



August 24, 2012

Taylor Jantz-Sell  
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US Environmental Protection Agency  
Washington DC. 20460

Dear Ms. Jantz-Sell:

TCP respects and values its relationship with the EPA and welcomes the opportunity to comment on the recent draft 2 of the ENERGY STAR® Product Specification for Lamps Version 1.0.

**Specification Scope and Lamp Classification**

TCP agrees that MR16 and GU10 should be included in the ENERGY STAR specification. However, dimensional guidance should be included.

**Photometric Performance; Luminous Efficacy Requirements**

TCP recommends the minimum lamp efficacy of directional lamps be lowered to 35 LPW for lamps 10 watts or less. TCP recommends directional lamps be lowered to 40 LPW for lamps greater than 10 watts. Please see supporting documentation referencing the advanced dimming CFL's ability to achieve TCP recommended standards. Lowering the levels per TCP's recommendation would eliminate the need to create a separate category to include advanced dimming CFL technology, where LPW levels meet the recommended requirements outlined above. Lowering the levels to this recommendation does in no way affect the consumer lighting experience or jeopardize ENERGY STAR's mission statement. This recommendation would help to encompass all lighting technologies fairly and not discreetly start to eliminate advanced CFLs from the lighting specification.

**Correlated Color Temperature (CCT)**

TCP disagrees with the requirement to maintain 10 out of 10 samples within the 7 step MacAdam ellipse/ANSI quadrangle. This would be the equivalent in requiring perfection. TCP recommends sticking with the current requirement to maintain 9 out of 10 samples within the 7 step MacAdam ellipse/ANSI quadrangle.

TCP also recommends that you should not restrict the CCT ranges. For example 2400K is more desirable for replacing dimmed incandescent applications. A dimmed BR30 is less than 2700K. A 2700K LED when dimmed does not become more amber. Therefore allowing for 2400K or 2000K is critical for these applications.



### **Life Testing (Annex A & B)**

ENERGY STAR Lamp spacing requirement, requires the lamp-holders to be spaced 8” to 12” on center, with a minimum spacing of 2” between the lamps. Most labs conduct life test using standard power receptacle strips, on which the on center spacing, between the receptacles, is 6”. To be in par with the lamp-holder spec the lab would have to cut down its present capacity to half. The requirement for minimum spacing of 2” is achievable and acceptable, and that the spacing constraint would only affect placement of few lamp types.

TCP recommends lamps to be placed with a minimum spacing of 2” between the outer edges of the lamps.

**Note:** This is especially important as most labs have 6” spacing between lamp-holders. This requirement would have a huge impact on the lab’s testing capacity.

### **Lamp Stabilization**

Per draft 2, lamps shall be allowed to cool down for at least 15minutes before being transported to the photometric equipment. Further clarification is required on ‘lamp transfer and re-stabilization’ section in annex A and B. Pre-burning is not addressed in the current draft. Pre-burning is believed to shorten the stabilization time required inside the photometric equipment. Most times due to the time required for pre-burning, it is accomplished outside the photometric equipment. Without pre-burn, the lab will take longer than usual for photometric and colorimetric testing. Refer LM 66 – 2011, Section 10.2.

### **Rated Life**

Per draft 2, commercial grade directional lamps are to be tested per annex A, option A; the rationale being that it produces higher ambient temperature around the lamp.

All lamps, commercial and non-commercial grade, should be tested under elevated temperature condition using either option A, B or C. Option A, using Halo H7UICAT housing, limits the no. of the lamps that can be tested per sq. ft. area compared to options B & C. Else ways, higher temperature requirement for life test should be specified for commercial grade, and the lab should be allowed to test the lamps using either option A, B or C.

TCP’s recommends that all directional and semi-directional lamps, and all omni-directional lamps ≥ 10W, commercial and non-commercial grade, shall be tested in accordance with ETLT, per annex A, option A, B or C.

Adding a “commercial grade” option (35,000) makes current lamps more expensive and unnecessary. 25,000 hours is already accepted as commercial grade in most cases.

Per this section, only deco can be rated lower than 25,000.



### **Rapid Cycle Stress Test**

Cycling of lamps, 5min ON and 5min OFF, every hour of its rated life with the super addition of sample size to 10 units, could have a major impact on the testing capacity of the lab.

TCP recommends the lamps should be cycled once for every two hours of rated life.

25,000 hour lamp would have to undergo 25,000 cycles, but it will be tested for 25,000 hours, and as per 'For no more than 15,000 cycles.'; any rapid cycle test would not last longer than 2,500 hours and therefore it will always be less than 3,000 hour early qualification.

### **Color Angular Uniformity:**

Goniometers employing spectroradiometers to measure color would be measuring noise at field angles where the signal strength is too low. It might also take longer scan time in measuring the spectral power at this angle.

TCP recommends angular chromaticity measurements shall be made at the center and edge of the beam.

### **Ambient temperature:**

It is proposed to be  $30^{\circ}\text{C} \pm 5^{\circ}\text{C}$ . Further justification for the raise in ambient temperature would be appreciated, as this requirement would require modifications to the existing lab facility. This might also negatively affect the controllers and existing equipment used to operate and control the lamps under life test.

TCP recommends the ambient temperature shall be maintained at  $25^{\circ}\text{C} \pm 10^{\circ}\text{C}$ .

### **Commercial grade designation:**

The main intent of technology neutral approach was to unify the available technology to lessen confusion amongst consumers, to promote energy efficient lighting, increased efficacy and to allow emerging technologies to compete in the marketplace. All ENERGY STAR qualified products were to be reliable and high quality replacements for less efficient incandescent lamps.

Defining a new class of lamps would only limit competing technologies in the marketplace and would be against the goal of ENERGY STAR's Technology Neutral Approach. This new class of lamps would also affect the capacity of existing labs and would increase the burden on testing two different grades of lamps.



### **Product Qualifications**

TCP would like to see LED CCT considered as a variant to limit the amount of life testing required for products. We propose testing the lowest CCT (2700K) for life, lumen & color maintenance. LM80 data and in-situ testing can then be used to validate other CCT's. We still understand that LM79 photometry should be presented to validate color tolerance, light distribution, & color spatial uniformity. This is a very low risk approach as LED's are already validated through the LM80 process by the manufacturer and currently use CCT as a variant. This will significantly limit cost, capacity, and time and allow for more ENERGY STAR products faster to market.

Heat sinks should be a variant as long as in-situ temperatures are within 5°C and within LM80 limits of base unit used for life testing. TCP has multiple channels and markets in which differentiating the look of the same product is important. We recommend completely testing a base unit and then keeping all versions within 5 degrees, regardless of size, thickness, and shape details.

Thank you for the opportunity to submit comments. If you have questions or would like to discuss further, I can be reached at [MObradovic@tcpi.com](mailto:MObradovic@tcpi.com) or at 330-995-1034.

Sincerely,  
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