REPORT

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

Project No. G103157522 Date: February 15, 2018

REPORT NO. 103157522CHI-034

TEST OF ONE 500W HIGH BAY LUMINAIRE

MODEL NO. HBUD-50K500W
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-50K500W. The sample was received by Intertek on February 8, 2018, in undamaged condition and one sample was tested as received. The sample designation was AH02082018033253-034.

DATES OF TESTS: February 13, 2018 through February 15, 2018.

SUMMARY

Model No.:	HBUD-50K500W
Description:	500W High Bay Luminaire

	Result	
Criteria	Sphere	Goniometer
Total Lumen Output (Lumens)	60541	57854
Total Power (W)	483.8	483.8
Luminaire Efficacy (LPW)	125.1	119.6

Criteria	Result
Power Factor	0.996
Current ATHD %	3.80
Correlated Color Temperature (CCT - K)	5136
Color Rendering Index (CRI - Ra)	86.0
Color Rendering Index (CRI - R9)	24.1
DUV	0.001
Chromaticity Coordinate (x)	0.342
Chromaticity Coordinate (y)	0.352
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	02/15/18
Omega Newport Thermometer	DPI8-C24	146920	10/04/17	10/04/18	02/15/18
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	02/15/18
Newport Thermohygrometer	iServer	146382	03/22/17	03/22/18	02/15/18
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	02/15/18
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℃ +/- 1℃) - Integrating Sphere Met hod

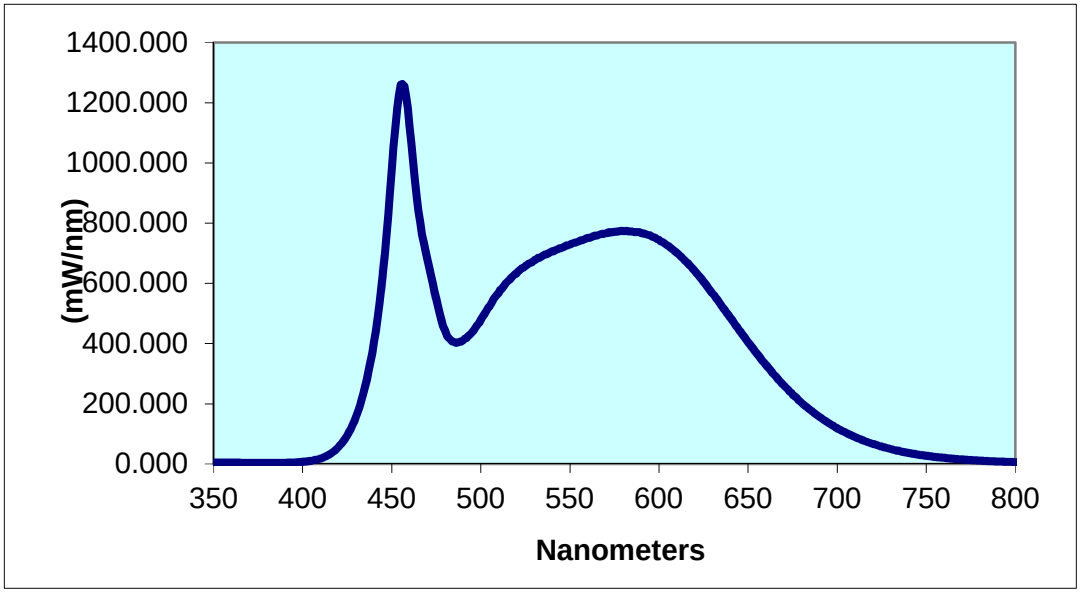
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH02082018033253-034	UP	120.0	4048	483.8	0.996	3.80	60541	125.1

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')
5136	86.0	24.1	0.001	0.342	0.352	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	4.587	440	404.9	530	676.6	620	641.5	710	89.65
355	5.020	445	634.1	535	692.8	625	605.8	715	77.60
360	4.876	450	980.2	540	706.2	630	566.5	720	67.10
365	4.453	455	1,260.2	545	716.7	635	527.5	725	57.86
370	4.254	460	1,123.9	550	728.9	640	486.2	730	49.89
375	3.970	465	840.7	555	740.1	645	445.0	735	42.95
380	3.898	470	680.2	560	751.1	650	405.2	740	37.02
385	3.971	475	548.6	565	758.4	655	366.1	745	31.88
390	4.249	480	441.5	570	766.4	660	328.9	750	27.43
395	5.242	485	404.6	575	771.9	665	294.2	755	23.62
400	7.172	490	411.0	580	773.3	670	261.5	760	20.57
405	10.81	495	436.2	585	772.8	675	231.9	765	17.68
410	18.26	500	479.0	590	767.0	680	204.1	770	15.20
415	31.76	505	525.1	595	759.6	685	179.3	775	13.06
420	55.74	510	568.9	600	744.8	690	157.1	780	11.37
425	94.95	515	606.4	605	725.0	695	137.0		
430	157.3	520	633.4	610	701.5	700	119.1		
435	255.9	525	657.6	615	673.8	705	103.5		

Spectral Data Over Visible Wavelengths



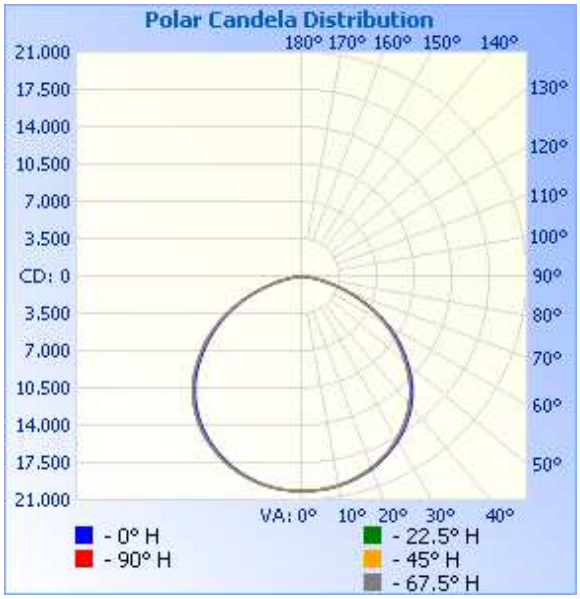
RESULTS OF TEST (cont'd)

Photometric and Electrical Measurements at Ambient Temperature (25℃ +/- 1℃) – 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)
AH02082018033253-034	UP	120.0	4052	483.8	0.995	57854	119.6

Intensity (Candlepower) Summary at 25℃ - Candelas

Angle	0	22.5	45	67.5	90
0	20152	20152	20152	20152	20152
5	20133	20108	20111	20105	20105
10	19984	19924	19926	19920	19913
15	19681	19584	19589	19579	19572
20	19258	19116	19112	19090	19096
25	18663	18484	18482	18463	18467
30	17938	17725	17720	17697	17692
35	17037	16786	16780	16771	16759
40	15929	15666	15660	15646	15632
45	14630	14286	14290	14313	14310
50	13024	12676	12681	12690	12705
55	11320	10978	10966	10946	10978
60	9489	9119	9125	9116	9107
65	7388	7071	7070	7067	7063
70	5294	4968	4960	4953	4963
75	3192	2914	2928	2920	2908
80	1410	1222	1234	1242	1235
85	293	218	230	233	238
90	12	12	12	14	16
95	8	8	8	8	7
100	8	8	8	8	8
105	8	10	10	10	10
110	11	12	11	11	11
115	12	13	13	13	13
120	14	15	15	15	15
125	17	17	17	17	17
130	20	19	19	19	19
135	23	21	21	22	22
140	27	23	23	24	24
145	28	24	25	24	24
150	28	25	25	25	25
155	29	26	26	26	26
160	29	26	26	26	26
165	28	26	26	26	26
170	28	27	27	27	27
175	28	28	27	28	27
180	27	27	27	27	27



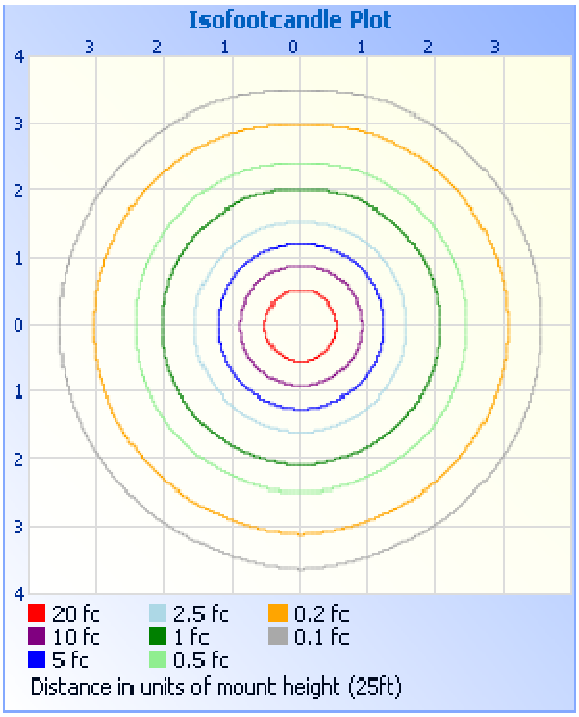
RESULTS OF TEST (cont'd)

Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light

Isoillumination Plot



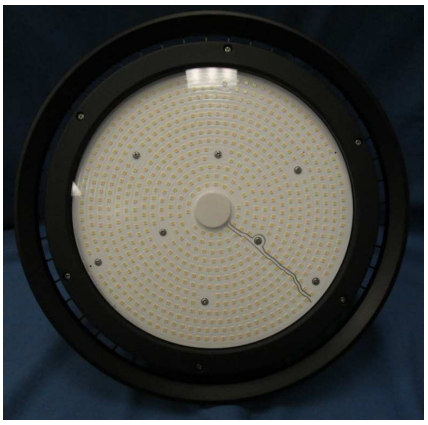
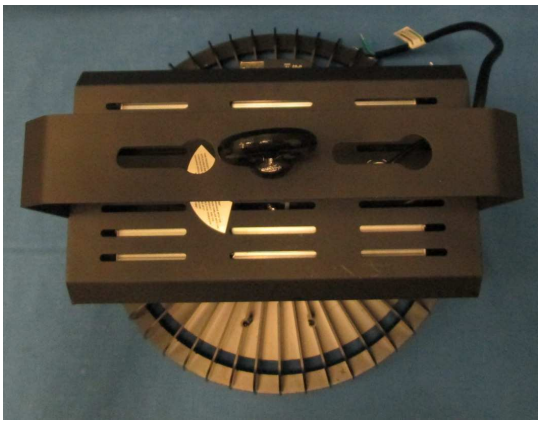
Zonal Lumen Summary and Percentages at 25℃

Zone	Lumens	% Luminaire
0-30	15959	27.6
0-40	26442	45.7
0-60	47225	81.6
60-90	10528	18.2
0-90	57753	99.8
90-180	100.8	0.2
0-180	57854	100.0

Zonal Lumens and Percentages at 25℃

Zone	Lumens	% Luminaire
0-10	1913	3.3
10-20	5530	9.6
20-30	8516	14.7
30-40	10483	18.1
40-50	11002	19.0
50-60	9782	16.9
60-70	6972	12.1
70-80	3139	5.4
80-90	416.4	0.7
90-100	9.1	0.0
100-110	10.2	0.0
110-120	12.9	0.0
120-130	15.1	0.0
130-140	16.4	0.0
140-150	15.2	0.0
150-160	11.8	0.0
160-170	7.4	0.0
170-180	2.6	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:

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Report Reviewed By:

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Attachment: None