

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

700OPROT9xx18BUNV

REPORT NUMBER

103017649CHI-076

ISSUE DATE

June 12, 2018

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT NO.: 103017649CHI-076

REPORT DATE: June 12, 2018

TEST REPORT

TEST OF ONE OUTDOOR PENDANT

MODEL NO. 700OPROT9XX18BUNV
LED MODEL NO. EVERLIGHT: 67-21S/HK5C-EXXX
DRIVER MODEL NO. EPT: PVD36-C090V40-UNV4-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 700OPROT9xx18BUNV. The sample was received by Intertek on May 24, 2018 in undamaged condition and one sample was tested as received. The sample designation was AH05242018032942B.

DATE OF TESTS

June 2, 2018 through June 4, 2018.

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SUMMARY

MODEL NO:	700OPROT9xx18BUNV
DESCRIPTION:	Outdoor pendant

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	2556.4	2462.4
Input Power (W) @ 120 (VAC)	36.18	36.097
Lumen Efficacy (lm/W)	70.7	68.2
Input Power Factor () @ 120 (VAC)	0.993	0.994

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	11.46
Correlated Color Temperature (K)	4001
Color Rendering Index - Ra ()	84.8
Color Rendering - R9 ()	16.0
DUV ()	0.0001
Chromaticity Coordinate (x)	0.381
Chromaticity Coordinate (y)	0.379
Chromaticity Coordinate (u')	0.225
Chromaticity Coordinate (v')	0.503
Input Power Factor (W) @ 277 (VAC)	0.908
Input Current ATHD (%) @ 277 (VAC)	22.11
BUG Rating	B1-U2-G1

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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

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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.

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TEST REPORT

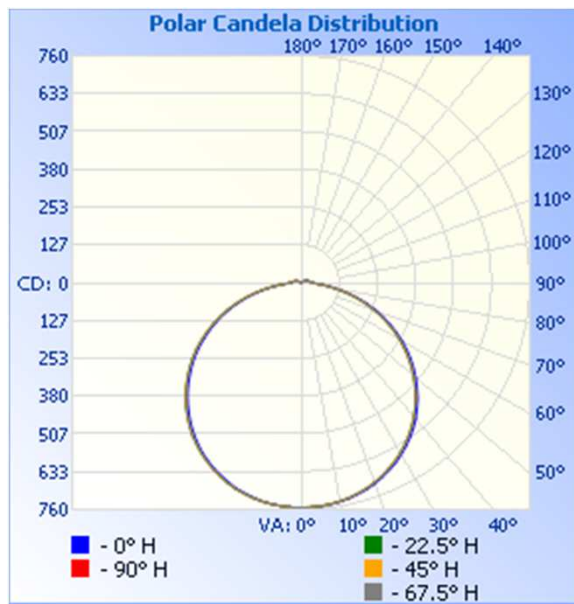
RESULTS OF TESTS

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)
AH05242018032942B	Base Up	120.0	302.8	36.097	0.994	2462.4	68.2

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	752	752	752	752	752
5	751	750	751	751	751
10	745	743	743	743	743
15	733	730	731	730	731
20	717	711	712	712	713
25	694	687	687	687	689
30	665	658	658	659	660
35	631	623	623	624	626
40	593	583	583	584	586
45	547	537	538	538	540
50	497	487	488	489	491
55	445	434	435	435	437
60	387	376	376	378	379
65	326	313	315	316	318
70	261	249	251	252	254
75	194	184	185	187	189
80	128	119	120	121	124
85	71	65	66	67	68
90	39	37	37	37	37
95	33	32	32	32	31
100	29	28	28	27	27
105	24	23	23	22	22
110	20	18	18	18	17
115	15	14	14	13	13
120	11	10	10	9	9
125	6	6	6	5	5
130	3	3	3	2	2
135	1	1	1	1	1



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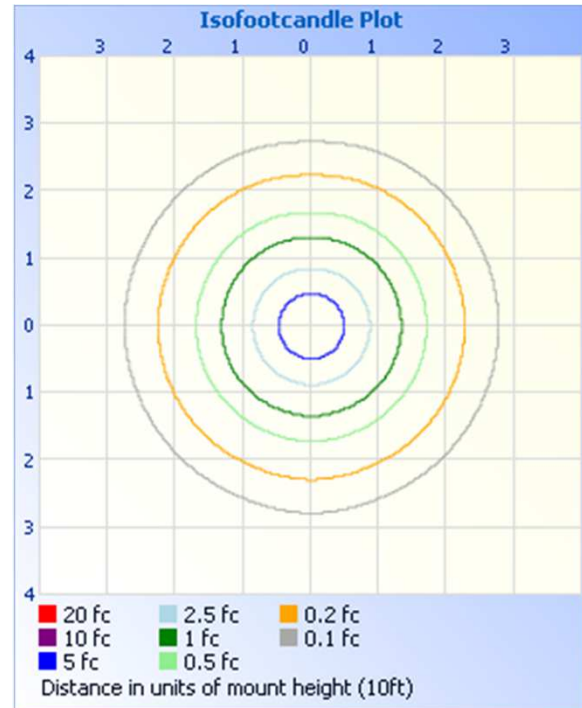
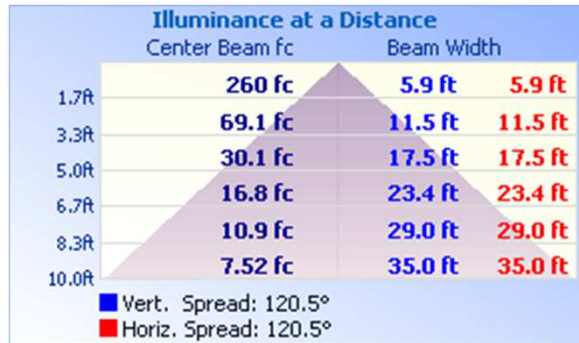
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RESULTS OF TESTS

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

MOUNTING HEIGHT: 10ft	
ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	595.5	24.2
0-40	986.8	40.1
0-60	1794.0	72.9
60-90	592.3	24.1
70-100	312.0	12.7
90-120	70.5	2.9
0-90	2386.3	96.9
90-180	76.1	3.1
0-180	2462.4	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	71.4	2.9
10-20	206.5	8.4
20-30	317.6	12.9
30-40	391.3	15.9
40-50	416.6	16.9
50-60	390.7	15.9
60-70	314.4	12.8
70-80	198.9	8.1
80-90	79.0	3.2
90-100	34.2	1.4
100-110	23.4	1.0
110-120	12.9	0.5
120-130	4.8	0.2
130-140	0.8	0.0

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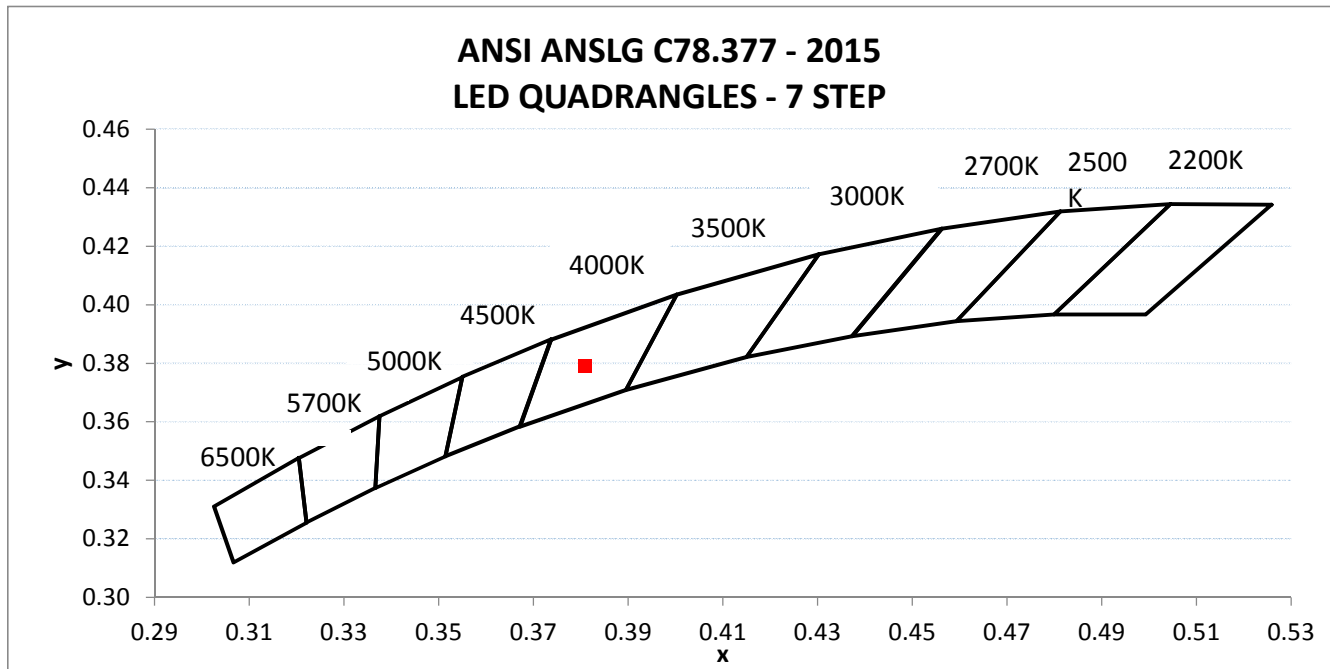
RESULTS OF TESTS

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 (%)
AH05242018032942B	Base Up	120.01	303.53	36.18	0.993	11.46
		277.01	141.1	35.47	0.908	22.11

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra ()	CRI - R9 ()	DUV ()
2556.4	70.7	4001	84.8	16.0	0.0001

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.381	0.379	0.225	0.503



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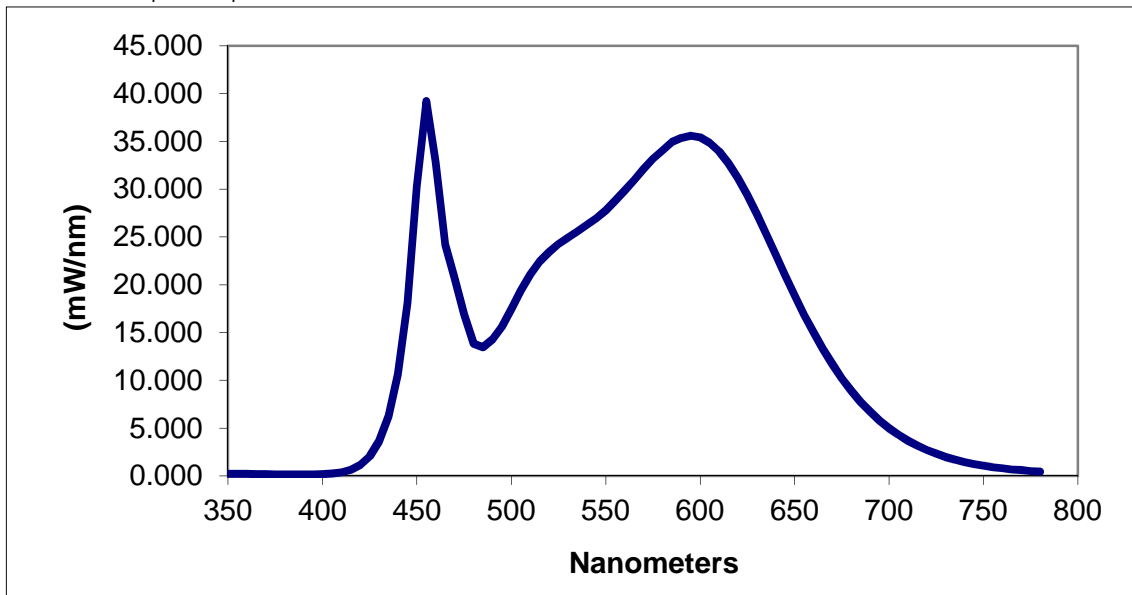
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PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

SPECTRAL DISTRIBUTION OVER VISIBLE WAVELENGTHS*							
nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.191	460	32.852	570	32.094	680	8.904
355	0.189	465	24.222	575	33.192	685	7.735
360	0.185	470	20.741	580	34.066	690	6.715
365	0.160	475	16.915	585	34.915	695	5.792
370	0.148	480	13.832	590	35.363	700	4.993
375	0.141	485	13.446	595	35.608	705	4.302
380	0.133	490	14.288	600	35.428	710	3.687
385	0.133	495	15.597	605	34.849	715	3.161
390	0.130	500	17.475	610	33.955	720	2.699
395	0.142	505	19.392	615	32.717	725	2.325
400	0.171	510	21.083	620	31.163	730	1.987
405	0.229	515	22.448	625	29.384	735	1.700
410	0.369	520	23.436	630	27.375	740	1.451
415	0.638	525	24.264	635	25.298	745	1.241
420	1.149	530	24.935	640	23.129	750	1.065
425	2.051	535	25.594	645	20.984	755	0.909
430	3.607	540	26.274	650	18.898	760	0.787
435	6.261	545	26.953	655	16.884	765	0.679
440	10.639	550	27.801	660	15.023	770	0.583
445	18.083	555	28.811	665	13.276	775	0.504
450	30.274	560	29.867	670	11.667	780	0.435
455	39.205	565	30.924	675	10.210		

*Without correction of sample absorption.



End Of Test Results

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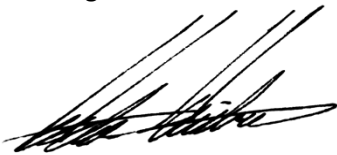
PICTURES



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
Associate Engineer
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				