

9 December, 2011  
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Alex Baker, ENERGY STAR Lighting Program Manager  
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Subject: Seoul Semiconductor Comments to ENERGY STAR Program Requirements Product Specification for Lamps (Light Bulbs) Eligibility Criteria Version 1.0, DRAFT 1

Dear Mr. Baker

We have reviewed the Draft V1 Specification and have concerns with some of the changes that have been proposed. It is Seoul Semiconductor's position that any changes in performance requirements going forward should be related to energy efficiency only. The Energy Star Program was created to help consumers save money and protect the environment through energy efficient products and practices. Adequate standards for minimum market acceptability of light quality were set by previous versions of these documents to ensure market acceptance of the new technology (SSL). These minimum standards have been successful and should not be continually tightened as the EPA risks adding undue costs and complexities to the design, manufacturing and supply of future lighting products without necessarily assuring increased consumer acceptance. Seoul Semiconductor believes that the success of individual Solid State Lighting products for general illumination is now dependent on pricing levels, total cost of ownership and consumer preference—all of which can be decided by open market competition. Going forward, LED suppliers should have the option of trading off improvements (other than energy efficiency based improvements) based on normal market-based decision making and not because they are legislated.

The following two proposed changes may have a significant impact to LED manufacturers in terms of product cost:

- 1) The proposed change to the Correlated Color Temperature requirements from 7 Step to 4 Step Macadam ellipses
- 2) The proposed change to the Color Maintenance from .007 to .004.

For an LED manufacturer, the tightening of the requirement for CCT, may require changes to the current manufacturing processes, or may impact overall production yields, for some LED products. The current processes are set to yield products that fall within the 7 step ellipse area, and if this is reduced to a 4 step area, the target area is reduced by up to 50%. To assure that the LED products all fall within the target area, an LED manufacturer will have to change its processes which can cause increased production costs, or they can leave the processes as they are and either find other uses for the product that falls outside of the specified area, or scrap it as non conforming. In either case, this can cause the manufacturer to have to increase its pricing. Additionally, since the requirement is at the finished product level, an LED manufacturer may have to adjust its tolerances to be smaller than the requirement so that the finished product will meet the requirements.

Secondly, the Color Maintenance requirement may also cause a change to current processes and yields and potentially the phosphors used within the LED product. Currently all of the LED product that has been tested in accordance with LM-80, has been designed to meet the .007 requirement. Implementing this requirement could cause LEDs that have met the existing requirement to now fail. This can cause the decertification of products. LED manufacturers will have to study their current LED products to see if they will meet this new requirement. If changes in the phosphor materials are required, then the resulting product may have to be retested in accordance with LM-80.

Thank you for your consideration and attention to our comments.

David Neal  
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