



# REPORT

545 E. Algonquin Rd., Arlington Heights, IL 60005

Project No. G102748333

Date: October 10, 2016

REPORT NO. 102748333CHI-001

TEST OF ONE LED AREA LIGHT

MODEL NO. HPAL-NW150-BP9  
LED MODEL NO. OSRAM GW PSLPS1.EC-KTLP-5H7I-1  
DRIVER MODEL NO. SOSEN SS-150R-50

RENDERED TO

SUPER BRIGHT LEADS, INC.  
4400 EARTH CITY EXPRESSWAY  
SAINT LOUIS, MO 63045

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

AUTHORIZATION: The testing performed was authorized by signed quote number Qu-00723537-3.

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: Electrical and Photometric Measurements of Solid State Lighting

ANSI NEMA ANSLG C78.377: 2012: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number HPAL-NW150-BP9. The sample was received by Intertek on September 27, 2016, in undamaged condition and one sample was tested as received. The sample designation was AH09272016053116-1.

DATES OF TESTS: October 6, 2016 through October 10, 2016.

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SUMMARY

Model No.:	HPAL-NW150-BP9
Description:	LED Area Light

Criteria	Result
Total Lumen Output (Lumens)	19968
Total Power (W)	149.7
Luminaire Efficacy (LPW)	133.4
Power Factor	0.996
Current ATHD %	5.41
Correlated Color Temperature (CCT - K)	5239
Color Rendering Index (CRI - Ra)	74.8
Color Rendering Index (CRI - R9)	-13.8
DUV	0.001
Chromaticity Coordinate (x)	0.339
Chromaticity Coordinate (y)	0.346
Chromaticity Coordinate (u')	0.209
Chromaticity Coordinate (v')	0.481

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Yokogawa Power Meter	WT210	146919	07/11/16	07/11/17	10/10/16
Omega Newport Thermometer	DPI8-C24	146920	10/07/16	10/07/17	10/10/16
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	10/10/16
Newport Thermohygrometer	iServer	146956	01/04/16	01/04/17	10/10/16
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	10/10/16
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	10/06/16
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	10/06/16
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	10/06/16
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	10/06/16
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	10/06/16
Yokogawa Power Meter	WT1600	146768	01/14/16	01/14/17	10/06/16
Omega Temperature Meter	MDSi8	146139	03/21/16	03/21/17	10/06/16



## TEST METHODS

### Seasoning in Sample Orientation – LED Products

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

### 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.

### 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.

**RESULTS OF TEST**

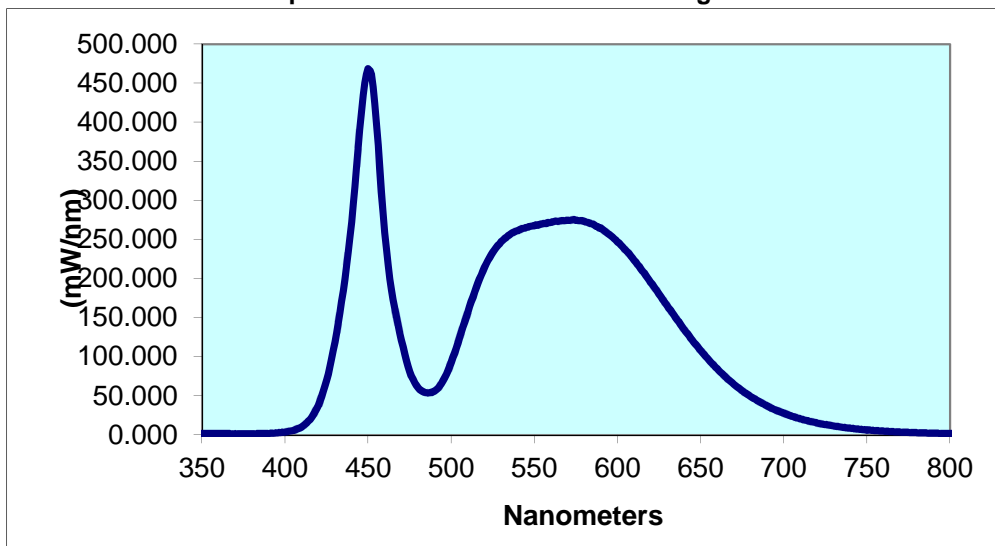
**Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method**

Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)			
AH09272016053116-1	Up	120.0	1255	150.0	0.996	5.41			
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')		
5239	74.8	-13.8	0.001	0.339	0.346	0.209	0.481		

**Spectral Distribution over Visible Wavelengths**

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	1.631	440	272.5	530	247.3	620	195.2	710	20.62
355	1.685	445	391.2	535	255.9	625	180.1	715	17.80
360	1.746	450	468.5	540	261.2	630	165.0	720	15.42
365	1.621	455	399.7	545	265.4	635	150.1	725	13.34
370	1.537	460	259.0	550	268.0	640	135.3	730	11.48
375	1.433	465	173.2	555	270.3	645	121.3	735	9.911
380	1.439	470	121.1	560	271.9	650	108.0	740	8.513
385	1.503	475	81.16	565	273.6	655	95.95	745	7.368
390	1.851	480	60.60	570	274.7	660	84.64	750	6.399
395	2.556	485	54.06	575	274.5	665	74.24	755	5.522
400	3.641	490	56.33	580	273.2	670	64.92	760	4.831
405	5.906	495	69.30	585	269.9	675	56.63	765	4.187
410	10.47	500	93.11	590	264.4	680	49.40	770	3.622
415	19.79	505	124.4	595	256.3	685	42.88	775	3.154
420	37.90	510	157.3	600	246.9	690	37.14	780	2.736
425	70.37	515	188.6	605	236.5	695	32.10		
430	118.8	520	214.5	610	223.7	700	27.77		
435	184.7	525	233.8	615	209.9	705	23.96		

**Spectral Data Over Visible Wavelengths**



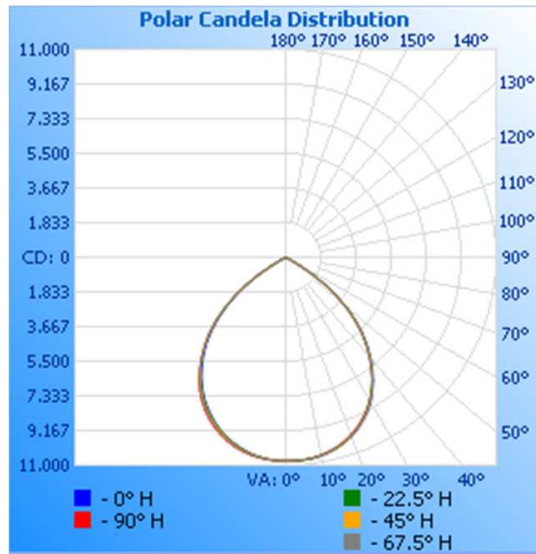
RESULTS OF TEST (cont'd)

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – 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 (LPW)
AH09272016053116-1	Up	120.1	1252	149.7	0.996	19968	133.4

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	10773	10773	10773	10773	10773
5	10753	10756	10748	10749	10737
10	10663	10649	10642	10627	10610
15	10433	10416	10420	10391	10359
20	10073	10035	10050	10021	9974
25	9546	9492	9526	9497	9447
30	8877	8782	8824	8814	8766
35	7954	7884	7916	7908	7905
40	6886	6823	6835	6806	6789
45	5643	5625	5608	5585	5619
50	4200	4154	4134	4142	4188
55	2516	2463	2490	2515	2552
60	850	795	816	867	810
65	179	169	169	157	103
70	93	86	85	79	68
75	43	56	55	50	47
80	24	31	27	27	31
85	8	6	5	6	11
90	0	0	0	0	0

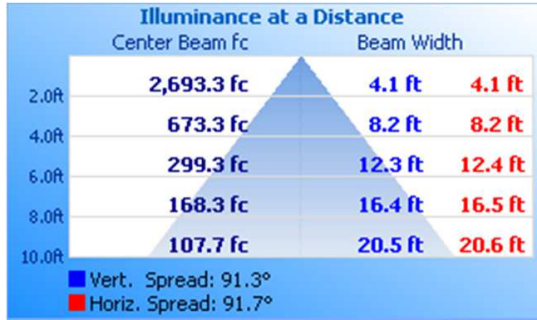


RESULTS OF TEST (cont'd)

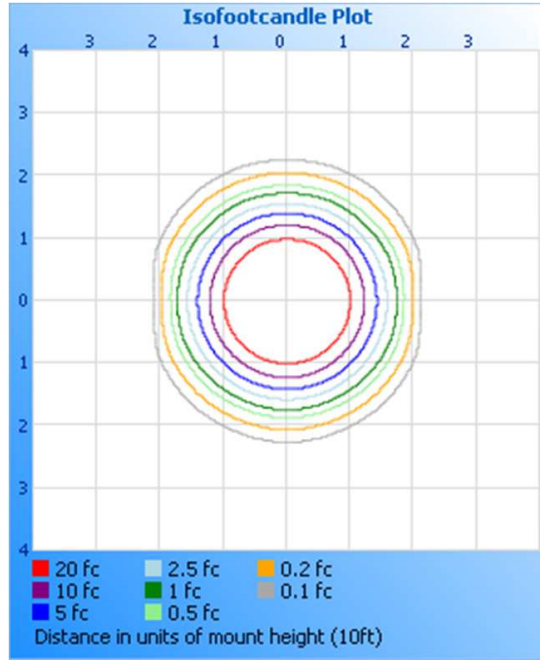
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



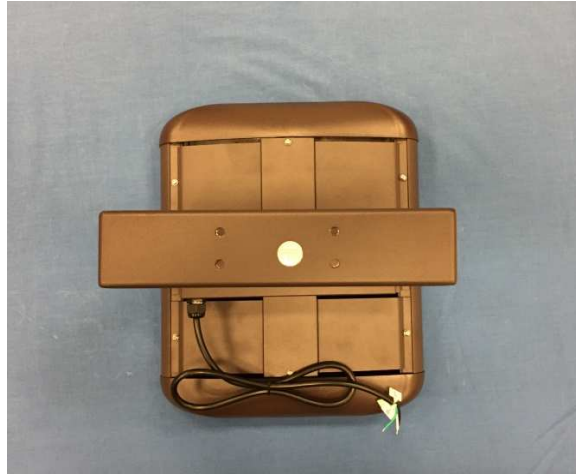
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	8262	41.4
0-40	13151	65.9
0-60	19642	98.4
60-90	326.5	1.6
0-90	19968	100.0
90-180	0.0	0.0
0-180	19968	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	1020	5.1
10-20	2914	14.6
20-30	4327	21.7
30-40	4889	24.5
40-50	4278	21.4
50-60	2212	11.1
60-70	259.2	1.3
70-80	56.9	0.3
80-90	10.3	0.1

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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Senior Associate Engineer  
Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley  
Engineer  
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