



REPORT

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

Project No. G102748333

Date: April 13, 2017

REPORT NO. 102748333CHI-035

TEST OF ONE LED AREA LIGHT

MODEL NO. HPAL-NW300-BP9
LED MODEL NO. OSRAM GW PSLPS1.EC-KTLP-5H7I-1
DRIVER MODEL NO. SOSEN SS-150R-50 (2)

RENDERED TO

SUPER BRIGHT LEDS, 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-NW300-BP9. The sample was received by Intertek on March 24, 2017, in undamaged condition and one sample was tested as received. The sample designation was AH03242017045206-035.

DATES OF TESTS: April 6, 2017 through April 13, 2017.

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SUMMARY

Model No.:	HPAL-NW300-BP9
Description:	LED Area Light

Criteria	Result
Total Lumen Output (Lumens)	34170
Total Power (W)	309.3
Luminaire Efficacy (LPW)	110.5
Power Factor at 120Vac	0.997
Power Factor at 277Vac	0.911
Current ATHD % at 120Vac	3.67
Current ATHD % at 277Vac	15.03
Correlated Color Temperature (CCT - K)	5015
Color Rendering Index (CRI - Ra)	85.7
Color Rendering Index (CRI - R9)	20.9
DUV	0.001
Chromaticity Coordinate (x)	0.345
Chromaticity Coordinate (y)	0.356
Chromaticity Coordinate (u')	0.210
Chromaticity Coordinate (v')	0.487

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	04/06/17
Omega Newport Thermometer	DPI8-C24	146920	10/07/16	10/07/17	04/06/17
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	04/06/17
Newport Thermohygrometer	iServer	146956	01/06/17	01/06/18	04/06/17
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	04/06/17
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	04/13/17
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	04/13/17
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	04/13/17
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	04/13/17
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	04/13/17
Yokogawa Power Meter	WT1600	146768	01/10/17	01/10/18	04/13/17
Fluke J/K Temperature Meter	52	146004	01/10/17	01/10/18	04/13/17



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

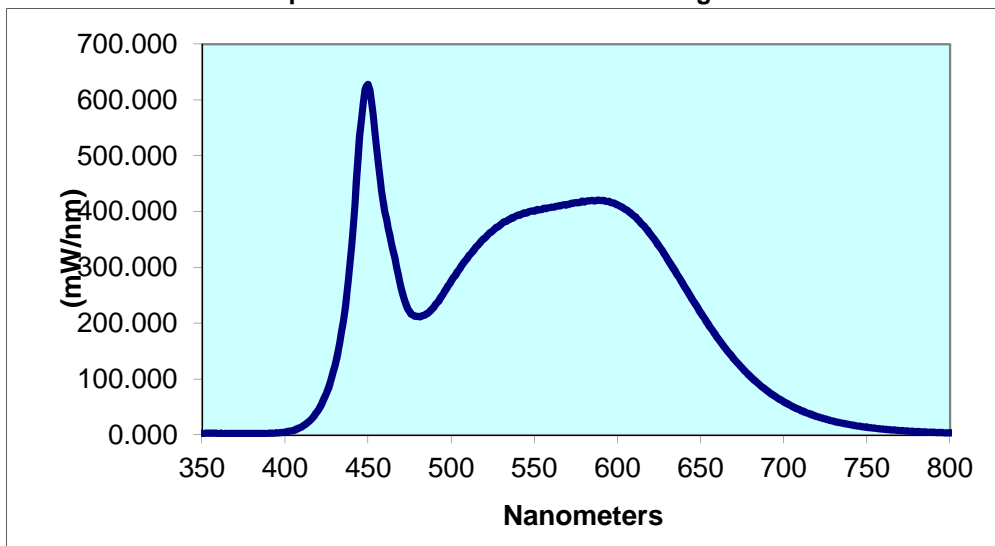
Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

Intertek Sample No.	Base Orientation	Input Voltage {VAC}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Input Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
H03242017045206-03	Up	120.0	2583	308.9	0.997	3.67	34170	110.5
		277.0	1206	304.5	0.911	15.03		
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')	
5015	85.7	20.9	0.001	0.345	0.356	0.210	0.487	

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	2.708	440	338.7	530	377.5	620	358.9	710	44.25
355	2.783	445	534.9	535	386.3	625	338.4	715	38.23
360	2.647	450	627.8	540	393.7	630	315.5	720	33.03
365	2.630	455	517.7	545	397.4	635	291.8	725	28.50
370	2.482	460	400.3	550	401.7	640	267.2	730	24.62
375	2.239	465	330.6	555	404.9	645	242.8	735	21.20
380	2.245	470	261.5	560	407.6	650	218.9	740	18.28
385	2.406	475	221.0	565	410.0	655	196.1	745	15.80
390	2.735	480	212.2	570	413.0	660	174.6	750	13.70
395	3.487	485	216.8	575	416.3	665	154.7	755	11.91
400	5.078	490	231.1	580	417.7	670	136.2	760	10.37
405	8.320	495	251.7	585	419.9	675	119.7	765	8.957
410	14.70	500	275.7	590	419.8	680	104.7	770	7.758
415	25.87	505	297.0	595	418.0	685	91.09	775	6.724
420	44.65	510	318.4	600	412.5	690	79.25	780	5.883
425	75.49	515	337.1	605	403.7	695	68.80		
430	124.5	520	352.2	610	392.0	700	59.30		
435	203.6	525	366.1	615	376.9	705	51.35		

Spectral Data Over Visible Wavelengths



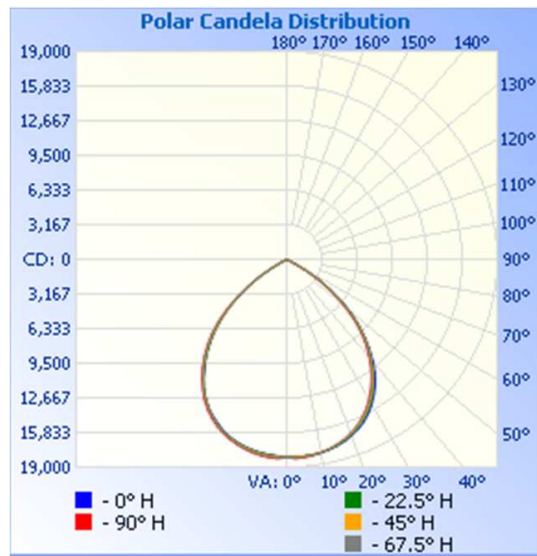
RESULTS OF TEST (cont'd)

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)
AH03242017045206-035	Up	120.0	2586	309.3	0.997	34170	110.5

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	18103	18103	18103	18103	18103
5	18034	18022	18040	18106	18171
10	17929	17896	17876	17896	17935
15	17635	17589	17540	17517	17501
20	17145	17080	16965	16917	16883
25	16417	16297	16151	16046	16014
30	15327	15194	15028	14914	14834
35	13938	13741	13599	13434	13326
40	12086	11912	11838	11706	11555
45	9915	9885	9827	9713	9532
50	7561	7486	7407	7263	7054
55	4893	4799	4688	4557	4318
60	2254	2210	2034	1873	1778
65	185	348	383	360	330
70	123	140	146	146	149
75	88	92	96	98	83
80	67	61	58	63	53
85	43	32	27	28	30
90	0	0	0	0	0

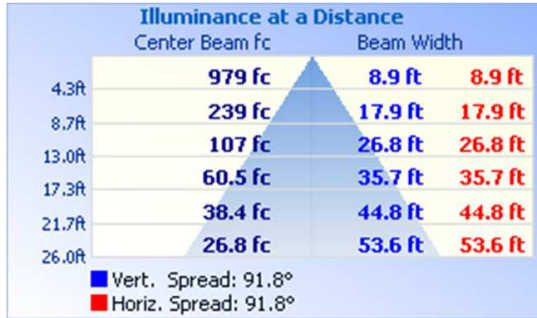


RESULTS OF TEST (cont'd)

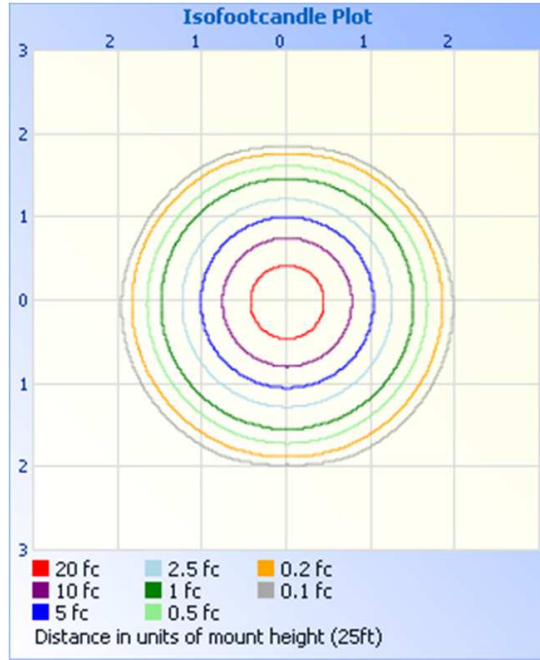
Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light



Isoillumination Plot



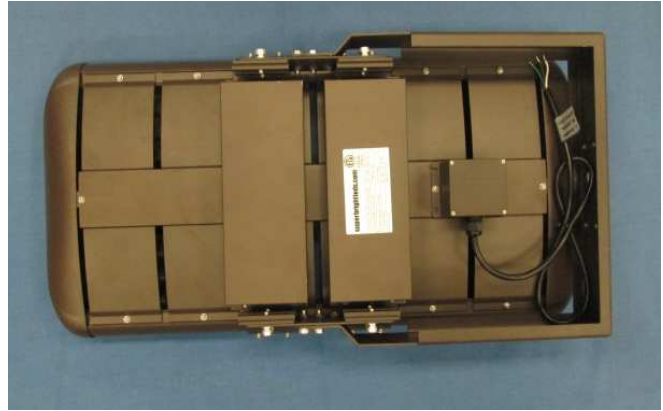
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	14001	41.0
0-40	22331	65.4
0-60	33519	98.1
60-90	651.4	1.9
0-90	34170	100.0
90-180	0.0	0.0
0-180	34170	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	1716	5.0
10-20	4925	14.4
20-30	7360	21.5
30-40	8330	24.4
40-50	7282	21.3
50-60	3906	11.4
60-70	523.8	1.5
70-80	96.7	0.3
80-90	30.8	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:



Hector Huitron
Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley
Engineer
Lighting Division