REPORT

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

Project No. G102748333 Date: January 25, 2017

REPORT NO. 102748333CHI-020

TEST OF ONE LED HIGH BAY LIGHT FIXTURE - TROFFER STYLE

MODEL NO. HBLT-50K200W-120
LED MODEL NO. EPISTAR SOW2835
DRIVER MODEL NO. ADAYO PS-345-20C070A

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 HBLT-50K200W-120. The sample was received by Intertek on January 20, 2017, in undamaged condition and one sample was tested as received. The sample designation was AH01202017035722D.

DATES OF TESTS: January 24, 2017 through January 25, 2017.

SUMMARY

Model No.:	HBLT-50K200W-120
Description:	LED High Bay Light Fixture - Troffer Style

Criteria	Result
Total Lumen Output (Lumens)	23736
Total Power (W)	195.7
Luminaire Efficacy (LPW)	121.3
Power Factor at 120Vac	0.999
Power Factor at 277Vac	0.961
Current ATHD % at 120Vac	3.53
Current ATHD % at 277Vac	6.21
Correlated Color Temperature (CCT - K)	5209
Color Rendering Index (CRI - Ra)	84.5
Color Rendering Index (CRI - R9)	13.6
DUV	0.002
Chromaticity Coordinate (x)	0.340
Chromaticity Coordinate (y)	0.352
Chromaticity Coordinate (u')	0.208
Chromaticity Coordinate (v')	0.484

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	01/25/17
Omega Newport Thermometer	DPI8-C24	146920	10/07/16	10/07/17	01/25/17
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	01/25/17
Newport Thermohygrometer	iServer	146956	01/06/17	01/06/18	01/25/17
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	01/25/17
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	01/24/17
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	01/24/17
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	01/24/17
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	01/24/17
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	01/24/17
Yokogawa Power Meter	WT1600	146768	01/10/17	01/10/18	01/24/17
Fluke K/J Thermometer	52	146004	01/10/17	01/10/18	01/24/17

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.

RESULTS OF TEST

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

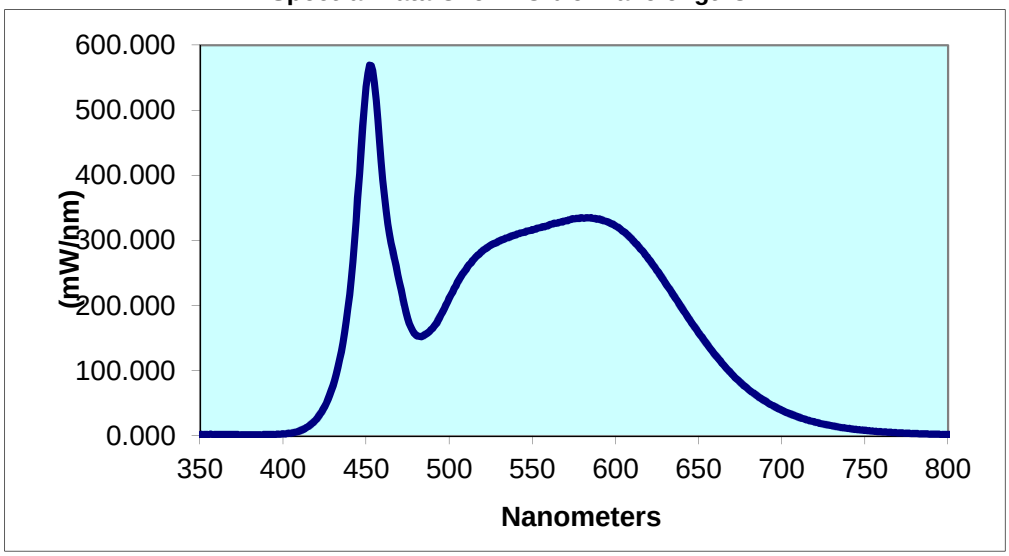
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)
AH01202017035722D	Up	120.0	1637	196.18	0.999	3.53
		277.0	724.3	192.8	0.961	6.21

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')
5209	84.5	13.6	0.002	0.340	0.352	0.208	0.484

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	2.201	440	216.7	530	299.4	620	271.4	710	28.98
355	2.181	445	365.4	535	304.2	625	253.8	715	24.84
360	2.196	450	536.5	540	308.5	630	234.9	720	21.31
365	2.068	455	542.2	545	312.9	635	215.8	725	18.31
370	1.846	460	393.3	550	316.6	640	196.1	730	15.62
375	1.748	465	296.3	555	320.2	645	176.8	735	13.41
380	1.698	470	236.4	560	323.7	650	158.3	740	11.48
385	1.655	475	180.3	565	326.9	655	141.0	745	9.843
390	1.834	480	155.0	570	330.3	660	124.5	750	8.475
395	2.245	485	154.8	575	333.1	665	108.9	755	7.284
400	3.005	490	165.3	580	334.7	670	94.85	760	6.340
405	4.574	495	186.0	585	335.1	675	82.42	765	5.462
410	7.862	500	211.3	590	333.3	680	71.52	770	4.677
415	14.27	505	235.9	595	328.7	685	61.92	775	4.045
420	25.40	510	255.2	600	322.6	690	53.56	780	3.499
425	45.10	515	271.9	605	313.4	695	46.13		
430	77.09	520	283.9	610	301.6	700	39.56		
435	129.5	525	293.0	615	287.3	705	33.89		

Spectral Data Over Visible Wavelengths



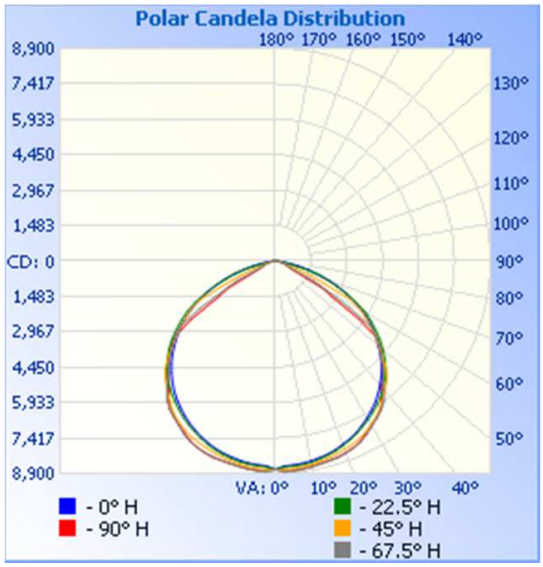
RESULTS OF TEST (cont'd)

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)
AH01202017035722D	Up	120.0	1631	195.7	1.000	23736	121.3

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	8729	8729	8729	8729	8729
5	8578	8626	8733	8826	8794
10	8502	8563	8660	8752	8721
15	8376	8414	8536	8665	8645
20	8162	8223	8386	8553	8543
25	7928	7972	8212	8365	8321
30	7592	7673	7944	7996	7938
35	7212	7339	7541	7633	7597
40	6751	6948	7060	6979	6854
45	6225	6457	6512	6286	6276
50	5582	5833	5607	5614	5671
55	4918	5092	4830	4875	4255
60	4143	4315	4072	2465	2237
65	3274	3277	2259	685	646
70	2339	2284	642	506	510
75	1429	1279	347	356	355
80	655	193	208	218	218
85	157	85	108	121	124
90	0	0	0	0	0

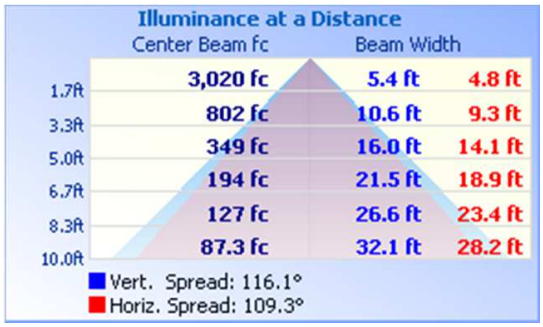


RESULTS OF TEST (cont'd)

Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



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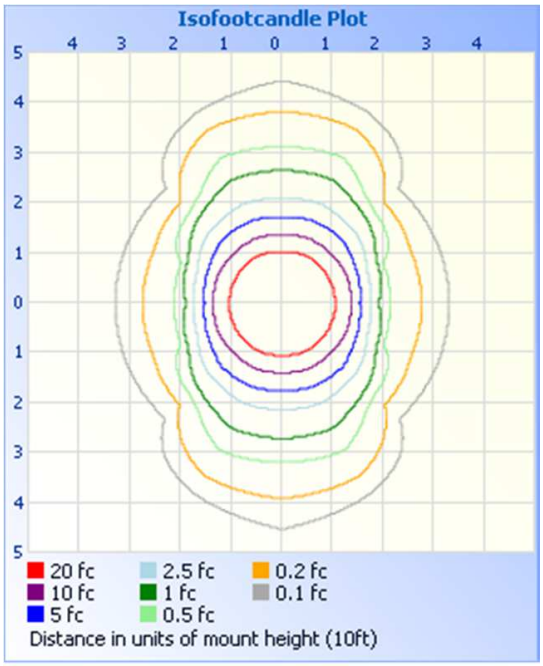


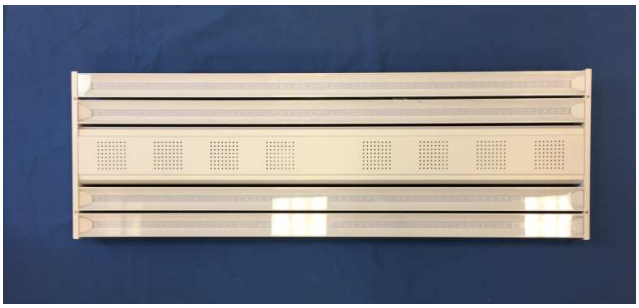
Zonal Lumen Summary and Percentages at 25°C

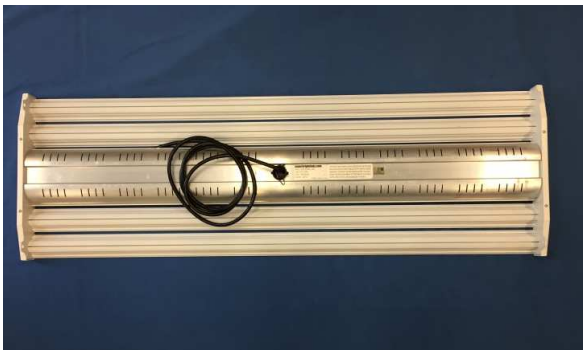
Zone	Lumens	% Luminaire
0-30	6987	29.4
0-40	11632	49.0
0-60	20685	87.1
60-90	3051	12.9
0-90	23736	100.0
90-180	0.0	0.0
0-180	23736	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	829.1	3.5
10-20	2408	10.1
20-30	3750	15.8
30-40	4645	19.6
40-50	4870	20.5
50-60	4184	17.6
60-70	2179	9.2
70-80	742.1	3.1
80-90	130.0	0.5

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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Lighting Division

Report Reviewed By:

Timothy Quigley
Engineer
Lighting Division

Attachment: None