

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

Electrical and Photometric tests as required to the IESNA test standard.

MODEL NUMBER

700PBOW9xx12ZUNV

REPORT NUMBER

103017649CHI-075

ISSUE DATE

June 12, 2018

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT NO.: 103017649CHI-075

REPORT DATE: June 12, 2018

TEST REPORT

TEST OF ONE OUTDOOR PENDANT

MODEL NO. 700OPBOW9XX12ZUNV
LED MODEL NO. EVERLIGHT: 67-21S/HK5C-EXXXX
DRIVER MODEL NO. EPT: PVD20-C050V40-UNV3-P

RENDERED TO:

VISUAL COMFORT GROUP
7400 LINDER AVE.
SKOKIE IL 60077

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-00779063-2.

STANDARDS USED

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting
ANSI NEMA ANSLG C78.377: 2015: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE

The client submitted one Prototype sample of model number 700OPBOW9xx12ZUNV. The sample was received by Intertek on May 24, 2018 in undamaged condition and one sample was tested as received. The sample designation was AH05242018032942A.

DATE OF TESTS

June 2, 2018 through June 4, 2018.

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SUMMARY

MODEL NO:	7000PBOW9xx12ZUNV
DESCRIPTION:	Outdoor pendant

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	1320.1	1258.3
Input Power (W) @ 120 (VAC)	21.35	21.192
Lumen Efficacy (lm/W)	61.8	59.4
Input Power Factor () @ 120 (VAC)	0.995	0.996

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	9.63
Correlated Color Temperature (K)	3913
Color Rendering Index - Ra ()	84.2
Color Rendering - R9 ()	12.8
DUV ()	0.0009
Chromaticity Coordinate (x)	0.385
Chromaticity Coordinate (y)	0.382
Chromaticity Coordinate (u')	0.226
Chromaticity Coordinate (v')	0.505
Input Power Factor (W) @ 277 (VAC)	0.938
Input Current ATHD (%) @ 277 (VAC)	19.96
BUG Rating	B1-U2-G1

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TEST REPORT

EQUIPMENT LIST

EQUIPMENT USED	MODEL NO.	CONTROL NO.	LAST CAL DATE	CAL DUE DATE
Yokogawa Power Meter	WT210	146919	7/10/2017	7/10/2018
Omega Newport Thermometer	DPI8-C24	146920	10/4/2017	10/4/2018
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
Newport Thermohygrometer	iServer	146957	11/17/2017	11/17/2018
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU
3 Meter Sphere	SPR600	CHI0088	VBU	VBU
Elgar AC Power Supply	CW1251	146112	VBU	VBU
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU
Newport Humidity Recorder	iTHX-SD	146961	7/14/2017	7/14/2018
Yokogawa Power Meter	WT1600	146768	10/3/2017	10/3/2018
Extech K Temperature Meter	SD200	CHI0207	4/12/2018	4/12/2019

TEST REPORT

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 Spectroradiometer and integrating 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. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a 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 Type C Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for the SSL sample.

Ambient temperature was measured equal to the height of the sample mounted on the goniometer equipment. The SSL sample was operated on the client provided driver at rated input volts in its designated orientation. The SSL sample was allowed to stabilize for at least thirty minutes before measurements were made. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a power analyzer.

TEST REPORT

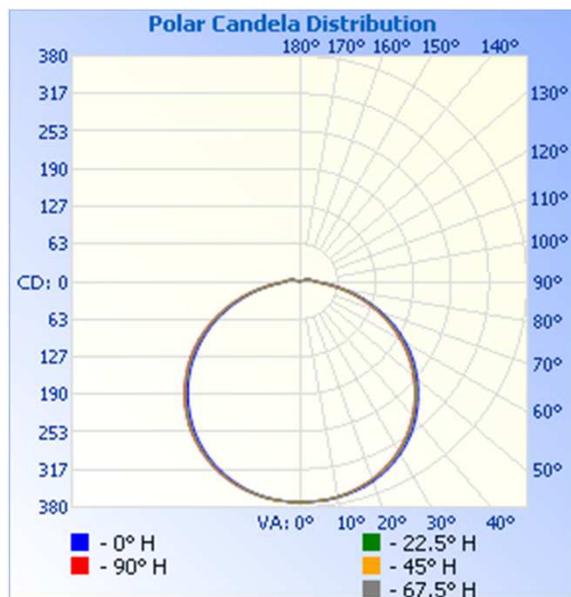
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR ()	LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)
AH05242018032942A	Base Up	119.9	177.4	21.192	0.996	1258.3	59.4

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	371	371	371	371	371
5	371	371	370	370	370
10	369	368	368	368	368
15	365	363	363	362	362
20	358	355	355	354	354
25	348	344	344	344	343
30	335	332	331	330	329
35	320	316	315	314	313
40	301	297	296	295	294
45	279	275	274	273	272
50	256	252	251	250	248
55	232	226	225	224	222
60	204	198	197	196	194
65	174	169	167	166	164
70	143	138	136	135	133
75	111	106	104	103	101
80	78	74	73	72	70
85	50	46	45	44	43
90	29	27	27	27	27
95	23	22	22	22	22
100	17	17	17	17	17
105	13	12	12	12	12
110	8	8	8	8	8
115	4	4	4	4	4



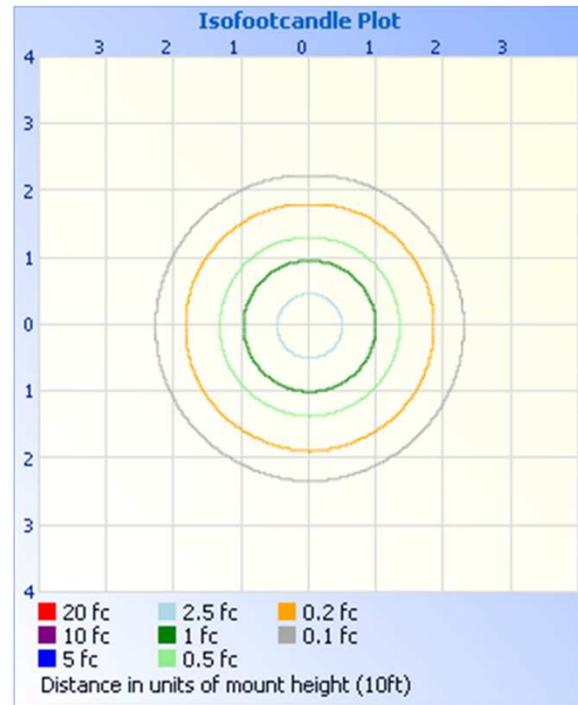
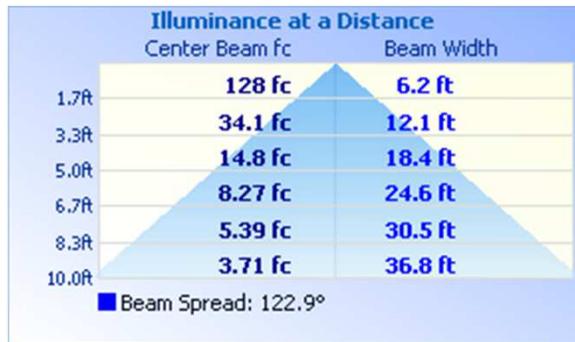
TEST REPORT

RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

MOUNTING HEIGHT: 10ft

ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT
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ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	295.7	23.5
0-40	491.6	39.1
0-60	900.1	71.5
60-90	317.9	25.3
70-100	179.0	14.2
90-120	40.3	3.2
0-90	1218.0	96.8
90-180	40.3	3.2
0-180	1258.3	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	35.3	2.8
10-20	102.3	8.1
20-30	158.2	12.6
30-40	195.9	15.6
40-50	209.9	16.7
50-60	198.6	15.8
60-70	162.3	12.9
70-80	106.6	8.5
80-90	49.0	3.9
90-100	23.4	1.9
100-110	12.9	1.0
110-120	4.0	0.3

TEST REPORT

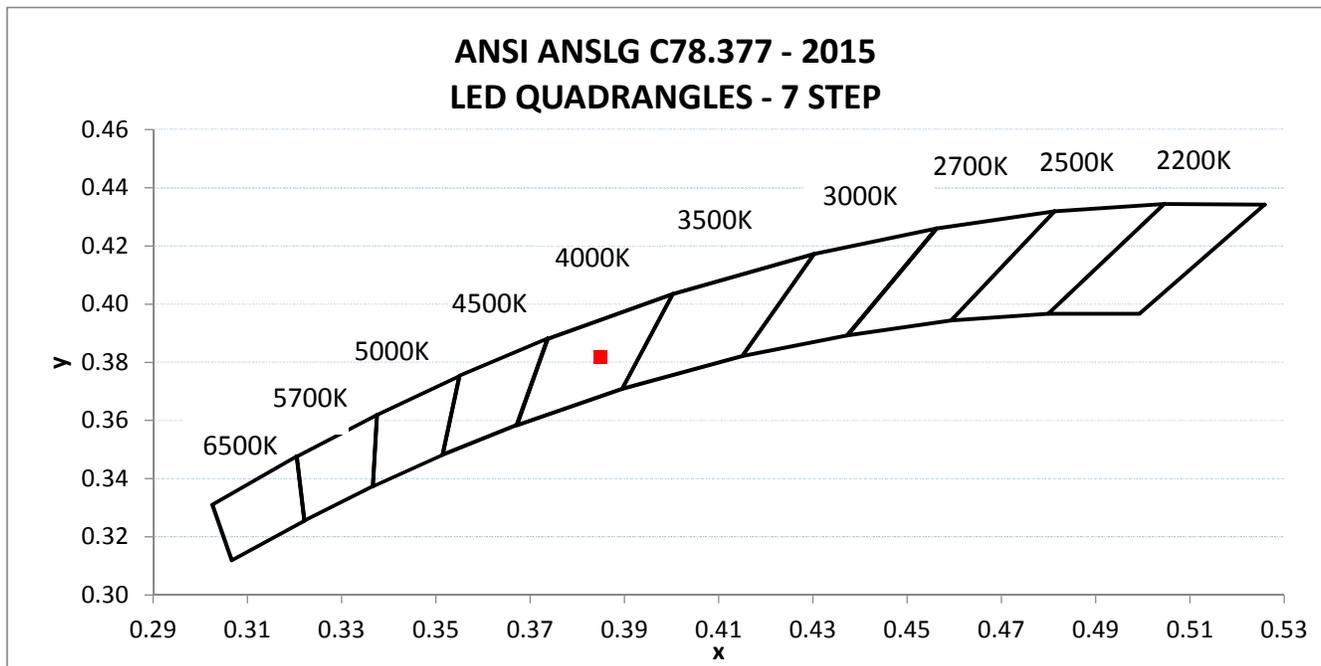
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR ()	INPUT CURRENT ATHD (%)
AH05242018032942A	Base Up	120.03 276.99	178.72 80.4	21.35 20.90	0.995 0.938	9.63 19.96

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra ()	CRI - R9 ()	DUV ()
1320.1	61.8	3913	84.2	12.8	0.0009

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.385	0.382	0.226	0.505



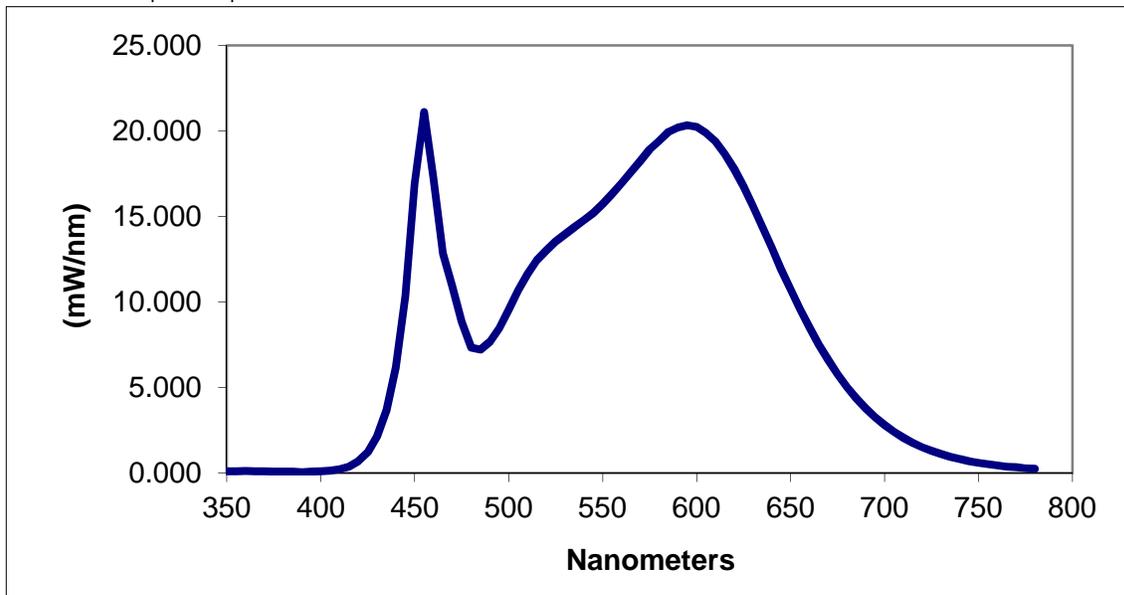
TEST REPORT

RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

SPECTRAL DISTRIBUTION OVER VISIBLE WAVELENGTHS*							
nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.097	460	17.261	570	18.257	680	5.027
355	0.087	465	12.828	575	18.925	685	4.364
360	0.100	470	10.939	580	19.424	690	3.779
365	0.083	475	8.842	585	19.932	695	3.267
370	0.082	480	7.323	590	20.194	700	2.805
375	0.075	485	7.207	595	20.336	705	2.413
380	0.067	490	7.684	600	20.231	710	2.064
385	0.071	495	8.468	605	19.893	715	1.768
390	0.030	500	9.556	610	19.387	720	1.513
395	0.078	505	10.661	615	18.658	725	1.297
400	0.095	510	11.650	620	17.772	730	1.110
405	0.134	515	12.446	625	16.760	735	0.947
410	0.214	520	13.016	630	15.592	740	0.810
415	0.374	525	13.542	635	14.403	745	0.693
420	0.680	530	13.966	640	13.171	750	0.594
425	1.211	535	14.380	645	11.929	755	0.513
430	2.136	540	14.794	650	10.732	760	0.439
435	3.673	545	15.200	655	9.589	765	0.378
440	6.177	550	15.734	660	8.519	770	0.324
445	10.347	555	16.319	665	7.518	775	0.279
450	16.907	560	16.953	670	6.598	780	0.242
455	21.090	565	17.574	675	5.779		

*Without correction of sample absorption.



TEST REPORT

End Of Test Results

PICTURES



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
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Lighting Division

Report Reviewed By:

Vladimir Kozak
Engineering Supervisor
Lighting Division

Attachments: IES File

REVISION HISTORY

JOB NUMBER	DATE OF REVISION	PROJECT HANDLER	REVIEWED BY	REVISION NOTE
None				