



REPORT

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

Project No. G102748333

Date: March 16, 2017

REPORT NO. 102748333CHI-029

TEST OF ONE KNUCKLE MOUNT LED FLOOD LIGHT

MODEL NO. FLKM-NW70-80
LED MODEL NO. PHILIPS LUMILEDS, LUXEON 3030 2D
DRIVER MODEL NO. MESTER LED, MSPI-IS70A12S-1750

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 FLKM-NW70-80. The sample was received by Intertek on March 13, 2017, in undamaged condition and one sample was tested as received. The sample designation was AH03132017015130-029.

DATES OF TESTS: March 15, 2017 through March 16, 2017.

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SUMMARY

Model No.: FLKM-NW70-80
 Description: Knuckle Mount LED Flood Light

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	6984	6969
Total Power (W)	68.20	68.36
Luminaire Efficacy (LPW)	102.4	101.9

Criteria	Result
Power Factor at 120Vac	0.988
Power Factor at 277Vac	0.902
Current ATHD % at 120Vac	12.60
Current ATHD % at 277Vac	19.40
Correlated Color Temperature (CCT - K)	5068
Color Rendering Index (CRI - Ra)	83.5
Color Rendering Index (CRI - R9)	8.5
DUV	0.001
Chromaticity Coordinate (x)	0.343
Chromaticity Coordinate (y)	0.354
Chromaticity Coordinate (u')	0.209
Chromaticity Coordinate (v')	0.486

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	03/15/17
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	03/15/17
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	03/15/17
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	03/15/17
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	03/15/17
Yokogawa Power Meter	WT1600	146768	01/10/17	01/10/18	03/15/17
Fluke J/K Temperature Meter	52	146004	01/10/17	01/10/18	03/15/17



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

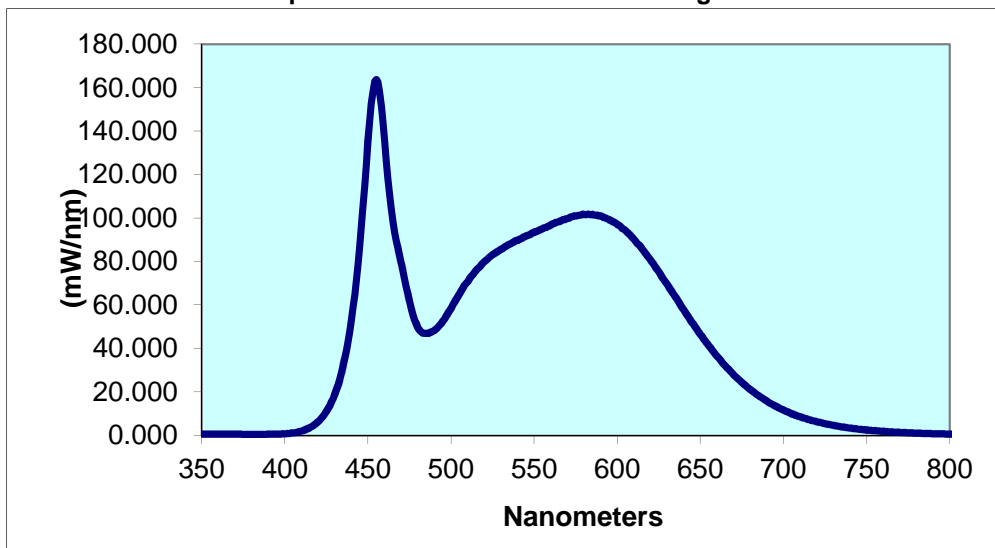
Intertek Sample No.	Base Orientation	Input Voltage {VAC}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
H03132017015130-02	Horizontal	120.0	575.0	68.20	0.988	12.60	6984	102.4
		277.0	277.6	69.34	0.902	19.40		

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')
5068	83.5	8.5	0.001	0.343	0.354	0.209	0.486

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.605	440	53.22	530	85.62	620	80.67	710	8.641
355	0.627	445	87.19	535	87.94	625	75.24	715	7.401
360	0.648	450	135.5	540	89.74	630	69.46	720	6.377
365	0.603	455	163.8	545	91.72	635	63.61	725	5.480
370	0.534	460	135.3	550	93.50	640	57.73	730	4.701
375	0.505	465	98.28	555	95.14	645	51.98	735	4.014
380	0.496	470	79.00	560	96.88	650	46.52	740	3.441
385	0.478	475	61.61	565	98.36	655	41.35	745	2.963
390	0.519	480	49.68	570	99.88	660	36.55	750	2.542
395	0.607	485	46.91	575	100.9	665	32.04	755	2.193
400	0.796	490	48.45	580	101.7	670	27.97	760	1.905
405	1.234	495	52.64	585	101.7	675	24.38	765	1.643
410	2.064	500	58.66	590	101.0	680	21.18	770	1.420
415	3.653	505	65.19	595	99.32	685	18.38	775	1.231
420	6.386	510	70.84	600	97.10	690	15.86	780	1.062
425	11.15	515	75.94	605	94.22	695	13.65		
430	18.98	520	79.98	610	90.26	700	11.74		
435	32.08	525	83.15	615	85.73	705	10.07		

Spectral Data Over Visible Wavelengths



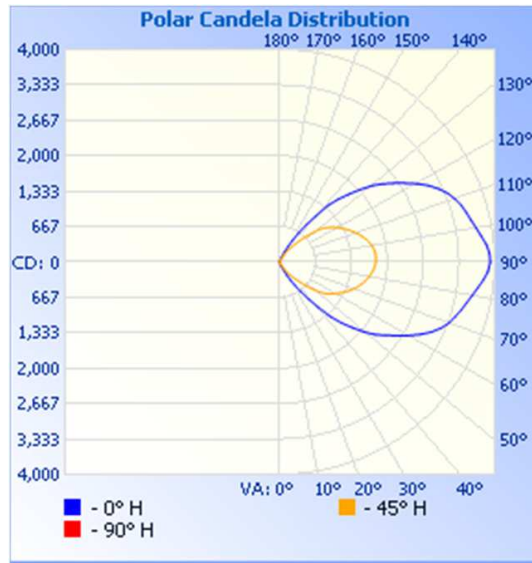
RESULTS OF TEST (cont'd)

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)
AH03132017015130-029	Horizontal	120.0	576.2	68.36	0.988	6969	101.9

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	25	45	65	90
0	1	1	1	1	0
5	0	1	1	2	0
10	17	10	5	3	0
15	44	35	20	7	0
20	87	73	39	14	0
25	176	151	70	21	0
30	396	285	143	31	0
35	686	488	242	47	0
40	1107	801	369	73	0
45	1619	1205	543	106	0
50	2048	1551	784	138	0
55	2403	1876	1030	175	0
60	2764	2083	1183	232	0
65	3116	2323	1332	301	0
70	3351	2562	1470	344	0
75	3493	2713	1581	375	0
80	3634	2904	1675	404	0
85	3807	3171	1745	421	0
90	3917	3356	1784	436	0
95	3856	3254	1786	435	0
100	3710	3017	1746	423	0
105	3595	2856	1660	398	0
110	3473	2706	1550	366	0
115	3265	2471	1422	336	0
120	2951	2228	1287	275	0
125	2593	2015	1138	209	0
130	2243	1692	958	164	0
135	1802	1383	673	132	0
140	1392	957	440	101	0
145	861	587	290	68	0
150	479	330	178	45	0
155	224	177	103	30	0
160	108	92	54	20	0
165	57	45	28	14	0
170	22	19	14	9	0
175	8	7	7	5	0
180	2	2	2	2	0

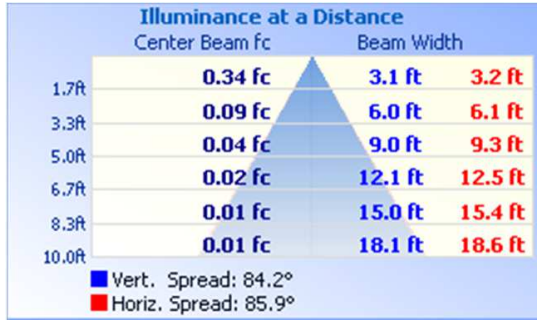


RESULTS OF TEST (cont'd)

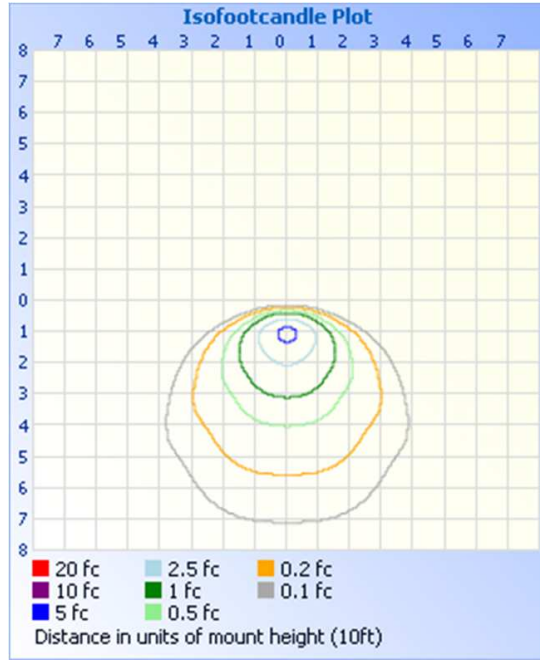
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	26.0	0.4
0-40	121.0	1.7
0-60	861.9	12.4
60-90	2518	36.1
0-90	3380	48.5
90-180	3589.0	51.5
0-180	6969	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	0.1	0.0
10-20	3.5	0.1
20-30	22.3	0.3
30-40	95.0	1.4
40-50	261.6	3.8
50-60	479.3	6.9
60-70	681.3	9.8
70-80	853.9	12.3
80-90	983.0	14.1
90-100	1001	14.4
100-110	891.2	12.8
110-120	724.4	10.4
120-130	524.1	7.5
130-140	300.9	4.3
140-150	114.6	1.6
150-160	27.2	0.4
160-170	4.7	0.1
170-180	0.4	0.0

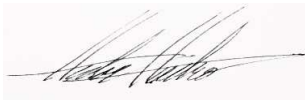
PICTURES (not to scale)



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