



FOR THE SCOPE OF
ACCREDITATION UNDER NVLAP LAB
CODE 100402-0.

REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G100555427

Date: January 20, 2012

REPORT NO. 100555427CRT-001

TEST OF ONE LED BULB

FIXTURE MODEL NO. LED-8025-DL

RENDERED TO

LIGHT EFFICIENT DESIGN
108 SOUTH WYSTONE PARK DRIVE SUITE 103
NORTH BARRINGTON, IL 60010

TEST: Electrical and Photometric tests as required to the IESNA test standard.

LABORATORY NOTE: The laboratory that conducted the testing detailed in this report has been Qualified, Verified, and Recognized for LM-79 Testing for ENERGY STAR for SSL by US DOE's CALiPER program.

STATEMENT OF LIMITATION: This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION: The testing performed was authorized by signed quote number 500336984.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-79: 2008 Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2008 Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one sample of model number LED-8025-DL. The sample was received by Intertek on November 16, 2011, in undamaged condition, and one sample was tested as received. The sample designation was L238413-1.

DATES OF TESTS: December 8, 2011 through December 13, 2011.

SUMMARY

Model No.:	LED-8025-DL
Description:	LED Bulb

Criteria	Result
Total Lumen Output	3194 Lumens
Total Power	51.99 W
Luminaire Efficacy	61.43
Power Factor	0.980
Current ATHD	6.38%
Correlated Color Temperature (CCT)	5428 K
Color Rendering Index (CRI) - Ra	80.6
Color Rendering Index (CRI) - R9	6.9
Duv	0.005
Chromaticity Coordinate (x)	0.334
Chromaticity Coordinate (y)	0.353
Chromaticity Coordinate (u')	0.204
Chromaticity Coordinate (v')	0.484

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Calibration Date	Calibration Due Date
Leeds & Northup Standard Resistor	Manganin	Y089	02/17/11	02/17/12
Data Precision Digital Voltmeter	3600	V124	02/17/11	02/17/12
Fluke Multimeter	45	M133	02/17/11	02/17/12
Fluke Temperature Meter	53 II	T1318	02/25/11	02/25/12
Kikusui DC Power Supply	35-10L	E160	---	---
Sorenson DC Power Supply	DLM150-20E	--	---	---
NIST Spectral Flux Standard Source	RF1024	---	09/18/10	100 hours of use
Xitron Power Analyzer	2503AH	E246	04/20/11	04/20/12
ITS 2 Meter Sphere	W/ CDS 600	N308	w/use	w/use
Fluke Temp Meter	53 II	N1324	03/11/11	03/11/12
Elgar AC Power Supply	CW1251	--	--	--
Yokogawa Power Meter	WT210	E464	04/19/11	04/19/12
LSI High Speed Mirror Goniometer	6440	--	w/use	w/use
Cole Parmer Hygro Thermometer	445703	T1359	10/26/11	10/26/12



TEST METHODS

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79.

Photometric and Electrical measurements – Distribution Method

A LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

Photometric and Electrical Measurements – Integrating Sphere Method

A Labsphere Model CDS 1100 CCD Array Spectroradiometer and Two Meter or Ten Foot Sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit.

Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation. Each SSL unit was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

The calibration of the sphere photometer-spectroradiometer system is traceable to the National Institute of Standards and Technology.

Estimated Total Operating Time

<u>Model No.</u>	<u>Total Hours</u>
LED-8025-DL	3

RESULTS OF TESTS

Spectral Distribution over Visible Wavelengths

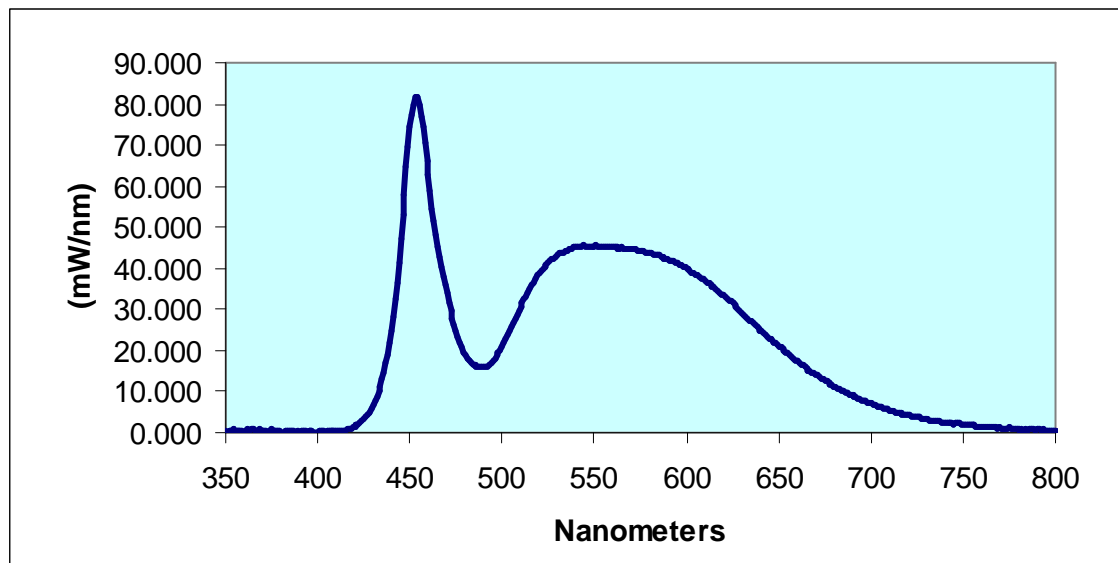
nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
LED-8025-DL							
350	0.467	460	62.516	570	44.534	680	11.240
355	0.233	465	45.397	575	44.203	685	10.053
360	-0.003	470	33.986	580	43.772	690	9.024
365	0.763	475	24.729	585	43.120	695	7.981
370	0.417	480	18.879	590	42.114	700	7.073
375	0.757	485	16.398	595	41.165	705	6.146
380	0.218	490	15.972	600	40.065	710	5.449
385	0.483	495	17.547	605	38.568	715	4.922
390	0.185	500	21.116	610	36.933	720	4.353
395	0.393	505	25.616	615	35.330	725	3.896
400	-0.007	510	30.563	620	33.519	730	3.275
405	0.284	515	35.014	625	31.478	735	2.876
410	0.374	520	38.710	630	29.304	740	2.490
415	0.632	525	41.543	635	27.050	745	2.136
420	1.480	530	43.400	640	24.997	750	2.024
425	3.319	535	44.391	645	22.913	755	1.864
430	6.671	540	45.067	650	20.915	760	1.693
435	13.016	545	45.338	655	19.225	765	0.000
440	24.796	550	45.406	660	17.407	770	1.299
445	47.097	555	45.206	665	15.639	775	1.332
450	74.385	560	45.158	670	14.030	780	0.932
455	79.848	565	45.064	675	12.595		

LIGHT EFFICIENT DESIGN

Sample No. L238413-1

Model No. LED-8025-DL

Spectral Data Over Visible Wavelengths



RESULTS OF TESTS (cont'd)

Photometric and Electrical Measurements at 25°C – Integrating Sphere Method

Intertek Sample No.	Correlated Color Temperature (K)	CRI -Ra	CRI -R9	DUV	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
LED-8025-DL								
L238413-1	5428	80.6	6.9	0.005	0.334	0.353	0.204	0.484

Intertek Sample No.	Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)
LED-8025-DL						
L238413-1	UP	120.0	435.6	52.03	0.996	6.38

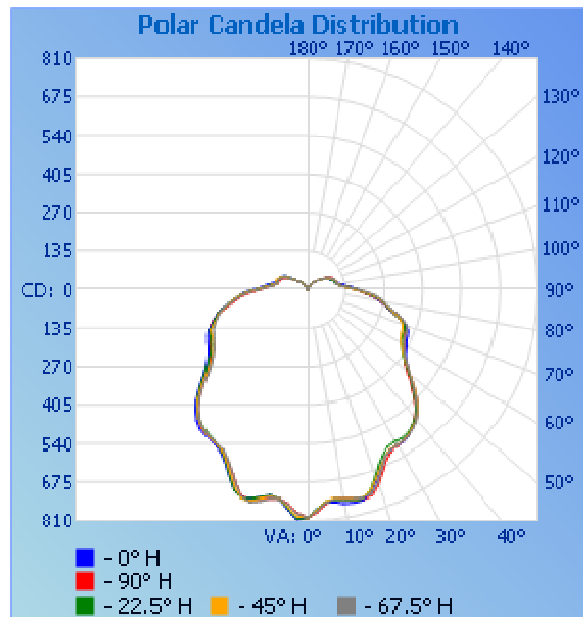
Photometric and Electrical Measurements – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
LED-8025-DL							
L238413-1	UP	120.0	441.7	51.99	0.980	3194	61.43

RESULTS OF TESTS (cont'd)

Intensity (Candlepower) Summary at 25°C - Candelas

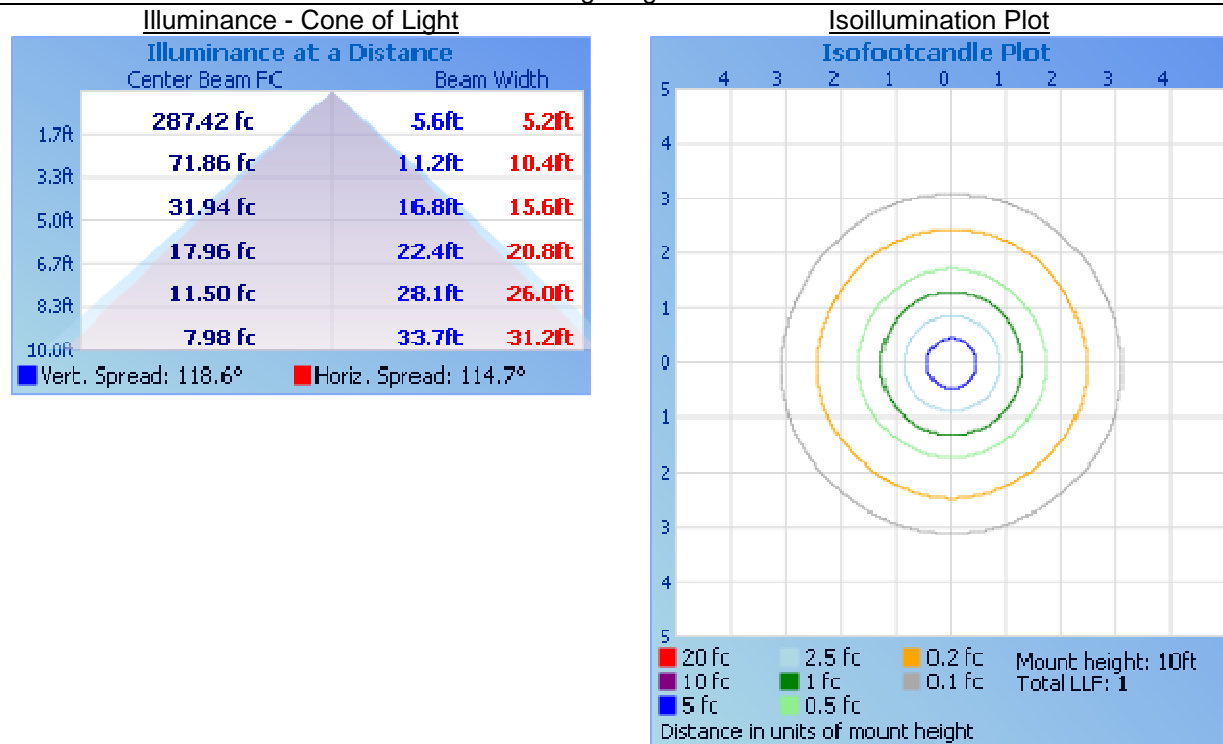
Angle	0	22.5	45	67.5	90
LED-8025-DL					
0	798	798	798	798	798
5	750	747	746	751	754
10	762	751	746	748	744
15	763	758	755	756	762
20	711	698	706	722	728
25	646	633	646	649	660
30	629	615	629	628	632
35	621	612	618	622	618
40	594	589	595	596	589
45	546	536	547	540	532
50	474	467	476	472	459
55	419	411	413	418	414
60	399	381	379	390	394
65	386	368	363	378	376
70	365	360	355	371	361
75	315	317	317	327	321
80	267	273	274	280	266
85	225	229	233	242	222
90	174	171	169	178	170
95	141	131	129	130	131
100	117	107	109	107	111
105	100	100	107	102	104
110	94	96	103	103	101
115	86	88	92	96	98
120	82	82	83	87	88
125	67	68	67	70	71
130	52	53	52	53	54
135	40	41	41	41	40
140	30	31	32	31	30
145	22	23	23	23	22
150	13	14	14	14	14
155	7	7	7	7	7
160	5	5	5	5	5
165	4	4	4	4	4
170	3	3	3	3	3
175	2	2	2	2	2
180	2	2	2	2	2



RESULTS OF TESTS (cont'd)

Illumination Plots

Model No.: LED-8025-DL
Mounting Height: 10 ft.



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
LED-8025-DL		
0-30	590.0	18.5
0-40	975.2	30.5
0-60	1763	55.2
60-90	955.8	29.9
0-90	2719	85.1
90-180	475.3	14.9
0-180	3194	100.0

Picture (not to scale)



CONCLUSION

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:

A handwritten signature in black ink, appearing to be 'Kenda Branch'.

Kenda Branch
Engineer
Lighting Division

Attachment: None

Report Reviewed By:

A handwritten signature in black ink, appearing to be 'Joseph Schledorn'.

Joseph Schledorn
Engineer
Lighting Division