

Re: Comments To ENERGY STAR® Solid State Lighting Luminaires Program Requirements Eligible Criteria – Version 1.0 “Draft : 04/09/2007”

Dear Mr. Karney

Photonics & Co., Ltd is newly Form Company who believe SSL is the future of lighting. We are concentrating on developing LED Tubes to replace existing Fluorescent tube. At this moment, we had sent our product to Underwriters Laboratories Inc. to apply safety approval. The result is due on the end of June. Regarding comments on ENERGY STAR® Solid State Lighting Luminaires Program Requirements Eligible Criteria – Version 1.0 “Draft: 04/09/2007”. We suggest following:

Color Rendering Index:

Colour Temperature	CRI
2700 K – 3500K	>= 75
3500 K – 65000K	>=70

By lowering the CRI to 70, it will allow more low cost LED available to use in order to increase the speed to adopt of Solid State Lighting

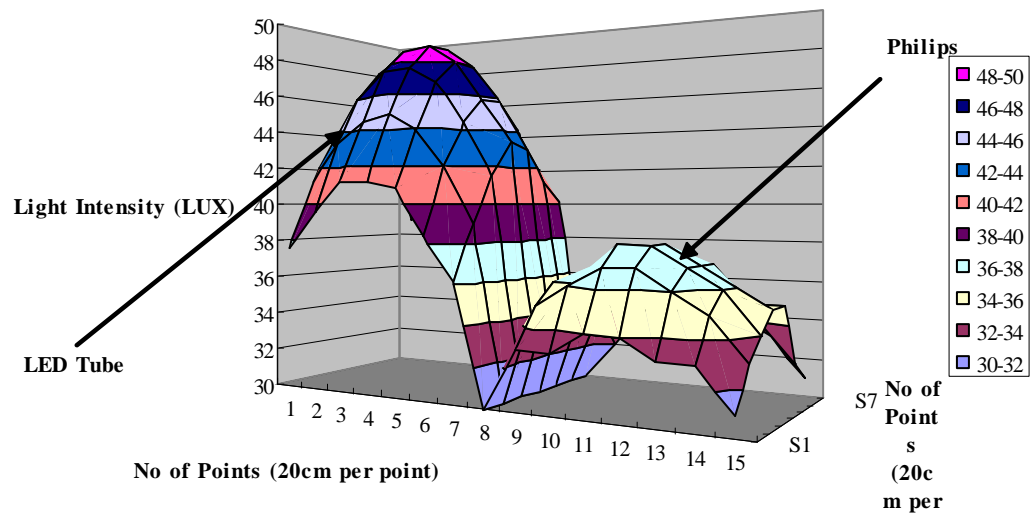
Lumen Maintenance:

We believe LUMEN is not a suitable unit of represent the brightness of Solid Stat Lighting, because Lumen is to describe the total amount of light emitted by a light regardless the direction. However, LED is a directional light source with a specific viewing angle. We believe LUX or foot candles is more meaningful to describe the brightness of LED lighting

For example, we made an simple experiment with one 4ft Philips Super 80 Fluorescent tube 3250lm and our 4ft long LED tube. With limited laboratory grade instruments, so we only measure the amount of light shine on the floor in a pitch black room.

As you see the result diagram below, just like normal down lighting, we only interest the amount of light shine on the floor.

Compare Philips Super 80 4ft Long 36W Fluorescent Tube against 11.9W LED Light Tube Measured From 3m above the ground



From our result, our LED Tube is significantly brighter than the Philips Super 80 fluorescent lamp. However, we put our LED tube to Intertek ETL Semko to do a photometric test. Our 4ft LED tubes only can generate 820lm. On the same type of fixture, we can demonstrate our LED tube with less lumen output brighter than 3250lm output fluorescent lamp. So we believe LUX or foot candela more suitable unit for SSL.

On power factor issue:

We do agree on energy saving point of view, the power factor should be as close as 1. However, during our development it is given us a lot of problems such as EMI, extra cost and increasing the size of the LED driver.

We propose following different power output have different power factor to eligible ENERGY STAR Standard.

LED Driver Output	Power Factor
<20W	Minimum 0.8 or above
>20W	Minimum 0.9 or above

For our own interest, we really want to make our products to meet the ENERGY STAR Standard. However, DOE want to push energy efficient product to the market. We are trying our best to balance our interest between manufacturers and DOE.

We hope you will consider our comments.

Yours faithfully

Vincent Choi

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