REPORT

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

Project No. G102748333 Date: March 16, 2017

REPORT NO. 102748333CHI-027

TEST OF ONE LED FLOOD LIGHT FIXTURE

MODEL NO. FLC4-NW200
LED MODEL NO. PHILIPS LUMILEDS, LUXEON 3030 2D
DRIVER MODEL NO. MEANWELL, HLG-240H-42A

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 FLC4-NW200. The sample was received by Intertek on March 13, 2017, in undamaged condition and one sample was tested as received. The sample designation was AH03132017015130-027.

DATES OF TESTS: March 16, 2017

SUMMARY

Model No.: FLC4-NW200
Description: LED Flood Light Fixture

	Result	
Criteria	Sphere	Goniometer
Total Lumen Output (Lumens)	24794	24521
Total Power (W)	199.0	199.3
Luminaire Efficacy (LPW)	124.6	123.0

Criteria	Result
Power Factor at 120Vac	0.994
Power Factor at 277Vac	0.917
Current ATHD % at 120Vac	6.02
Current ATHD % at 277Vac	11.00
Correlated Color Temperature (CCT - K)	4047
Color Rendering Index (CRI - Ra)	72.6
Color Rendering Index (CRI - R9)	-22.3
DUV	0.003
Chromaticity Coordinate (x)	0.377
Chromaticity Coordinate (y)	0.369
Chromaticity Coordinate (u')	0.226
Chromaticity Coordinate (v')	0.498

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/KTemperature 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

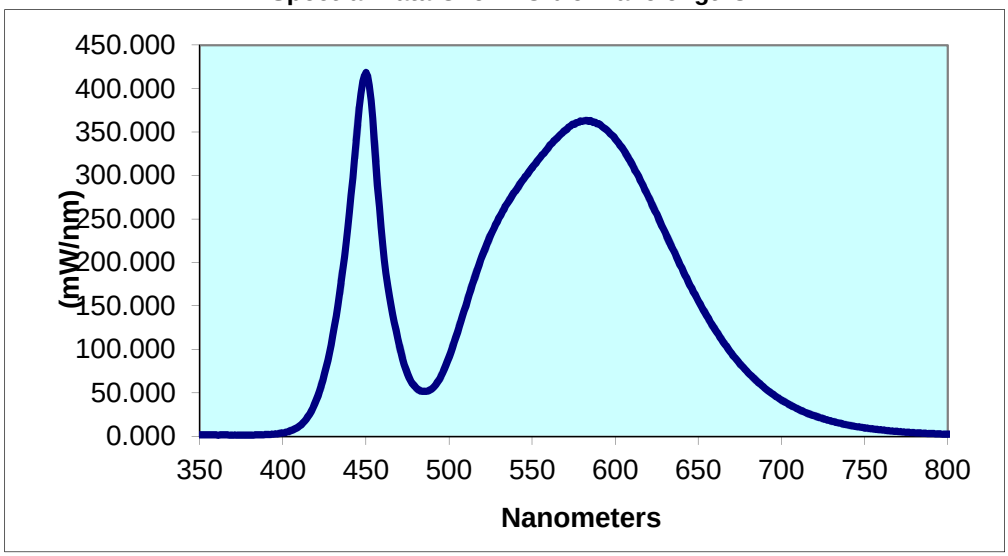
Intertek Sample No.	Base Orientation	Input Voltage {VAC}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
\H03132017015130-02	Horizontal	120.0	1668	199.0	0.994	6.02	24794	124.6
		277.0	760.3	193.0	0.917	11.00		

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')
4047	72.6	-22.3	0.003	0.377	0.369	0.226	0.498

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	1.874	440	258.1	530	251.2	620	275.3	710	31.56
355	1.814	445	359.2	535	268.1	625	255.4	715	27.36
360	1.843	450	418.5	540	282.4	630	234.5	720	23.77
365	1.812	455	340.6	545	296.5	635	214.0	725	20.64
370	1.637	460	221.3	550	309.4	640	193.5	730	17.76
375	1.588	465	150.8	555	321.5	645	174.1	735	15.38
380	1.633	470	104.7	560	333.0	650	155.9	740	13.31
385	1.694	475	71.85	565	343.2	655	139.0	745	11.54
390	2.081	480	56.22	570	352.1	660	123.3	750	9.985
395	2.866	485	51.92	575	358.7	665	108.6	755	8.711
400	4.193	490	55.49	580	362.7	670	95.53	760	7.604
405	6.869	495	69.06	585	363.3	675	83.71	765	6.577
410	12.25	500	91.50	590	359.7	680	73.41	770	5.712
415	22.83	505	120.0	595	352.2	685	64.07	775	4.968
420	41.50	510	150.4	600	342.0	690	55.71	780	4.306
425	71.97	515	180.9	605	329.4	695	48.43		
430	116.2	520	208.1	610	313.1	700	42.12		
435	177.3	525	231.5	615	295.0	705	36.45		

Spectral Data Over Visible Wavelengths



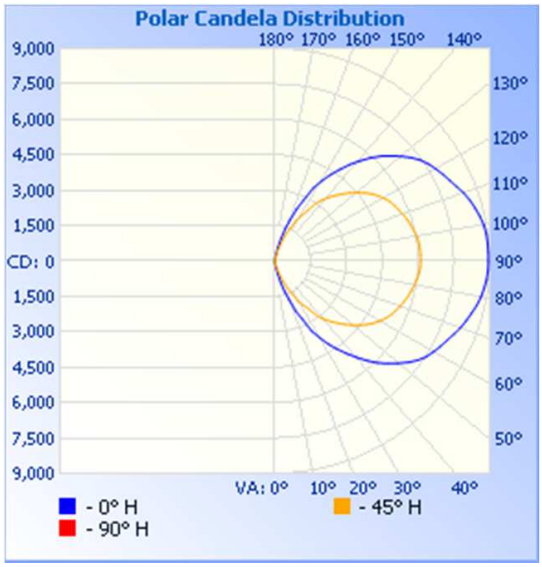
RESULTS OF TEST (cont'd)

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)
AH03132017015130-027	Horizontal	120.0	1671	199.3	0.994	24521	123.0

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	25	45	65	90
0	9	9	9	9	0
5	10	12	13	14	0
10	277	157	34	15	0
15	947	658	285	18	0
20	1740	1417	694	105	0
25	2703	2252	1303	265	0
30	3749	3222	1956	502	0
35	4553	3939	2486	768	0
40	5320	4599	3220	1074	0
45	6098	5276	3716	1421	0
50	6734	5900	4216	1721	0
55	7319	6423	4693	2054	0
60	7682	6817	5074	2282	0
65	7958	7095	5370	2501	0
70	8276	7349	5581	2683	0
75	8533	7583	5773	2819	0
80	8771	7813	5923	2904	0
85	8906	7967	6058	2966	0
90	8949	8019	6105	2987	0
95	8947	8000	6100	3010	0
100	8880	7921	6036	2988	0
105	8684	7729	5895	2921	0
110	8422	7483	5734	2832	0
115	8084	7235	5545	2695	0
120	7799	6988	5309	2498	0
125	7452	6640	4962	2287	0
130	6906	6148	4520	2044	0
135	6285	5567	4024	1666	0
140	5544	4894	3532	1382	0
145	4735	4200	2987	1049	0
150	3916	3473	2230	740	0
155	2843	2478	1536	440	0
160	1855	1588	954	229	0
165	978	806	448	79	0
170	296	240	111	27	0
175	18	22	24	24	0
180	18	18	18	18	0

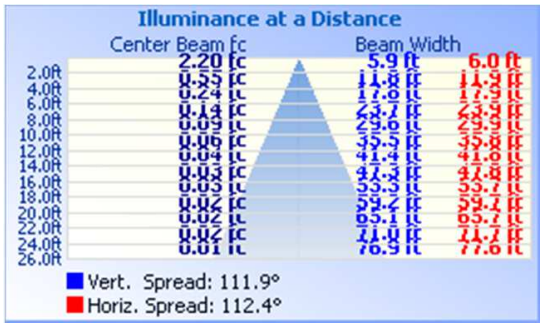


RESULTS OF TEST (cont'd)

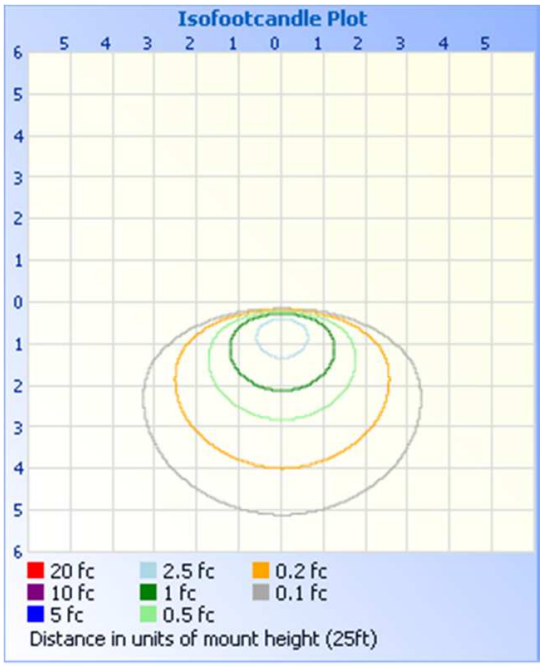
Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	370.8	1.5
0-40	1118	4.6
0-60	4239	17.3
60-90	7787	31.8
0-90	12026	49.0
90-180	12495.0	51.0
0-180	24521	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	1.7	0.0
10-20	60.5	0.2
20-30	308.6	1.3
30-40	747.3	3.0
40-50	1282	5.2
50-60	1839	7.5
60-70	2295	9.4
70-80	2639	10.8
80-90	2853	11.6
90-100	2873	11.7
100-110	2699	11.0
110-120	2368	9.7
120-130	1928	7.9
130-140	1375	5.6
140-150	820.2	3.3
150-160	354.3	1.4
160-170	76.1	0.3
170-180	2.8	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:

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Report Reviewed By:

Timothy Quigley
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Lighting Division

Attachment: None