



May 16, 2013

Taylor Jantz-Sell
US Environmental Protection Agency
1200 Pennsylvania Ave, NW
Washington, DC 20460

Subject: Energy Star® Lamps V1.0 Specification Draft 4.0

Dear Ms. Jantz-Sell,

We appreciate the efforts of the EPA for promoting solid state lighting and providing standards for improving the quality of light. We support your efforts on developing the new Lamp standard, but we have one major concern with the current draft 4.0 specification.

MAJOR ISSUE

We propose eliminating the 90% “call out” in section 9.5 Luminous Intensity Distribution because it allows for very non-uniform light distributions.

The specification proposes that luminous intensity (cd) is measured within each vertical plane at a 5° vertical angle increment (maximum) from 0° to 135°. **90% of the measured intensity values** may vary by no more than 25% from the average of all measured values in all planes. All measured values (cd) shall vary by no more than 50% from the average of all measured values.

Intematix’s objection: Allowing 10% of the measured intensity values to vary beyond 25% to a specified maximum of 50% beyond the average can result in intense or dim regions such as at the 0° point along the polar axis, but could be anywhere in the distribution. The Draft 3 version prevents these concerns by ensuring that all points fall within 20% of the mean intensity in the 0° to 135° range.

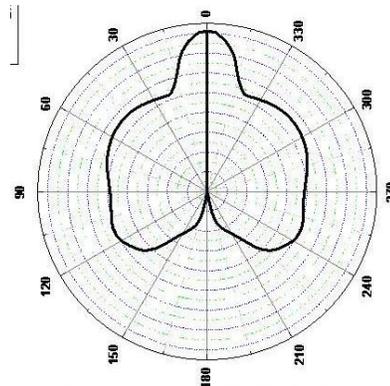
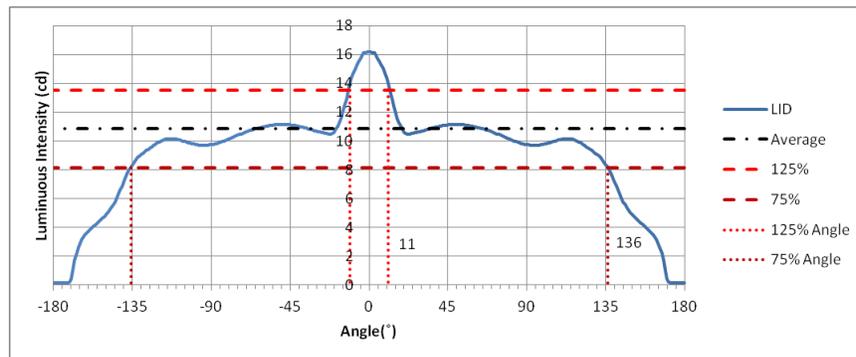
Several examples of distributions that would pass the draft 4.0 specification, yet may result in severe visible non-uniformity, are shown below.

A graphic element consisting of several parallel diagonal lines in blue, red, and green, pointing upwards and to the right.

46430 Fremont Boulevard
Fremont, CA 94538
tel: 510.933.3300
fax: 510.668.0793
www.intematix.com

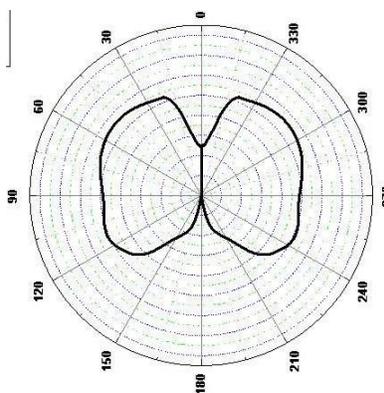
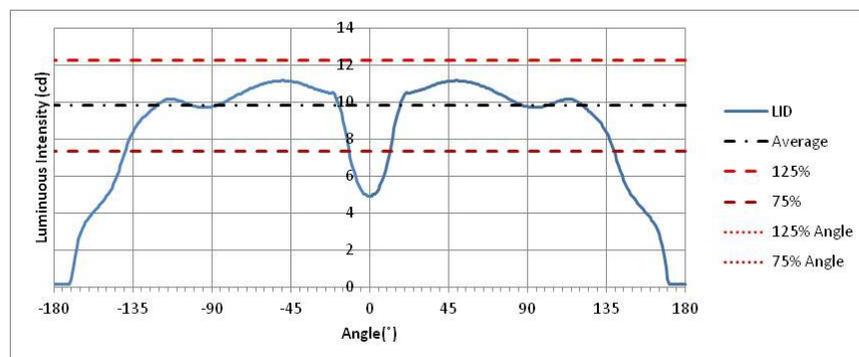
Case 1: A bright spot at top, which could be anywhere in the 0° to 135° region.

Energy start draft 4 criteria			Result (Numerical SUM on 1 degree data)	PASS/FAIL
1	[0-135] uniformity <	50%	Max 149.53% @ 0° Min 77.19% @ 135°	PASS
2	[0-135] within 25%	90%	8.8%data @>125%zone 0.2%data @<75%zone	PASS
3	Flux % [135-180]>	5%	7.57%	PASS
			FINAL RESULT	PASS



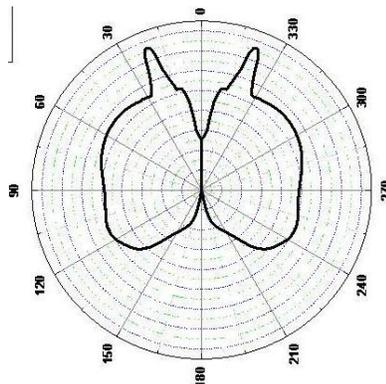
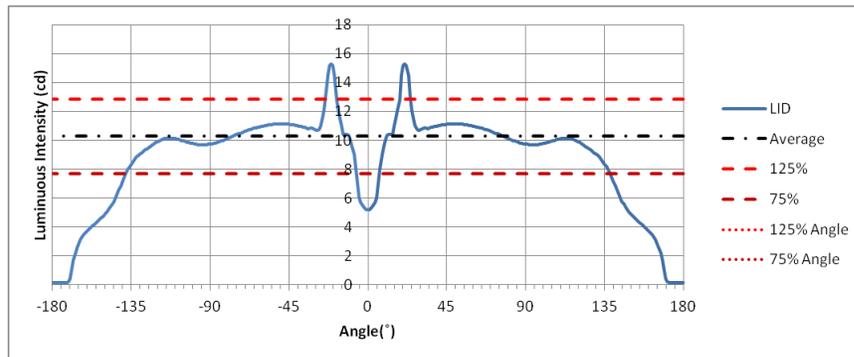
Case 2: A dark spot at top, which could be anywhere in the 0° to 135° region.

Energy start draft 4 criteria			Result (Numerical SUM on 1 degree data)	PASS/FAIL
1	[0-135] uniformity <	50%	Max 113.72% @ 49° Min 50.01% @ 0°	PASS
2	[0-135] within 25%	90%	0.0%data @>125%zone 8.8%data @<75%zone	PASS
3	Flux % [135-180]>	5%	7.69%	PASS
			FINAL RESULT	PASS



Case 3: Combination of bright spot and dark spot, which could be anywhere in 0° to 135° region.

Energy start draft 4 criteria			Result (Numerical SUM on 1 degree data)	PASS/FAIL
1	[0-135] uniformity <	50%	Max 148.95% @ 21° Min 50.62% @ 0°	PASS
2	[0-135] within 25%	90%	4.4%data @>125%zone 5.1%data @<75%zone	PASS
3	Flux % [135-180]>	5%	7.56%	PASS
			FINAL RESULT	PASS





To eliminate these types of distributions passing the new standard we suggest revising Section 9.5 as follows:

Removal of the 90% clause.

"Each luminous intensity measured value (candelas) shall vary by no more than 25% from the average of all measured values". This prevents data points from going beyond 25% of the average.

Suggestion

Lamp Specification Draft 3 uses "mean intensity" within 0°-135° degree zone. We think this is a more accurate and preferred definition. Draft 4 calls for a numerical average of data points on all vertical planes. Therefore, the area near the intersection of the latitudinal planes (poles) is more heavily weighted. We recommend using a solid angle zonal weighted average.

Thank you for your considerations of these items.

Regards,

Mr. Chuck Edwards
VP of Product Development
chuck.edwards@intematix.com

Dr. Mitch Jansen
Senior Director of Applications
mitch.jansen@intematix.com

Mr. Dan O'Hare
Applications Manager
dan.ohare@intematix.com

Dr. Gang Wang
Director of R&D
G.Wang@intematix.com

Dr. HaitaoYang
Principal Engineer
H.Yang@intematix.com

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