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Sent: Friday, January 16, 2009 4:34 PM
Subject: LED Lamp Criteria

Greetings Mr. Karney

I have read the draft criteria, and I applaud the DOE for forging ahead with this endeavor.

May I humbly correct you in paragraph 3 (Low Voltage MR16s)?

MR16 are available from 6 to 24 volt for home and commercial use.

However, most MR16s operate in the 12V^{AC} environment, be the 12V generated by magnetic transformers or increasingly by electronic transformers.

Most indoor transformers used in track and recessed lighting are electronic now, while most outdoor garden and landscape lighting transformers are still of the magnetic variety, typically putting out anywhere from 11 to 15V^{AC}, and in some cases up to 24V^{AC}

Yes, MR16s will operate on DC, as in motor homes, boats and cycles.

Usually, DC use in a home or business is limited to small chargers for phones, toys or emergency stand-by lighting, all devices which are often also battery powered.

Line voltage MR16s with GU 5.3 or 8.0 bases are typically, uh, shall I say of lesser quality and have inherently a much smaller performance envelope than their lo-vo counterparts.

The burner (inner bulb) is much larger than the 12V version, and it blocks a fair amount of its own light form being projected by the reflector.

Line voltage GU10 MR16s also suffer from that handicap, but the major domestic makers have chosen to put some of their copious R&D dollars into those devices, and the photometrics and life are somewhat better than the GU-based 120V MR16s but still not anywhere near the 12V versions.

Dimming

The work for dimming LED's in a household environment should be done on the transformer/driver side for lo-vo apps and the dimmer side for line voltage..

Many electronic transformers are already dimmable with almost any kind of analog (rotary or slide) dimmer and any lo-vo incandescent load.

Maybe you could bestow an ENERGY STAR label or certify a preferred category on transformers with this capability and use rebates to get this business going.

The same method might work with the dimmers, both wall box and plug-in/snap-on types.

There are a few giants in the dimmer field (LEVITON, LUTRON, COOPER, Lightolier etc) and they might be encouraged to produce LED compatible dimmers for line voltage A, G, T, B, C, F and PAR lamps with similar pecuniary incentives.

There are dozens of offshore manufacturers selling LED base lamps today, and while not all are going to be around a year from now, it might prove difficult to get them all to make LED lamps with inherent dimmability in their circuit boards.

Low Voltage MR16s

I have been testing LED MR16's from various vendors on electronic and magnetic transformers for some time now, and while it is true that the electronic manufacturers list their ballast capacity as a range, e.g.,

a 60W transformer will be listed as 10-60W, an 80W transformer will be listed as 20-80, and a 150w transformer will be listed as 35-150W, I have found that the latest LED MR16 versions seem to work just fine below the minimum wattage threshold.

I tested them by themselves, as in 2 LED MR16's at 3 x 1W each on a 50w electronic transformer, and then I would add a 35W halogen MR16 to meet the minimum load requirement, and I could tell no difference in the light output of the LED devices.

Of course, in the great scheme of things, this is only episodal evidence, not necessarily indicative of what results other people are getting.

Beyond this bit of intrusive reality, my greatest gripe is that most vendors list only the lumens of their MR16s and similar directional lamps.

Lumens are typically a spherical measurement, and they don't allow for a true comparison between LED and halogen MR16s, the light output of which is measured in Center Beam Candle Power (CBCP), typically more of a photogoniometer measure of luminous intensity.

Please standardize the light output measurements for LED MRs and PARs for easy comparison with the light sources they will replace.

This would actually benefit the LED makers, as it would allow them to exploit the inherent directional nature of LED light, and they could put up bigger numbers.

Bigger numbers are more better, no?

A personal rant on this subject:

While most LED lamp manufacturers say they can make LEDs with any color from 2500 to 8000K, they typically submit "cool white" and "warm white" samples.

Why is everyone porting to the distant past of dingy candle light and the fabulous look of 130V bulbs burning inefficiently at 120?

And this includes 2700K self-ballasted CFL's by the way.

You guys aren't helping by insisting on separate certification for each color temperature.

Are the LPWs that much lower in the higher temperatures?

Try finding a nice selection of ES certified self-ballasted 3000K lamps.

Those of us who like the look of 2950K halogen light but want to do our part in saving energy with a CFL are left out of the rebate game.

It's either 2700K or 4100K that is rebated for the most part.

It's either medieval lighting or Department of Corrections lighting.

Maybe you can set the bar at 3000K for LED MR16s, if replicating traditional MR16 light is your aim.

Best regards,

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