

## DELIVERING INNOVATIVE LED LIGHTING



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Richard Karney  
US Department of Energy  
1000 Independence Avenue SW, EE2J  
Washington, DC 20585

Dear Richard and DOE SSL Team,

First of all, we at Polybrite International want to thank you for all your hard work on the Energy Star SSL program. We look forward to continued success with the Energy Star program. As one of the first US companies to dedicate itself to LED technology, from pet and safety products to a full line of luminaires, we welcome the Energy Star requirements and we embrace them as a way to ensure that quality energy efficient products are being offered to the US consumer.

One of the risks that we see with some of these energy specs in the most current draft criteria is that they, in some cases, seem to dictate engineering design. In the end, the customers are going to decide what is acceptable and what is not. We don't believe that it's the DOE's job to make that decision for the customer, other than dictating minimum energy consumption through efficacy requirements.

Requirements such as full cutoff, zonal lumen requirements, etc., although ideal in some situations, and have been placed on LED luminaires, would penalize them in the marketplace. Especially since HID and CFL luminaires do not have the same restrictions. As a result the only available lamps with an Energy Star label will be extremely expensive because of the high premium placed on these high flux bins. The market will not wait for technology (LED efficacy) and price at the performance levels demanded by the Energy Star criteria. Plenty of Chinese manufacturers will produce millions of lamps and they will not be 55 LPW, but they will be 2x-3x more efficient than their incandescent and halogen counterparts.

For instance, the Energy Star requirement for a greater than 80 CRI is not the most efficient way to produce light. A 70 to 75 CRI LED is approximately 10% brighter than an 80 to 85 CRI. If the intent is to produce a better quality light, we question the method in which CRI is calculated.

As we all know, CRI calculation is based on 8 out of 15 color plates. As seen on the following chart, the strong colors are R9 through R12. An LED with high rendering of the R9 – R12 will register the same CRI as one with very low strong color rendering. A 75 CRI with high rendering of strong colors will render better than an 80 CRI with poor rendering of the strong colors.

Name	Appr. Munsell	Appearance under daylight	Swatch
TCS01	7.5 R 6/4	Light greyish red	
TCS02	5 Y 6/4	Dark greyish yellow	
TCS03	5 GY 6/8	Strong yellow green	
TCS04	2.5 G 6/6	Moderate yellowish green	
TCS05	10 BG 6/4	Light bluish green	
TCS06	5 PB 6/8	Light blue	
TCS07	2.5 P 6/8	Light violet	
TCS08	10 P 6/8	Light reddish purple	
TCS09	4.5 R 4/13	Strong red	
TCS10	5 Y 8/10	Strong yellow	
TCS11	4.5 G 5/8	Strong green	
TCS12	3 PB 3/11	Strong blue	
TCS13	5 YR 8/4	Light yellowish pink (skin)	
TCS14	5 GY 4/4	Moderate olive green (leaf)	
TCS15	1 YR 6/4	Asian skin	

To summarize, a 70 to 75 CRI LED produces the same or better quality of light as a fluorescent lamp, which was accepted for many years because of the energy benefits it provided. We expect the same consideration with LED's going forward.

It is our opinion that the United States needs to take a leadership position in the world as it sets the standards for lighting. If the standards currently under review will only impact LED lights, this will put them at a disadvantage over technologies like HID and CFL, delaying the energy savings potential to the end consumer, and our country. It would also delay the timeframe to begin decreasing the amount of mercury that is being placed in the environment. The current language in the draft would also put the US behind Europe in its standards and create the possibility of having companies selling an inferior product here while the better products are sold in the EU. We agree that standards need to be set and we welcome them, our concern is that the playing field be level for all types of lighting.

Thank you for the opportunity to participate in the process of establishing the criteria for SSL Energy Star.

Sincerely,



Carl Scianna  
CEO & President