



REPORT

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

Project No. G103157522

Date: February 19, 2018

REPORT NO. 103157522CHI-028

TEST OF ONE 150W HIGH BAY LUMINAIRE

MODEL NO. HBUD-50K150W
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-50K150W. The sample was received by Intertek on February 8, 2018, in undamaged condition and one sample was tested as received. The sample designation was AH02082018033253-028.

DATES OF TESTS: February 13, 2018 through February 14, 2018.

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SUMMARY

Model No.: HBUD-50K150W
 Description: 150W High Bay Luminaire

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	19116	18480
Total Power (W)	149.7	149.5
Luminaire Efficacy (LPW)	127.7	123.6

Criteria	Result
Power Factor	0.995
Current ATHD %	7.32
Correlated Color Temperature (CCT - K)	5123
Color Rendering Index (CRI - Ra)	83.9
Color Rendering Index (CRI - R9)	14.7
DUV	0.001
Chromaticity Coordinate (x)	0.342
Chromaticity Coordinate (y)	0.353
Chromaticity Coordinate (u')	0.209
Chromaticity Coordinate (v')	0.485

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	02/13/18
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	02/13/18
Elgar AC Power Supply	CW1251	146112	VBU	VBU	02/13/18
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	02/13/18
Newport Humidity Recorder	iTHX-SD	146961	07/14/17	07/14/18	02/13/18
Yokogawa Power Meter	WT1600	146768	10/03/17	10/03/18	02/13/18
Extech K Temperature Meter	SD200	CHI0207	04/05/17	04/05/18	02/13/18



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

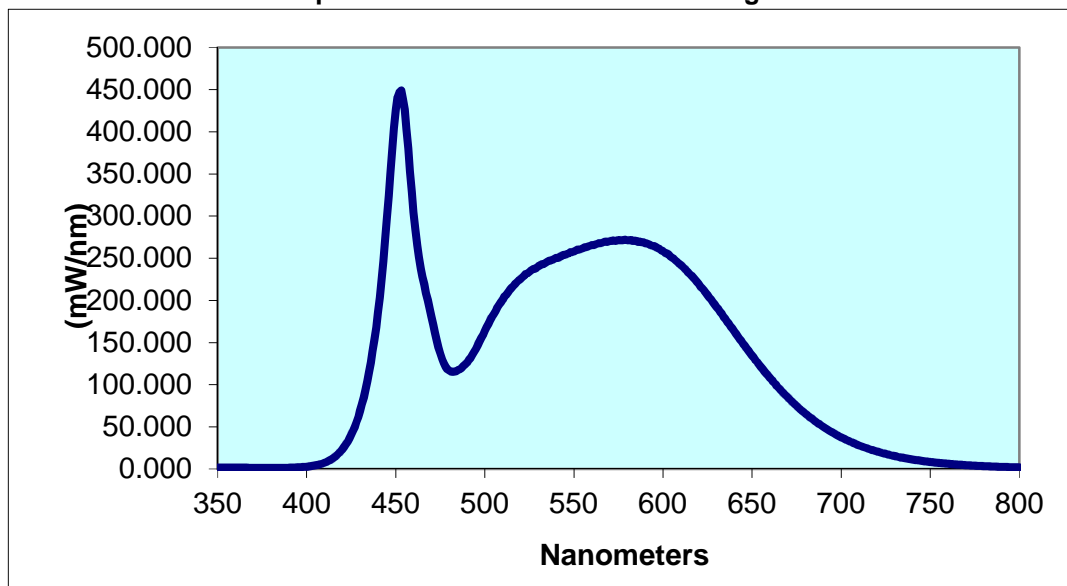
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH02082018033253-02E	UP	120.0	1254	149.7	0.995	7.32	19116	127.7

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')
5123	83.9	14.7	0.001	0.342	0.353	0.209	0.485

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	1.711	440	185.6	530	240.4	620	219.7	710	28.06
355	1.709	445	297.6	535	245.9	625	206.5	715	24.19
360	1.736	450	426.5	540	250.6	630	192.2	720	20.85
365	1.626	455	426.2	545	254.1	635	178.1	725	17.93
370	1.475	460	304.4	550	258.1	640	163.3	730	15.42
375	1.450	465	228.0	555	261.9	645	148.7	735	13.24
380	1.392	470	180.9	560	265.5	650	134.6	740	11.43
385	1.416	475	137.1	565	267.7	655	120.9	745	9.785
390	1.598	480	117.0	570	270.2	660	108.0	750	8.406
395	1.993	485	117.5	575	271.5	665	96.11	755	7.240
400	2.737	490	126.3	580	271.2	670	84.94	760	6.263
405	4.286	495	142.4	585	270.7	675	74.88	765	5.376
410	7.405	500	163.8	590	267.8	680	65.66	770	4.606
415	13.22	505	183.6	595	264.5	685	57.31	775	3.982
420	23.43	510	200.8	600	258.6	690	50.01	780	3.467
425	40.52	515	215.2	605	251.0	695	43.49		
430	68.94	520	225.3	610	242.1	700	37.59		
435	114.7	525	233.9	615	231.6	705	32.54		

Spectral Data Over Visible Wavelengths



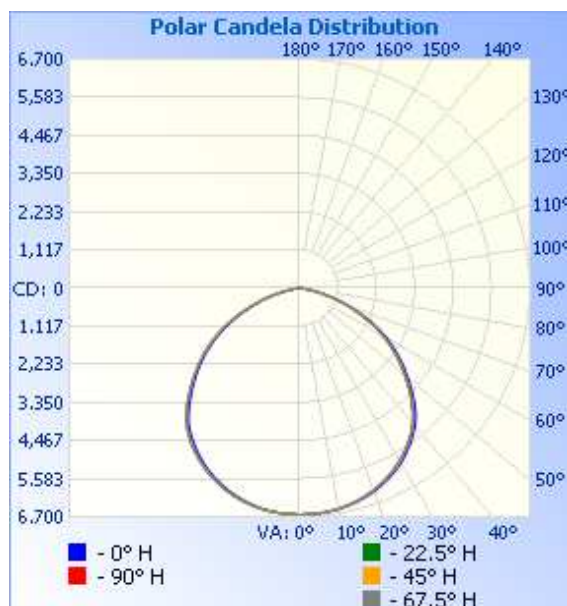
RESULTS OF TEST (cont'd)

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)
AH02082018033253-028	UP	120.0	1252	149.5	0.994	18480	123.6

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	6629	6629	6629	6629	6629
5	6620	6615	6619	6615	6615
10	6570	6556	6561	6556	6556
15	6477	6448	6452	6447	6449
20	6341	6291	6294	6291	6292
25	6153	6087	6088	6082	6083
30	5910	5827	5827	5823	5821
35	5598	5514	5519	5512	5512
40	5236	5137	5132	5128	5125
45	4732	4614	4607	4597	4593
50	4135	4022	4019	4014	4013
55	3550	3441	3437	3435	3430
60	2950	2829	2818	2813	2821
65	2288	2156	2150	2144	2140
70	1567	1471	1462	1456	1446
75	919	832	836	828	822
80	378	328	330	328	322
85	71	54	57	56	56
90	4	4	5	5	5
95	3	4	4	4	4
100	3	4	4	4	4
105	4	4	4	4	5
110	4	5	5	5	5
115	5	6	6	6	6
120	5	6	6	6	6
125	6	7	7	7	7
130	8	8	8	8	8
135	8	8	9	9	9
140	9	9	9	9	9
145	10	10	10	10	9
150	11	10	10	10	10
155	10	10	10	10	10
160	11	10	10	10	10
165	11	10	10	10	10
170	11	10	10	10	10
175	10	10	10	10	10
180	10	10	10	10	10

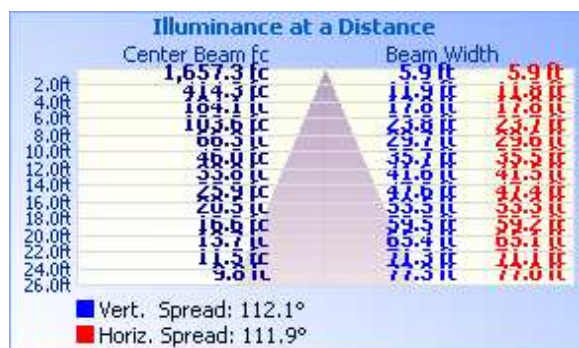


RESULTS OF TEST (cont'd)

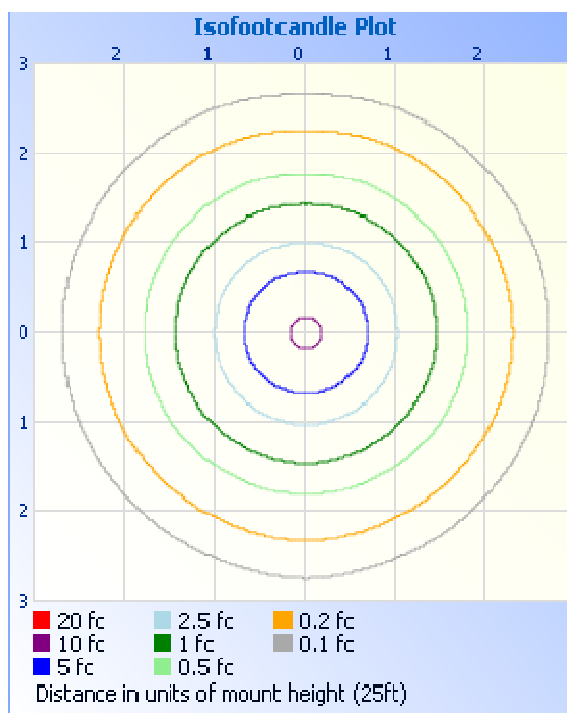
Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light



Isoillumination Plot



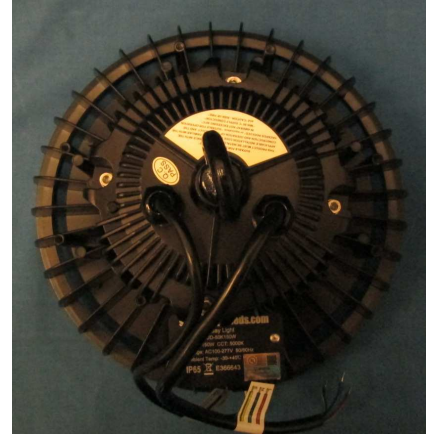
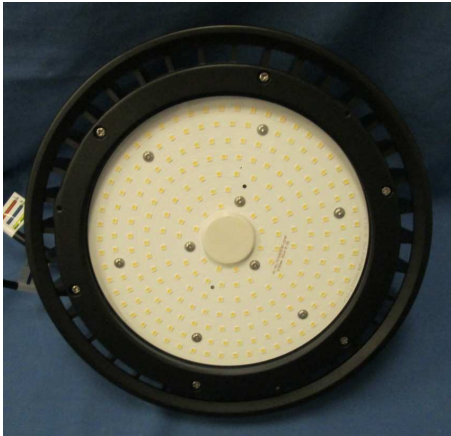
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	5256	28.4
0-40	8702	47.1
0-60	15310	82.8
60-90	3128	16.9
0-90	18439	99.8
90-180	41.1	0.2
0-180	18480	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	629.4	3.4
10-20	1821	9.9
20-30	2805	15.2
30-40	3447	18.7
40-50	3542	19.2
50-60	3066	16.6
60-70	2120	11.5
70-80	900.5	4.9
80-90	107.6	0.6
90-100	4.1	0.0
100-110	4.6	0.0
110-120	5.5	0.0
120-130	6.1	0.0
130-140	6.4	0.0
140-150	5.9	0.0
150-160	4.6	0.0
160-170	2.9	0.0
170-180	1.0	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