sometimes considered illuminated works of art and pendants which are often used ambient lighting. Additionally, such a high minimum level will make the products much more costly and less likely to be sellable as qualified efficient lighting solutions. Since the SSL ENERGY STAR has set many quality standards for qualified products such as CRI, warranty, binning restrictions, and color; many buyers of LED lighting products seek ENERGY STAR availability in all product categories. Such a lumen minimum is likely to make some categories of products "unqualifiable" due to cost and excessive light level requirements for proper thermal management in a small luminaire. Moreover, other parts of the specifications uphold the SSL lighting levels at minimum requirements below 850lumens (such as recessed) which are inconsistent with these non-directional requirements.

-70LPW light engine efficacy requirement for Non-Directional luminaires
70LPW is not easily achievable as of today for many warm white light engines. Considering currently available common high power LEDs, AC losses in the drivers, and thermal management needed in the luminaires, many integrated and non-integrated light engines today in warm white likely are closer to 45-60LPW in the warmer white colors. Presently, we don't have any products in our portfolio of engines that would qualify for 70LPW requirement at 2700-3000K. Setting the level at 70LPW would severely limit the engines that could be qualified and consequently there would be few luminaires that could meet the specifications. There are indeed more and more high power LEDs becoming available and more efficient driver designs being developed by manufacturers, but at the time this specification would become enforced there would not be a great amount of systems that would qualify. Note that many buyer requirements for dimming typically lowers the driver efficiency. Moreover, many of the products on the current RLF QPL are 40LPW (and less) luminaire efficacy, which means they likely don't employ 70LPW engines. Mass production 70LPW engines are likely at least one year away. Permlight suggests 60LPW as a more reasonable engine efficacy target.

-Definitions

Class A and Class B are not clearly defined. There are various other FCC classifications for sound rating that may be confused with the intended definition of Class A/B described here without clarification. The definition of "Input Power" specifically excludes LED from the earlier listed definition of "ballast." "LED Light Engine" specifically refers to an integrated LED light engine which is only a portion of the products on the market. A large portion of products are "non-integrated" light engines and are not accounted for in the current definition.

The definition of "Power Factor" appears to specifically exclude LED due to the earlier definition for "ballast."

A definition of efficacy as related to LED Light Engine and/or LED luminaires should be clearly defined in this section so there is no confusion later in the specifications whenever efficacy requirements are shown.

-Qualification Process

Slight variations in housings where thermal properties are not significantly different should be allowed.

-Lumen Maintenance requirements

Noted that due to limitation of using LM80 data, that EPA is in favor of eliminating "option 1" and in favor of 6,000 hr testing for light engines or luminaires. However, this would require over 8 months of testing prior to luminaire or light engine being released to the market and this is extremely difficult for product introductions in this rapidly expanding market.

-CRI Requirements

It is not clear yet to us whether R9 values for all commonly used high power LEDs (especially those LEDs that already have LM80 test data) have R9 values > 0. EPA should be sure that the various popular manufacturers' LEDs commonly used in qualified fixtures today have such R9 values.

-TMP requirements (Thermal Performance)

In various places in the specification, the "required documentation" section states TMP must be less than manufacturer recommended maximum. This statement should be TMP should not exceed manufacturer's recommended maximum.

-Warranty Requirements

Permlight supports requiring all products that have LED sources should have at least 3 years warranty. Even those with replaceable light engines.

Thank you for allowing us to submit these comments, and we look forward to your consideration.

Warm regards,

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