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Sent: Wednesday, January 28, 2009 11:14 AM
To: richard.karney@ee.doe.gov; SSL
Subject: comments on "Energy Star Program Requirements for Integral LED Lamps - Draft i-16-09"

Dear Sir/Madam,

I am an integral LED lamp designer and mostly focusing on A19 and PAR38 bulb replacement. I read your draft "Energy Star Program Requirements for Integral LED Lamps – Draft". I have comments on Energy Star Requirements, especially for Minimum light output and Luminous intensity distribution requirement for Omnidirectional Lamp.

For one of Omnidirectional lamp we are working on, a very popular A19 bulb, it has very wide applications for residential, industry and commercial industries. There is a big percentage among these applications, a fixture or reflector is needed to convert omnidirectional light from A19 bulb into a forward light and usually will loss ~40% during this conversion. So for 800lm output from a standard 60W A19 incandescent bulb, it actually only have 480lm effective light delivery into a forward direction for all these applications. This makes A19 incandescent bulb luminous efficiency even lower(less 10lm/W).

LED is a very good directional light source, so it perfectly fits into all these forward-direction lighting applications and it has lots of other advantages over A19 incandescent bulb. To replace a A19 incandescent bulb in the forward direction lighting fixture, an integral LED lamp suppose don't need to output 800lm and have a 0~150 degree zone axially symmetrical. It will reduce LED lighting luminaire efficacy and waste the energy if we require the LED lamp to delivery this 0~150 degree zone, similar to incandescent bulb, for these forward-direction lighting applications.

My another comment is that 800lm requirement will make 60W A19 incandescent bulb(most popular used bulb) replacement LED lamp product very tough within 2 years. It's really a very tough to reach ~100lm/W from integral LED lamps based on current LED performance and probably within 2 years. So a 60W A19 bulb replacement LED lamp need at least 8~10W power dissipation to output 800lm. From thermal management perspective, a A19 bulb size only can take away around 6W power dissipation using conversional thermal dissipation solution. It will need a new technology to solve 8~10W thermal dissipation problem in A19 bulb size. So it's almost impossible to develop 60W/75W A19 bulb replacement LED lamp products to meet output requirement from this Energy Star Requirement(and this is not necessary for lot of applications) within 2 years.

But lighting industry need LED lamp to save energy, so it will have various replacement integral LED lamps come to lighting market in these two years, which can't meet Energy Star requirement. So this Energy Star Requirement will be a bomb for LED lighting industry.

Same comment is for dimmable requirement. It will drive LED driver more complex and cost more high. But is it necessary for all applications?

Thank you for reading my comments.

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