



REPORT

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

Project No. G103157522

Date: February 19, 2018

REPORT NO. 103157522CHI-026

TEST OF ONE 100W HIGH BAY LUMINAIRE

MODEL NO. HBUD-50K100W
LED MODEL NO. PHILIPS 3030
DRIVER MODEL NO. MEAN WELL

RENDERED TO

SUPER BRIGHT LEDS
4400 EARTH CITY EXP
EARTH CITY, 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-00800853-0.

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 HBUD-50K100W. The sample was received by Intertek on February 8, 2018, in undamaged condition and one sample was tested as received. The sample designation was AH02082018033253.

DATES OF TESTS: February 12, 2018 through February 14, 2018.

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.



SUMMARY

Model No.: HBUD-50K100W
Description: 100W High Bay Luminaire

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	13514	13038
Total Power (W)	100.1	99.88
Luminaire Efficacy (LPW)	135.0	130.5

Criteria	Result
Power Factor	0.995
Current ATHD %	8.56
Correlated Color Temperature (CCT - K)	5073
Color Rendering Index (CRI - Ra)	83.7
Color Rendering Index (CRI - R9)	14.3
DUV	0.002
Chromaticity Coordinate (x)	0.343
Chromaticity Coordinate (y)	0.355
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	07/10/17	07/10/18	02/14/18
Omega Newport Thermometer	DPI8-C24	146920	10/04/17	10/04/18	02/14/18
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	02/14/18
Newport Thermohygrometer	iServer	146382	03/22/17	03/22/18	02/14/18
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	02/14/18
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	02/12/18
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	02/12/18
Elgar AC Power Supply	CW1251	146112	VBU	VBU	02/12/18
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	02/12/18
Newport Humidity Recorder	iTHX-SD	146961	07/14/17	07/14/18	02/12/18
Yokogawa Power Meter	WT1600	146768	10/03/17	10/03/18	02/12/18
Extech K Temperature Meter	SD200	CHI0207	04/05/17	04/05/18	02/12/18



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

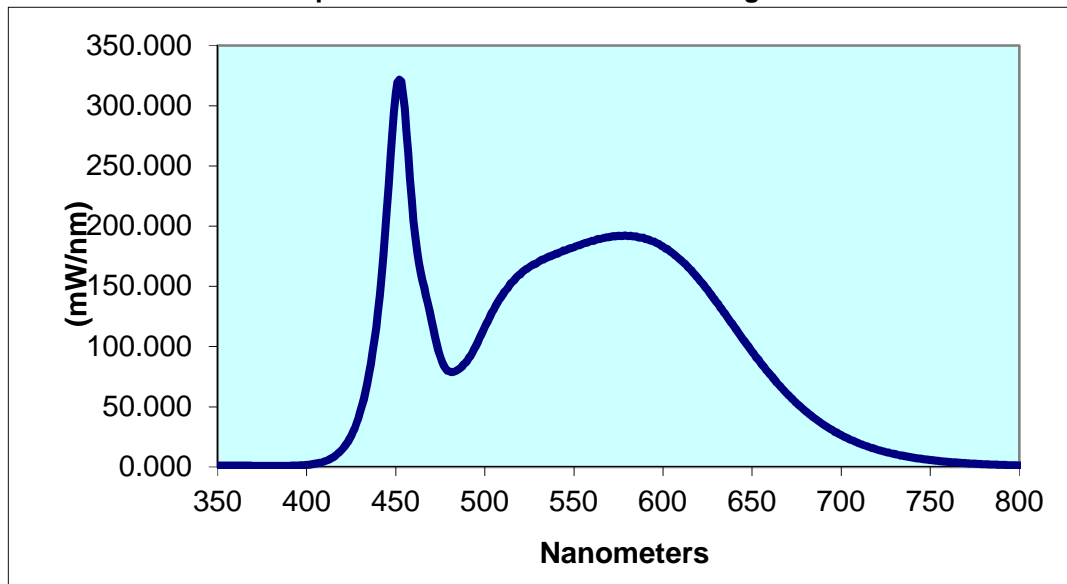
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH02082018033253	UP	120.0	838.0	100.1	0.995	8.56	13514	135.0

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')
5073	83.7	14.3	0.002	0.343	0.355	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	1.190	440	128.8	530	170.4	620	156.3	710	19.71
355	1.185	445	214.3	535	174.1	625	147.1	715	16.95
360	1.214	450	310.5	540	177.2	630	137.0	720	14.59
365	1.152	455	297.8	545	179.7	635	127.0	725	12.53
370	1.067	460	204.4	550	182.6	640	116.4	730	10.76
375	1.008	465	154.9	555	185.3	645	106.0	735	9.217
380	0.969	470	122.6	560	187.8	650	95.86	740	7.928
385	0.988	475	91.65	565	189.3	655	86.11	745	6.785
390	1.063	480	79.37	570	191.0	660	76.93	750	5.819
395	1.301	485	81.11	575	192.1	665	68.34	755	5.004
400	1.763	490	88.17	580	191.8	670	60.35	760	4.309
405	2.728	495	100.4	585	191.5	675	53.13	765	3.694
410	4.629	500	116.2	590	189.4	680	46.50	770	3.170
415	8.244	505	130.7	595	187.2	685	40.54	775	2.740
420	14.73	510	143.0	600	183.1	690	35.35	780	2.364
425	25.99	515	153.2	605	178.1	695	30.65		
430	45.15	520	160.2	610	172.0	700	26.51		
435	77.34	525	166.0	615	164.6	705	22.90		

Spectral Data Over Visible Wavelengths





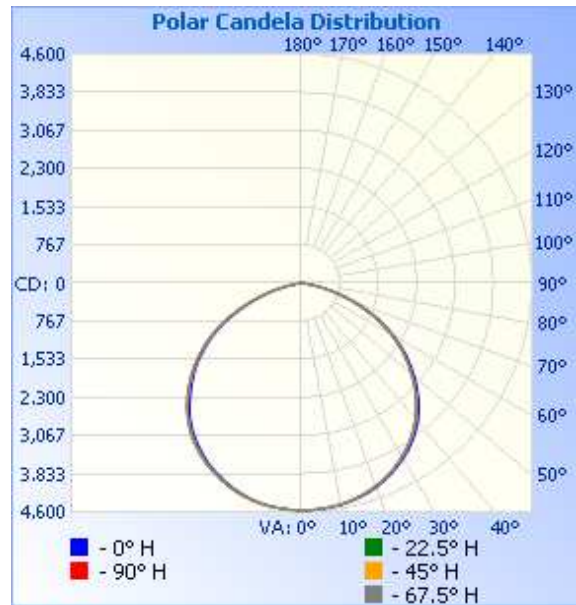
RESULTS OF TEST (cont'd)

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)
AH02082018033253	UP	120.0	836.2	99.88	0.995	13038	130.5

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	4564	4564	4564	4564	4564
5	4558	4558	4553	4554	4552
10	4524	4518	4512	4514	4513
15	4462	4445	4440	4439	4442
20	4369	4341	4336	4333	4336
25	4237	4200	4195	4194	4190
30	4071	4027	4021	4020	4016
35	3865	3815	3809	3808	3803
40	3620	3559	3556	3549	3541
45	3310	3240	3242	3239	3230
50	2949	2886	2884	2886	2877
55	2571	2502	2502	2505	2493
60	2145	2074	2087	2086	2069
65	1693	1614	1611	1602	1594
70	1182	1113	1103	1100	1094
75	707	642	642	633	626
80	290	245	246	244	234
85	46	34	35	34	33
90	2	2	2	2	2
95	1	1	1	1	1
100	2	2	2	2	2
105	2	2	2	2	2
110	2	2	2	2	2
115	3	3	3	3	3
120	3	3	3	3	3
125	4	4	4	4	4
130	4	4	4	4	4
135	5	5	5	5	5
140	6	5	5	5	5
145	6	5	5	5	5
150	6	6	6	6	6
155	7	6	6	6	6
160	6	6	6	6	6
165	6	6	6	6	6
170	6	6	6	6	6
175	6	6	6	6	6
180	6	6	6	6	6



RESULTS OF TEST (cont'd)

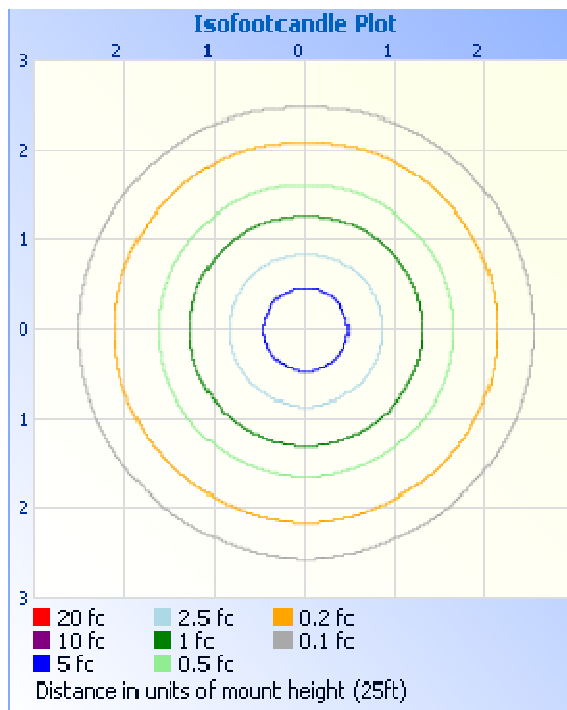
Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light



Isoillumination Plot



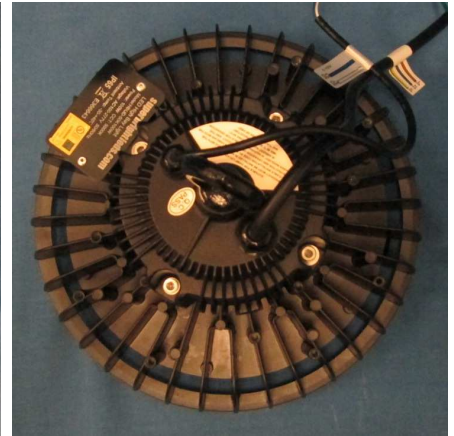
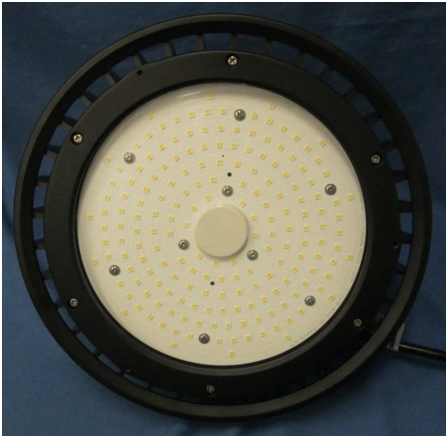
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	3618	27.7
0-40	5994	46.0
0-60	10701	82.1
60-90	2315	17.8
0-90	13016	99.8
90-180	21.7	0.2
0-180	13038	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	433.2	3.3
10-20	1254	9.6
20-30	1931	14.8
30-40	2377	18.2
40-50	2486	19.1
50-60	2221	17.0
60-70	1570	12.0
70-80	673.6	5.2
80-90	71.6	0.5
90-100	1.7	0.0
100-110	2.1	0.0
110-120	2.8	0.0
120-130	3.3	0.0
130-140	3.6	0.0
140-150	3.4	0.0
150-160	2.6	0.0
160-170	1.7	0.0
170-180	0.6	0.0

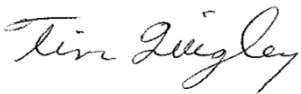
PICTURES (not to scale)



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:



Timothy Quigley
Engineer
Lighting Division

Attachment: None

Report Reviewed By:



Hector Huitron
Associate Engineer
Lighting Division