



**Comments on Draft ENERGY STAR Requirements for SSL Luminaires
Stakeholder Meeting – February 8, 2007 – Washington, DC**

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The American Lighting Association (ALA)* is pleased to have the opportunity to submit these comments to DOE/ENERGY STAR on behalf of the members of the ALA.

The ALA is a trade association of some 1400 members who are part of the \$2+ billion (annual sales) residential/decorative lighting business. ALA members include luminaire manufacturers, lighting showroom retailers, component manufacturers making lamps, ballasts, controls and hardware, lighting designers and manufacturer's representatives.

Our comments are as follows (based upon the 12/20/06 Draft):

Scope (page 2)

While this section of the Draft defines requirements for "SSL products used for general illumination", the actual technical requirements of the document appear to be focusing on those luminaires primarily designed for commercial and industrial general lighting and certain niche applications.

Therefore, we call your attention to a long-recognized class of luminaires widely used for residential lighting; but which, from a design standpoint, can be categorized broadly as ranging between the functional and the decorative where decorative in this sense means luminaires designed so that the visual emphasis is on the luminaire itself. Note that this whole range of luminaires is easily accommodated in the existing ENERGY STAR Fixture Program; but it is difficult to see how it can be properly accommodated in the proposed program.

The ALA recommends that the Draft Requirements recognize this important class of luminaires and establish a clear way to differentiate and evaluate luminaires whose purpose is primarily functional (providing light for visual work) vs. luminaires whose purpose is primarily decorative.

Examples of primarily-decorative luminaires are crystal chandeliers, pendants, sconces and surface-mounted luminaires with highly detailed or artistically shaped luminous

surfaces and luminous objects which are part of certain types of portable table and floor lamps.

Driver Requirements (page 4)

This section describes drivers as single-case devices which have 120 volt inputs and regulated outputs connected directly to the LED device array. However, 2-piece systems are already in use by the industry. These consist of a low voltage transformer or switching power supply and a separate regulator circuit for part of the LED device array and with another regulator circuit for another part. Are the Requirements (including Power Factor) intended to apply only to the single-case devices or are they expected to be all-inclusive? ALA recommends that this section be expanded to include all commonly-used types of power supplies.

We certainly agree, as was discussed during the meeting, that any on/off luminaire switching should be on the 120 volt side of the circuit; not on the low-voltage or regulated side so as to avoid wasteful parasitic electrical loads.

Luminaire Efficacy (page 5)

The ALA recognizes the difficulty of determining SSL device efficacy unless the device is mounted in the actual luminaire thermal environment.

What must also be recognized, however, is that the requirement for luminaire photometry adds a new, significant and unusual burden of cost and complexity for the manufacturers of residential/decorative luminaires. Such luminaires have never before been required to be routinely photometered so there is limited testing infrastructure and very limited industry experience with the process.

Residential/decorative luminaires are consumer products designed and manufactured to provide safe decorative and functional residential lighting at the lowest possible unit cost. Such fixtures may be made in high volumes but are more commonly made in very limited volumes and perhaps even custom designed by the consumer at the point of sale where there can be a wide variety of shades and other optical hardware or decorative elements which substantially affect light output. As you can understand, photometric testing of such luminaires with all of their potential variations would be a massive problem. The cost burden, assuming typical costs for a full photometric test, would, we believe, exceed what can be managed by the industry for what is intended to be a low-cost consumer product.

In the existing ENERGY STAR Fixture Program involving fluorescent systems, the requirements do not call for photometric testing of individual luminaire designs, but rather the assurance that an energy-efficient lamp and ballast system are being used. In support of that idea, the ALA, working with NEMA in 2001, established a "Platform Lamp and Ballast Matrix" process which shifts the testing requirement correctly to the lamp and ballast suppliers. This reduces the testing and verification cost burden for

luminaire manufacturers and yet provides certification that efficient products are being used. The process works well and currently has listings from 8 lamp and 14 ballast manufacturers representing several hundred products. Ref:

<http://www.nema.org/lampballastmatrix/>

We are looking for similar solutions in this situation. Accordingly, the ALA recommends that a joint workshop be organized, perhaps by the DOE, to bring together SSL device manufacturers, luminaire manufacturers and those interested in measurements and standards to explore alternatives to full photometric testing and to discuss how the performance of decorative luminaires might be defined and qualified.

For example, if photometry proves to be essential, what are the alternatives to traditional distribution photometry that would still provide the essential information at a substantially lower cost?

We note that the calculated quantity of interest specified in the Draft Requirements is luminaire efficacy (output lumens/input watts) and therefore only the measured total light output of the luminaire is required, not the intensity distribution or the zonal lumens which are normally measured and calculated during a traditional photometric test. Can a low-cost “total output” photometer or test device be developed which could shorten and simplify the task of obtaining fixture lumens? Could the DOE perhaps call upon the new SSL testing and measurement facilities and staff at NIST to help with this important effort?

Category A: Near-term Niche Applications (page 5)

Given that this ENERGY STAR program is focused on energy saving, it is understandable that the Program Requirements are somewhat narrow. However, the ALA believes that the current values for luminaire efficacy, and the under-cabinet, outdoor and recessed downlight Application Requirements in the Draft do not properly consider the trade-offs between luminaire efficacy and lighting quality factors such as glare, distribution of light, stray light and aesthetics.

We believe that lighting is designed, made, sold and operated for people. The only reason that energy is used for lighting is to satisfy human needs. If those needs are compromised by an undue emphasis on optical performance or energy efficiency so that the lighting result is not satisfactory, then even the lighting energy that is used will be essentially wasted.

We well understand that the most efficacious luminaire is a bare light source. But a light source without shielding for glare control and without diffusing or diffracting optics for light distribution is typically unsatisfactory or unpleasant – it can't do the job for which it was purchased.

We see a danger to our industry if requirements are established that measure light output and luminaire efficacy without a similar ability to measure or evaluate lighting

quality factors such as glare or distribution of light so that the efficacy can be properly balanced against proven lighting quality application factors.

More importantly, the ALA feels that a narrow quantitative approach as represented by the Draft Requirements will lead to limiting the market for this important emerging SSL technology as applied to residential/decorative luminaires. Yes, the “approved” luminaire designs may be efficient, but they may also not be suitable for the intended applications and may therefore experience only limited consumer interest and sales as a result.

The ALA recommends that the DOE structure these Program Requirements to include lighting quality factors and especially those such as uniformity, which can be measured, to avoid emphasizing just luminaire efficacy.

Standards and Documentation (page 10)

The proposed required documentation not only adds to the testing and cost burdens from the luminaire manufacturer’s standpoint; but also requires the manufacturer to test SSL device-dependant factors such as chromaticity and color rendering which are out of the control of the luminaire manufacturer. The ALA recommends that, for device-dependant performance factors such as color, that the testing burden be placed upon the device manufacturer.

From an administrative standpoint, the ALA is concerned about the increasing overlap and administrative complexity of the ENERGY STAR Fixture Program. This program has one name; but now appears to be establishing two administrative pathways with two groups of people to contact for information and guidance and with two groups of people writing and updating program requirements. We ask the DOE and the EPA to work together to establish an efficient process with a single set of guidelines and with a single “portal” for submission of information and inquiries.

Our preferred approach would be to handle ENERGY STAR evaluation and testing much like the residential/decorative lighting fixture industry already handles safety and fire testing. Why not, for example, set up a single “portal” for all testing via established UL, CSA or any of the other existing testing organizations who routinely and competently already test residential/decorative luminaires? Then, all testing could be ordered and completed in one process with one submission of test fixtures or on-site evaluation.

We have watched and enthusiastically supported the development and growth of the existing ENERGY STAR Fixture Program and, while it is effective and valuable to the industry, it is increasingly and, we believe, unnecessarily complex. Recent changes requiring on-going verification of performance, for example, which require multiple samples which must be submitted, tested and then scrapped are costly, wasteful and

against the goal of our ALA manufacturers to minimize cost and improve the environmental sustainability of their companies and products.

Finally, while the ALA understands the need to quickly establish new SSL ENERGY STAR requirements, we recommend that the DOE take note of the timing of major residential/decorative lighting industry events such as the markets and conferences. Because the industry is relatively small and made up of numerous family companies, it takes time to contact and involve the key technical and management people.

The ALA and its member companies want to participate fully in this process and help to continue to make the Energy Star Lighting Fixture Program a success. We want to be able to give you a thorough and considered response and therefore recommend that you continue to provide at least 30 days for reviews and responses.

Thank you.

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