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

REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G100346803

Original Issue Date: April 18, 2011
Revision Date: May 13, 2011

REPORT NO. 100346803CRT-003

TEST OF ONE LED PAR38 LAMP

MODEL NO. LP15566SP4D

RENDERED TO

LITETRONICS INTERNATIONAL INC.
4101 WEST 123RD STREET
ALSIP, IL 60803

Revision Note May 13, 2011: This report was revised to add photometric and electrical measurements from the integrating sphere test.

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 500287913.

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 LP15566SP4D. The sample was received by Intertek on March 4, 2011, in undamaged condition, and one sample was tested as received. The sample designation was L10818L.

DATES OF TESTS: April 8, 2011 through April 14, 2011.

SUMMARY

Model No.:	LP15566SP4D
Description:	15W PAR38 MED 120V SP 3000K 50,000H DIM

Criteria	Result Sphere	Result Distribution
Total Lumen Output (lm)	817.6	778.8
Total Power (W)	14.96	14.43
Luminaire Efficacy (lm/W)	54.65	53.97
Power Factor	0.977	0.977
Current ATHD (%)	17.9	
Color Rendering Index (CRI) -Ra	82.36	
Duv	0.002	
Correlated Color Temperature (CCT)	2994 K	
Chromaticity Coordinate (x)	0.434	
Chromaticity Coordinate (y)	0.398	
Chromaticity Coordinate (u')	0.251	
Chromaticity Coordinate (v')	0.519	

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Calibration Date	Calibration Due Date
Elgar AC Power Supply	CW1251	--	--	--
Yokogawa Power Analyzer	WT1600	E462	06/11/10	06/11/11
Labsphere Diode Array	DAS 1100	N714	Before Use	Before Use
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	52	T801	06/11/10	06/11/11
Kikusui DC Power Supply	35-10L	E160	---	---
Sorenson DC Power Supply	DLM150-20E	--	---	---
UDT Optometer	S370	N301	Before Use	Before Use
ITS Two Meter Diameter Integrating Sphere	---	N308	Before Use	Before Use
ITS Ten Foot Diameter Integrating Sphere	---	N307	Before Use	Before Use
NIST Luminous Flux Standard Sources	---	150-14, 8043, 8830	03/17/10	03/17/12
NIST Spectral Flux Standard Source	RF1024	---	09/18/10	100 hours of use
LSI High Speed Mirror Goniophotometer	6440	--	Before Use	Before Use
Labsphere CDS 1100 CCD Spectroradiometer	CDS1100	--	Before Use	Before Use
Optronics Spectroradiomter	EL750D	E288	Before Use	Before Use

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 DAS 1100 Diode 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

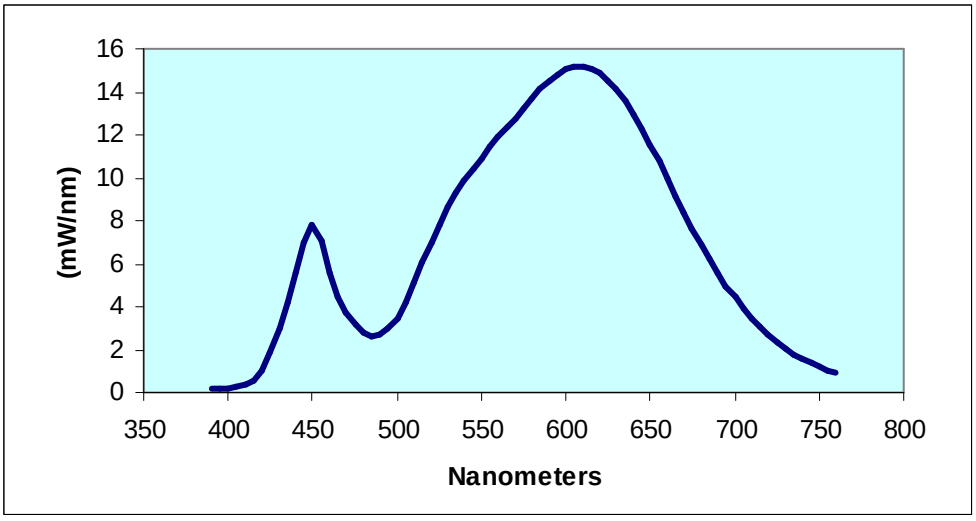
Model No.	Total Hours
LP15566SP4D	8

RESULTS OF TESTS

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
LP15566SP4D							
390	0.1537	500	3.4819	610	15.1650	720	2.6946
395	0.1661	505	4.2269	615	15.0890	725	2.3467
400	0.1943	510	5.1256	620	14.8920	730	2.0628
405	0.2402	515	6.0579	625	14.5480	735	1.8020
410	0.3507	520	6.9658	630	14.1040	740	1.5825
415	0.5862	525	7.8359	635	13.5650	745	1.3747
420	1.0528	530	8.6096	640	12.9450	750	1.2125
425	1.8559	535	9.2632	645	12.2730	755	1.0526
430	2.9563	540	9.8385	650	11.5410	760	0.9283
435	4.1993	545	10.3780	655	10.7550		
440	5.5567	550	10.8840	660	9.9625		
445	7.0206	555	11.3990	665	9.1499		
450	7.7911	560	11.9040	670	8.3554		
455	7.0543	565	12.3320	675	7.6032		
460	5.5656	570	12.7510	680	6.8780		
465	4.4216	575	13.2100	685	6.2078		
470	3.6803	580	13.6770	690	5.5754		
475	3.1439	585	14.1200	695	4.9660		
480	2.7962	590	14.5300	700	4.4248		
485	2.6396	595	14.8190	705	3.9149		
490	2.6889	600	15.0340	710	3.4550		
495	2.9536	605	15.1490	715	3.0421		

LITETRONICS
Sample No. L10818L
Model No. LP15566SP4D
Spectral Data Over Visible Wavelengths



RESULTS OF TESTS (cont'd)

Photometric and Electrical Measurements at 25℃ – 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')
				LP15566SP4D				
L10818L	2994	82.36	26.05	0.002	0.434	0.398	0.251	0.519

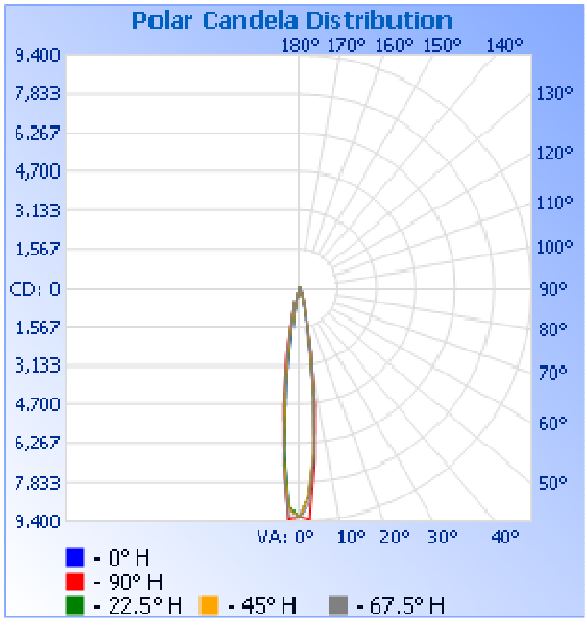
Intertek Sample No.	Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
				LP15566SP4D				
L10818L	UP	120.0	127.6	14.96	0.977	17.9	817.6	54.65

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)
				LP15566SP4D			
L10818L	UP	120.0	127.4	14.43	0.977	778.8	53.97

Intensity (Candlepower) Summary at 25℃ - Candelas

Angle	0	22.5	45	67.5	90
			LP15566SP4D		
0	9214	9214	9214	9214	9214
5	6774	6755	6574	6734	7057
10	2323	2409	2412	2686	2703
15	472	506	572	664	623
20	123	136	161	193	183
25	52	54	58	62	63
30	33	34	35	36	36
35	26	27	27	28	28
40	20	20	20	20	20
45	14	14	14	15	14
50	14	14	14	14	13
55	13	13	13	13	13
60	13	12	12	13	12
65	13	14	15	15	14
70	17	18	16	14	13
75	6	6	7	6	6
80	1	1	1	1	1
85	0	0	0	0	0
90	0	0	0	0	0

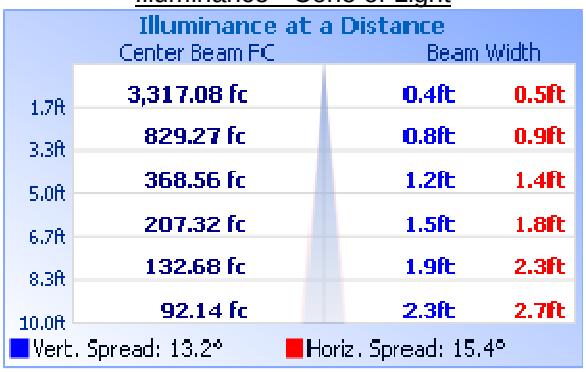


RESULTS OF TESTS (cont'd)

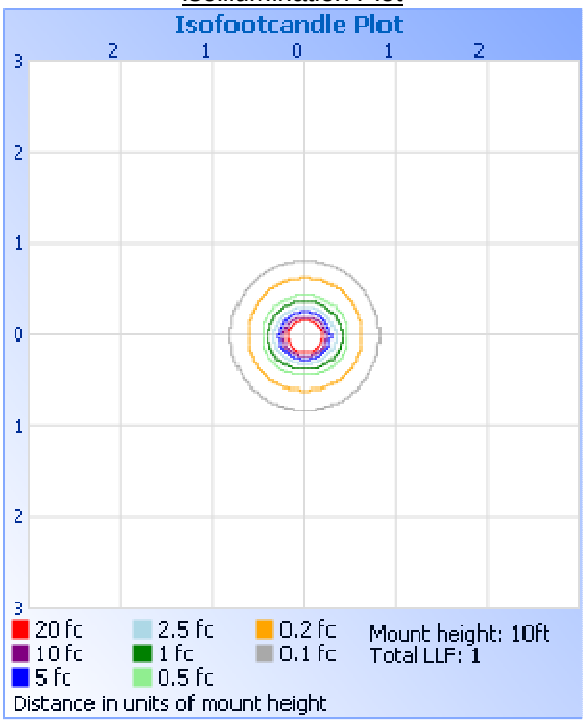
Illumination Plots

Model No.: LP15566SP4D
Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25℃

Zone	Lumens	% Luminaire
	LP15566SP4D	
0-30	717.6	92.1
0-40	734.8	94.4
0-60	758.0	97.3
60-90	20.8	2.7
0-90	778.8	100.0
90-180	0.0	0.0
0-180	778.8	100.0

Reflector Summary

	Efficiency (%)	Lumens	Horizontal Spread (°)	Vertical Spread (°)
		LP15566SP4D		
Field (10%):	76.7	597.6	27.6	24.8
Beam (50%):	42.1	328.0	15.4	13.2
Total:	100.5	782.4		

Pictures (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:

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Lighting Division

Report Reviewed By:

for

Jeffrey Davis
Associate Engineer
Lighting Division

Attachment: None