Email Received on August 25, 2008

Following are some general comments related to the proposed Energy Star programs. While the following comments are directed primarily toward RLF 4.2, some apply or are relevant to SSL 1.0. It is Progress Lighting's (division of Hubbell Lighting, Inc) intent to express opinions on both standards in support of a single Energy Star program for solid state lighting. Further comments directed entirely toward SSL 1.0 will be provided later specifically related to the 09/30 acceptance of qualifications, efficacy ratcheting, elimination of product categories in Cat. B., 3rd party testing requirements, zonal lumen distribution, LM-79, etc. Comments will be provided to both ICF and D&R.

Standards Release

It is desired that a single standard be released covering all solid state luminaires regardless of intended markets (residential or commercial). Barring acceptance of this request, it is secondarily requested that the two standards (RLF 4.2 & SSL 1.0) be worked out in detail as to what specific applications each covers and that they be simultaneously released so as to alleviate any confusion to both consumers and manufacturers. The impending release of SSL 1.0 on 09/30 dependent on the publishing of LM-80 would seem to have been facilitated by the removal of life calculations making LM-80 simply the testing procedure; however, the subject of testing for and estimating life needs to be finalized before either standard is released and qualifications begin.

Testing

The Assist testing procedure is very advantageous to residential lighting manufacturers as it lends itself better to the industry regarding time to market and cost. A single LED chandelier costs around $800-$900 to conduct an LM-79 test. It remains to be seen if the DOE will accept a single test to qualify an entire decorative family (e.g. testing a single head that is common to all products in the family). Benchmarking a family of products against the performance of the engine would seem to be a plausible approach in evaluating residentially oriented luminaires. Further, DOE requires LM-79 via 3rd party testing laboratories, and only a select few have thus far been certified. Placing the burden of the entire industry on these few testing labs will undoubtedly result in significant backlogs adding to the time to market issue.

Further consideration should be made as to how to apply a thermocouple to the engine. In some cases, this may not be possible due to the construction of the engine. This issue would appear to be more pronounced in SSL 1.0 and has still not be addressed to date; however, it needs to be addressed clearly so as to circumvent any future issues.

It is accepted that absolute photometry is required to properly evaluate the photometric performance of a solid state luminaire; however, in the residential lighting industry, photometry is only required in maintaining competitive edge from a marketing perspective and not required to qualify product against standards such as Energy Star. The Assist testing procedure would appear to offer a platform on which various products can be qualified via benchmarking engine performance. The expense and resources allocated to photometry is therefore at the discretion of the manufacturer based on market requirements.

Why is the heater set at a percentage of Tj max. and not Tj design?

Life

Both standards reference LM-80 as a means of predicting useful life of SSL's. LM-80 has recently been revised via the removal of the calculation of useful life, and is now simply a testing procedure. It remains to be seen how this data will be applied in predicting the useful life of an SSL.

RLF 4.2 mentions both Assist and LM-80 procedures as means of estimating useful life of a solid state luminaire. The Assist program recommends that both L70 and L50 be considered for residential lighting dependant on whether the luminaire is intended for performance or purely aesthetic applications. This could potentially introduce further confusion to the consumer especially for those products that may fall in a gray area. While it is noted that the data form is intended to provide data for both, further discussion is warranted as to the impact this may have on the consumer. Is the product packaging intended to be labeled in a consistent manner to ensure all manufacturers convey performance levels the same way (i.e. NGLIA's proposal for reporting LED performance).

LRC makes mention that color maintenance is a significant factor in estimating the useful life of a product. The DOE only requires LM-80 testing to estimate L70 life, and color maintenance is a self-certified test. This would seem to be a very important issue that warrants further discussion. Industry acceptance of a single means to estimate life of an SSL is prudent.

CCT

For traditional light sources, color has little or no impact on the lamp's performance; however, there is a direct relationship between color temperature and efficacy of color corrected white LED's due to phosphors. Historically, sales of products in residential markets focus on 2700K (warm white) and 3500K (halogen white) color temperatures. Qualifying like products at such a broad range of color temperatures as indicated in both standards will possibly result in greater confusion at the consumer level since performance will vary accordingly. At POP, consumers may be willing to sacrifice color temperature for higher efficacy which could introduce buyer's remorse. It is therefore recommended that the issue of CCT be further considered with stress on reducing the qualifying temperatures.

Efficacy

The value of efficacy in creating a level playing field for performance is well accepted. It is desired however that further discussion be encouraged as to proper efficacy minimums for solid state luminaires. Benchmarking current advanced lighting such as CFL's is advantageous in qualifying SSL's against performance of known products; however, the definitions of efficacy are different and need to be addressed as such. I'll have to spend some more time studying the benchmarked efficacies of CFL's, but the concept is accepted.

Energy Star Brand

As mentioned previously, it is strongly recommended that a single standard be published that covers all solid state luminaires regardless of application. The value of the brand as perceived by the consumer would seem to be at risk since it will be impossible for them to understand the differences between the two standards; however, it is also well noted that there are significant differences and consumer requirements in residential and commercial applications. Should both parties proceed with their respective standards, it would be desirable to differentiate the brand logo accordingly (e.g. E* Commercial, E* Residential). In addition, this would help differentiate SSL's from CFL luminaires which is very desirable across the industry.

Regarding SSL 1.0 and efficacy ratcheting, this approach is destined to create general confusion as products fall out of qualification. Is the product E* or not at any given time. Setting targets of ever increasing efficacies places manufacturers in difficult situations to balance qualification with costs. As product costs and resulting prices reduce, products will become more attractive to mass retail. So, once a product is qualified, it is recommended that manufacturers be left to cost reduce as technology advances. Maintaining a competitive edge in the market should naturally lead to higher efficacies.

Programs & QA

The value of CALiPER in establishing consumer confidence in the performance of SSL's is very apparent. In addition, the Gateway demonstrations, Lighting for Tomorrow, and Next Generation

Luminaire challenges provide opportunities for manufacturers to submit product to an unbiased forum. How does the EPA intend to assist manufacturers in programs such as these via alternative qualification requirements?

Maintaining quality products is a given, but the existing QA program requiring 3rd party testing is extremely costly to manufacturers. It would seem apparent that given the fragile nature of the SSL market, the QA program will be enforced more rigidly elevating unbudgeted costs to manufacturers. Please keep this in mind as you establish the criteria for SSL E* qualifications. Further discussion on this issue would be much appreciated.

Craig Wright - Product Manager - Progress Lighting
701 Millennium Blvd
Greenville, SC 29607
P: (864)678-1201
F: (864)678-1411
e: cwright@progresslighting.com