

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

700SPCTG-LED930

REPORT NUMBER

103982892CHI-017

ISSUE DATE

June 25, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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TEST REPORT

REPORT NO.: 103982892CHI-017

REPORT DATE: June 25, 2019

TEST OF ONE LED PENDANT

MODEL NO. 700SPCTG-LED930
LED MODEL NO. LUMINUS MP-3030-2100-30-90
DRIVER MODEL NO. EPT D50-1200RC3

RENDERED TO:

VISUAL COMFORT GROUP
7400 LINDER AVE.
SKOKIE, IL 60077

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-00981438-0.

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 production sample of model number 700SPCTG-LED930. The sample was received by Intertek on June 14, 2019 in undamaged condition and one sample was tested as received. The sample designation was AH06142019092403-17.

DATE OF TESTS

June 19, 2019 through June 21, 2019.

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**TEST REPORT
SUMMARY**

MODEL NO:	700SPCTG-LED930
DESCRIPTION:	LED pendant

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	2771.0	2626.2
Input Power (W) @ 120 (VAC)	46.63	46.67
Lumen Efficacy (lm/W)	59.4	56.3
Input Power Factor @ 120 (VAC)	0.992	0.992

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	12.87
Correlated Color Temperature (K)	2952
Color Rendering Index - Ra	91.4
Color Rendering - R9	59.9
DUV	0.0002
Chromaticity Coordinate (x)	0.440
Chromaticity Coordinate (y)	0.405
Chromaticity Coordinate (u')	0.252
Chromaticity Coordinate (v')	0.522

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EQUIPMENT LIST

EQUIPMENT USED	MODEL NO.	CONTROL NO.	LAST CAL DATE	CAL DUE DATE
Yokogawa Power Meter	WT210	146919	7/9/2018	7/9/2019
Omega Newport Thermometer	DPI8-C24	146920	10/4/2018	10/4/2019
LSI High Speed Mirror Goniometer	6440T	146928	VBV	VBV
Newport Thermohygrometer	iServer	146957	12/11/2018	12/11/2019
Pacific, AC power supply	118-ACX	CHI0358	VBV	VBV
Labsphere Spectroradiometer	CDS1100	CHI0091	VBV	VBV
3 Meter Sphere	SPR600	CHI0088	VBV	VBV
Elgar AC Power Supply	CW1251	146112	VBV	VBV
Sorenson DC Power Supply	XFR150-8	146846	VBV	VBV
Newport Humidity Recorder	iTHX-SD	146961	7/23/2018	7/23/2019
Yokogawa Power Meter	WT1600	146769	4/3/2019	4/3/2020
Extech K Temperature Meter	SD200	CHI0207	4/3/2019	4/3/2020

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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

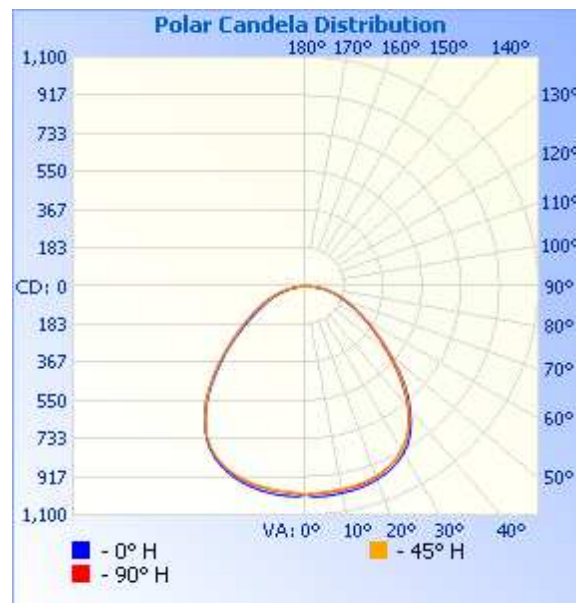
RESULTS OF TESTS

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)
AH06142019092403-17	Base Up	120.0	392.1	46.67	0.992	2626.2	56.3

INTENSITY SUMMARY - CANDELAS

Angle	0	45	90	135	180
0	1004	1004	1004	1004	1004
5	1013	993	998	1008	1012
10	1009	989	994	1006	1008
15	1002	983	988	1001	998
20	989	970	975	988	980
25	966	947	951	962	951
30	926	909	909	920	903
35	863	848	845	850	827
40	768	759	752	753	726
45	657	648	637	637	606
50	533	529	518	514	487
55	423	421	410	407	378
60	335	334	326	323	286
65	257	266	259	257	216
70	186	196	205	203	168
75	142	140	152	153	128
80	101	96	85	91	80
85	46	36	37	36	20
90	1	1	1	1	1
95	1	1	1	1	1
100	2	2	2	1	2
105	2	2	1	1	2
110	2	1	1	1	2
115	2	1	1	1	2
120	2	1	1	1	2
125	2	2	1	1	2
130	2	2	2	2	2
135	2	2	2	2	2



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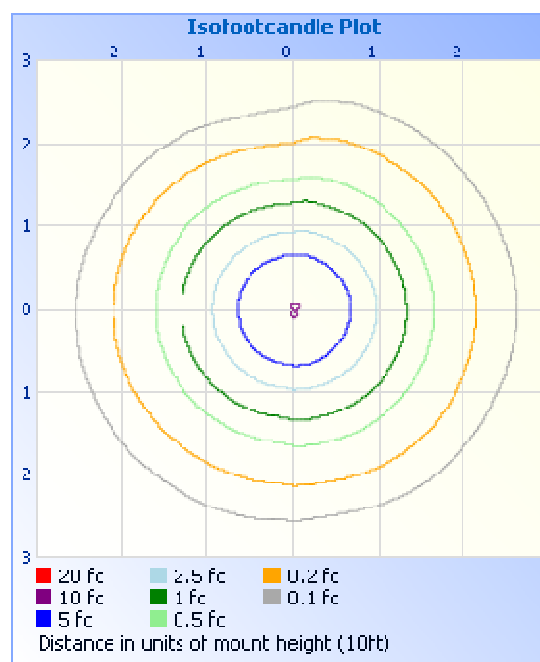
RESULTS OF TESTS

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	813.6	31.0
0-40	1336.5	50.9
0-60	2185.7	83.2
60-90	434.3	16.5
70-100	187.5	7.1
90-120	4.2	0.2
0-90	2619.9	99.8
90-180	6.3	0.2
0-180	2626.2	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	95.6	3.6
10-20	280.2	10.7
20-30	437.8	16.7
30-40	522.9	19.9
40-50	485.0	18.5
50-60	364.1	13.9
60-70	248.1	9.4
70-80	146.6	5.6
80-90	39.6	1.5
90-100	1.4	0.1
100-110	1.5	0.1
110-120	1.3	0.1
120-130	1.3	0.0
130-140	0.8	0.0

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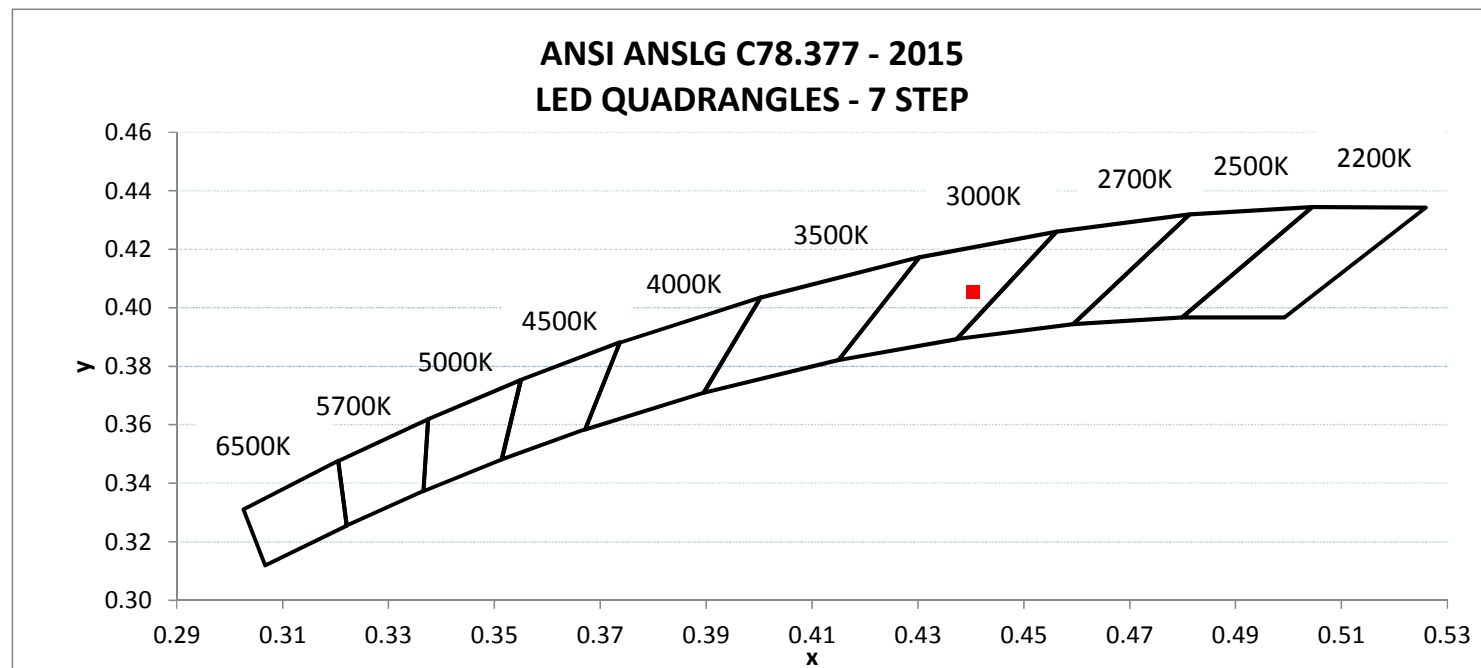
RESULTS OF TESTS

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 (%)
AH06142019092403-17	Base Up	120.01	391.74	46.63	0.992	12.87

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
2771.0	59.4	2952	91.4	59.9	0.0002

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.440	0.405	0.252	0.522



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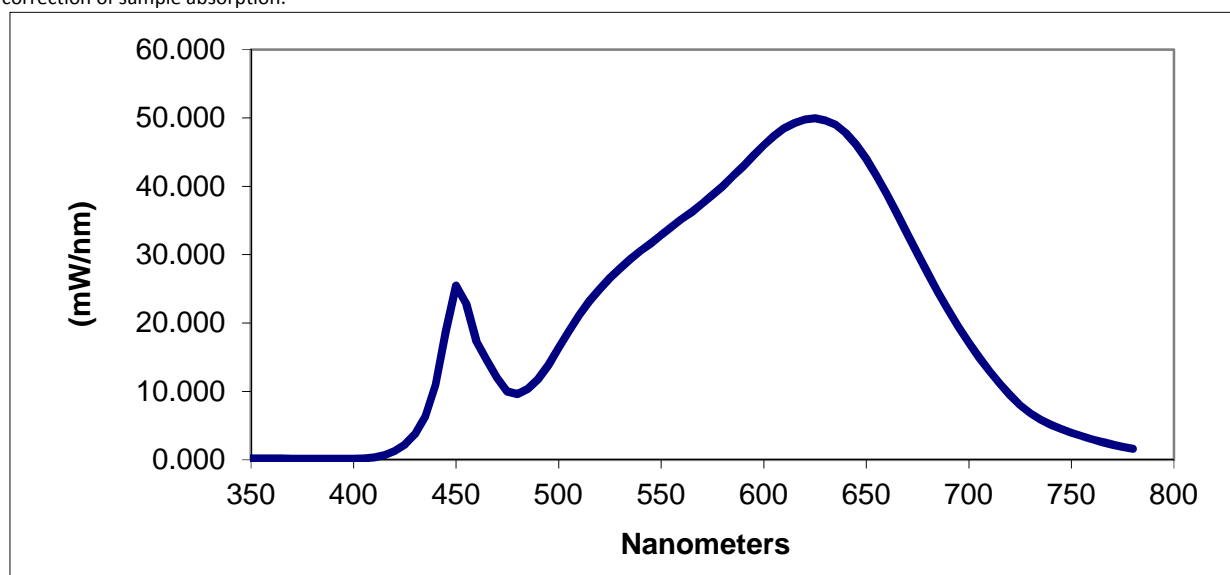
TEST REPORT

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	0.206	460	17.304	570	37.450	680	27.279
355	0.208	465	14.544	575	38.719	685	24.524
360	0.200	470	12.004	580	40.006	690	21.915
365	0.185	475	9.956	585	41.495	695	19.443
370	0.166	480	9.589	590	42.888	700	17.099
375	0.156	485	10.335	595	44.541	705	14.946
380	0.137	490	11.753	600	46.019	710	12.982
385	0.133	495	13.869	605	47.369	715	11.166
390	0.128	500	16.399	610	48.490	720	9.451
395	0.129	505	18.817	615	49.273	725	7.981
400	0.142	510	21.151	620	49.750	730	6.795
405	0.202	515	23.227	625	49.956	735	5.866
410	0.357	520	24.962	630	49.624	740	5.130
415	0.677	525	26.574	635	49.030	745	4.504
420	1.252	530	28.022	640	47.816	750	3.955
425	2.194	535	29.350	645	46.114	755	3.453
430	3.747	540	30.574	650	44.028	760	3.004
435	6.330	545	31.646	655	41.550	765	2.576
440	10.971	550	32.850	660	38.872	770	2.199
445	18.802	555	34.044	665	36.013	775	1.871
450	25.485	560	35.216	670	33.042	780	1.591
455	22.802	565	36.259	675	30.152		

*Without correction of sample absorption.



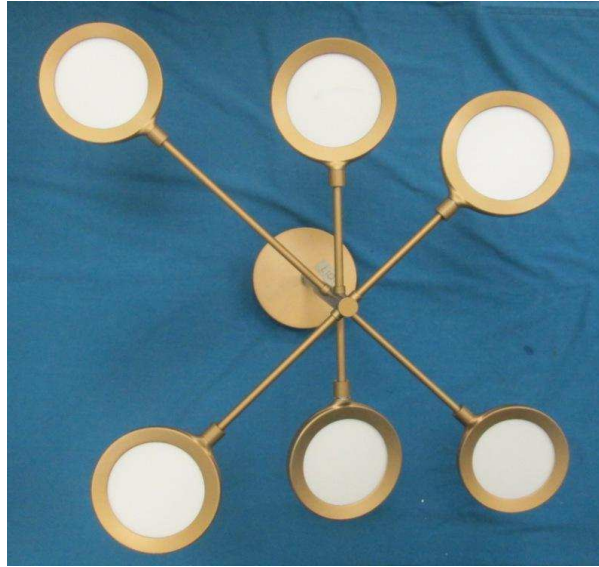
End Of Test Results

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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:

Timothy Quigley
Project Engineer
Lighting Division

Report Reviewed By:

Hector Huitron
Associate Engineer
Lighting Division

Attachments: IES File

REVISION HISTORY

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