



REPORT

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

Project No. G102748333

Date: March 16, 2017

REPORT NO. 102748333CHI-026

TEST OF ONE LED FLOOD LIGHT FIXTURE

MODEL NO. FLC4-NW100
LED MODEL NO. PHILIPS LUMILEDS, LUXEON 3030 2D
DRIVER MODEL NO. MEANWELL, HLG-100H-36A

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 FLC4-NW100. The sample was received by Intertek on March 13, 2017, in undamaged condition and one sample was tested as received. The sample designation was AH03132017015130-026.

DATES OF TESTS: March 16, 2017

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SUMMARY

Model No.: FLC4-NW100
Description: LED Flood Light Fixture

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	12464	12261
Total Power (W)	98.53	97.50
Luminaire Efficacy (LPW)	126.5	125.8

Criteria	Result
Power Factor at 120Vac	0.994
Power Factor at 277Vac	0.933
Current ATHD % at 120Vac	8.67
Current ATHD % at 277Vac	15.86
Correlated Color Temperature (CCT - K)	4035
Color Rendering Index (CRI - Ra)	73.1
Color Rendering Index (CRI - R9)	-20.7
DUV	0.004
Chromaticity Coordinate (x)	0.377
Chromaticity Coordinate (y)	0.368
Chromaticity Coordinate (u')	0.226
Chromaticity Coordinate (v')	0.497

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	03/16/17
Omega Newport Thermometer	DPI8-C24	146920	10/07/16	10/07/17	03/16/17
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	03/16/17
Newport Thermohygrometer	iServer	146956	01/06/17	01/06/18	03/16/17
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	03/16/17
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	03/16/17
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	03/16/17
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	03/16/17
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	03/16/17
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	03/16/17
Yokogawa Power Meter	WT1600	146768	01/10/17	01/10/18	03/16/17
Fluke J/K Temperature Meter	52	146004	01/10/17	01/10/18	03/16/17



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.

BUG Ratings (Backlight, Uplight, Glare) – for Outdoor Fixtures Only

Zonal Lumens were calculated and grouped using the formula in IESNA TM-15-11 for each zone as defined in the BUG addendum. The maximum lumen rating in each zone was compared against the BUG zonal requirements of Energy Star. Photometric Toolbox software was used to calculate results.

RESULTS OF TEST

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

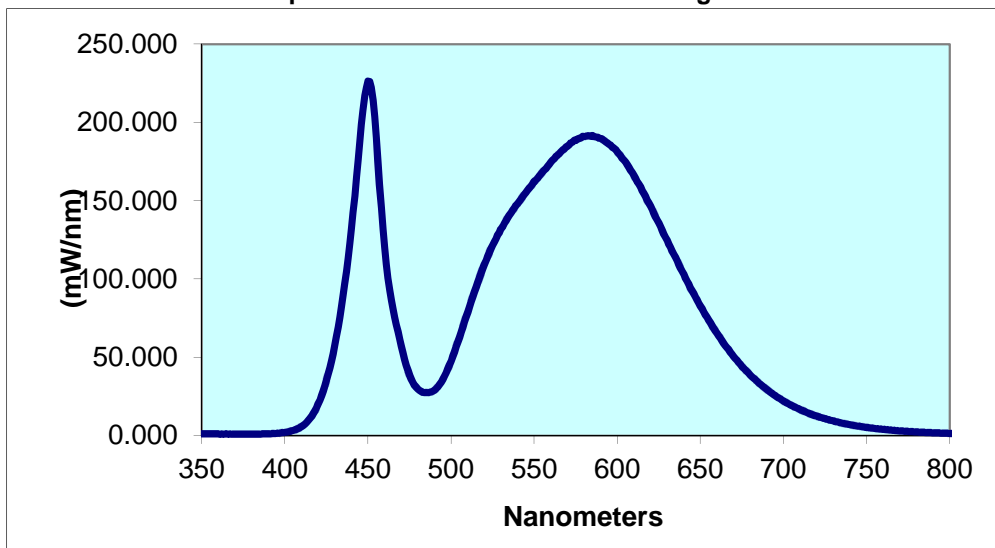
Intertek Sample No.	Base Orientation	Input Voltage {VAC}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
H03132017015130-02	Horizontal	120.0	826.2	98.53	0.994	8.67	12464	126.5
		277.0	380.1	98.20	0.933	15.86		

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')
4035	73.1	-20.7	0.004	0.377	0.368	0.226	0.497

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	1.003	440	132.2	530	131.8	620	146.3	710	16.63
355	1.045	445	187.2	535	140.6	625	135.7	715	14.33
360	1.010	450	226.4	540	148.1	630	124.5	720	12.45
365	0.926	455	190.1	545	155.3	635	113.7	725	10.77
370	0.839	460	120.1	550	162.1	640	102.8	730	9.313
375	0.840	465	80.92	555	168.4	645	92.57	735	8.037
380	0.818	470	57.10	560	174.6	650	82.76	740	6.955
385	0.862	475	38.52	565	180.1	655	73.76	745	6.005
390	1.038	480	29.65	570	184.9	660	65.36	750	5.214
395	1.411	485	27.34	575	188.6	665	57.50	755	4.531
400	2.025	490	29.07	580	191.0	670	50.54	760	3.941
405	3.296	495	35.90	585	191.5	675	44.26	765	3.404
410	5.817	500	47.69	590	189.8	680	38.73	770	2.947
415	10.87	505	62.83	595	186.2	685	33.82	775	2.571
420	20.03	510	78.91	600	181.1	690	29.39	780	2.249
425	35.35	515	94.96	605	174.6	695	25.48		
430	57.70	520	109.3	610	166.0	700	22.14		
435	89.50	525	121.6	615	156.5	705	19.20		

Spectral Data Over Visible Wavelengths



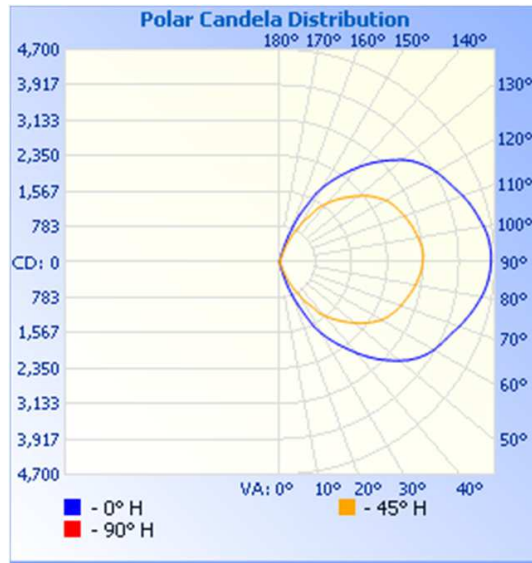
RESULTS OF TEST (cont'd)

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)
AH03132017015130-026	Horizontal	119.9	818.4	97.50	0.993	12261	125.8

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	25	45	65	90
0	4	4	4	4	0
5	3	4	5	6	0
10	31	7	6	6	0
15	324	198	38	6	0
20	790	565	240	8	0
25	1272	1018	518	47	0
30	1827	1529	820	136	0
35	2222	1919	1177	275	0
40	2634	2260	1570	417	0
45	3037	2619	1828	599	0
50	3394	2959	2091	766	0
55	3693	3239	2346	974	0
60	3890	3431	2561	1097	0
65	4016	3564	2706	1216	0
70	4173	3694	2818	1320	0
75	4335	3825	2913	1388	0
80	4476	3960	3005	1438	0
85	4578	4066	3085	1472	0
90	4620	4116	3126	1503	0
95	4612	4115	3132	1515	0
100	4533	4041	3074	1500	0
105	4408	3921	3005	1468	0
110	4269	3791	2917	1417	0
115	4106	3664	2821	1340	0
120	3967	3544	2710	1238	0
125	3784	3379	2518	1124	0
130	3521	3130	2279	997	0
135	3162	2808	2014	794	0
140	2774	2452	1753	604	0
145	2351	2081	1464	431	0
150	1934	1704	1064	279	0
155	1359	1185	696	138	0
160	840	716	368	40	0
165	380	296	121	15	0
170	59	36	16	14	0
175	9	11	12	13	0
180	10	10	10	10	0

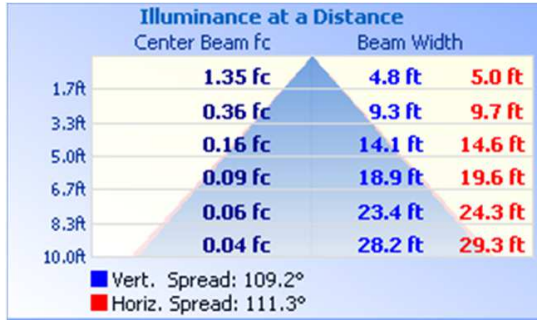


RESULTS OF TEST (cont'd)

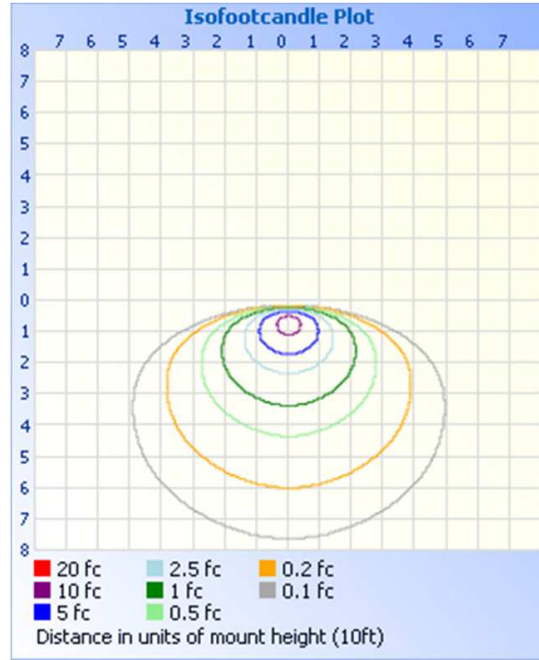
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



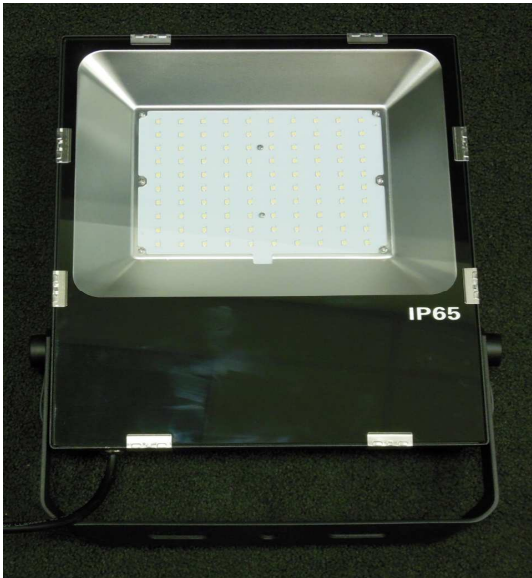
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	155.9	1.3
0-40	511.6	4.2
0-60	2058	16.8
60-90	3923	32.0
0-90	5982	48.8
90-180	6279.0	51.2
0-180	12261	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	0.3	0.0
10-20	20.4	0.2
20-30	135.3	1.1
30-40	355.7	2.9
40-50	629.1	5.1
50-60	917.6	7.5
60-70	1149	9.4
70-80	1326	10.8
80-90	1448	11.8
90-100	1468	12.0
100-110	1366	11.1
110-120	1196	9.8
120-130	973.3	7.9
130-140	686.2	5.6
140-150	399.6	3.3
150-160	162.4	1.3
160-170	28.3	0.2
170-180	0.7	0.0

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