

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

700FMVGOOR-LED930

REPORT NUMBER

103982892CHI-022

ISSUE DATE

June 26, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT DATE: June 26, 2019

TEST REPORT

TEST OF ONE LED FLUSHMOUNT

MODEL NO. 700FMVGOOR-LED930

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 700FMVGOOR-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 AH06142019092403-22.

DATE OF TESTS

June 21, 2019 through June 26, 2019.

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SUMMARY

MODEL NO:	700FMVGOOR-LED930
DESCRIPTION:	LED flushmount

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	1961.8	1916.6
Input Power (W) @ 120 (VAC)	22.02	22.05
Lumen Efficacy (lm/W)	89.1	86.9
Input Power Factor @ 120 (VAC)	0.925	0.980

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	23.06
Correlated Color Temperature (K)	3085
Color Rendering Index - Ra	92.6
Color Rendering - R9	61.0
DUV	0.0019
Chromaticity Coordinate (x)	0.429
Chromaticity Coordinate (y)	0.398
Chromaticity Coordinate (u')	0.248
Chromaticity Coordinate (v')	0.518

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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	146137	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

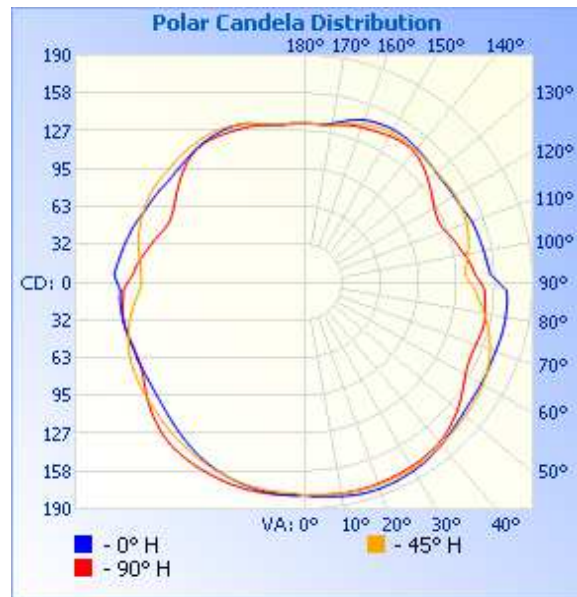
RESULTS OF TESTS

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)
AH06142019092403-22	Base Up	120.0	187.5	22.05	0.980	1916.6	86.9

INTENSITY SUMMARY - CANDELAS

Angle	0	25	45	65	90
0	178	178	178	178	178
5	180	180	172	172	173
10	182	181	172	172	173
15	184	182	172	172	173
20	184	183	172	172	173
25	184	182	171	172	173
30	182	181	170	172	173
35	180	179	168	171	172
40	178	176	165	170	171
45	174	173	162	168	168
50	172	170	160	167	164
55	170	168	158	166	159
60	170	168	158	166	155
65	170	167	158	165	152
70	169	164	158	162	152
75	170	162	158	154	154
80	170	159	157	143	154
85	170	155	156	129	152
90	162	146	155	118	152
95	154	142	152	118	149
100	152	142	149	129	144
105	150	142	144	138	137
110	148	142	139	140	129
115	146	140	130	135	120
120	144	139	121	126	114
125	143	137	114	116	112
130	143	138	107	110	112
135	144	140	100	105	113
140	146	143	93	102	112
145	147	144	88	100	109
150	148	145	83	95	103
155	147	144	79	90	96
160	145	142	77	91	101
165	140	138	81	100	108
170	135	134	88	110	109
175	133	133	98	114	104
180	133	133	133	133	133



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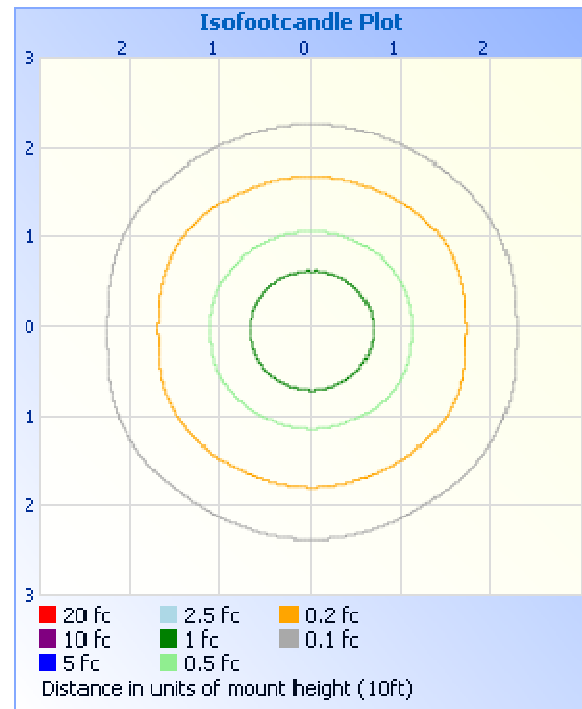
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RESULTS OF TESTS

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	150.3	7.8
0-40	260.2	13.6
0-60	539.4	28.1
60-90	487.5	25.4
70-100	481.5	25.1
90-120	443.2	23.1
0-90	1026.9	53.6
90-180	889.8	46.4
0-180	1916.6	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	17.1	0.9
10-20	50.8	2.7
20-30	82.4	4.3
30-40	109.9	5.7
40-50	131.5	6.9
50-60	147.7	7.7
60-70	159.8	8.3
70-80	165.6	8.6
80-90	162.1	8.5
90-100	153.8	8.0
100-110	149.4	7.8
110-120	140.0	7.3
120-130	126.7	6.6
130-140	111.0	5.8
140-150	91.0	4.7
150-160	66.2	3.5
160-170	39.0	2.0
170-180	12.7	0.7

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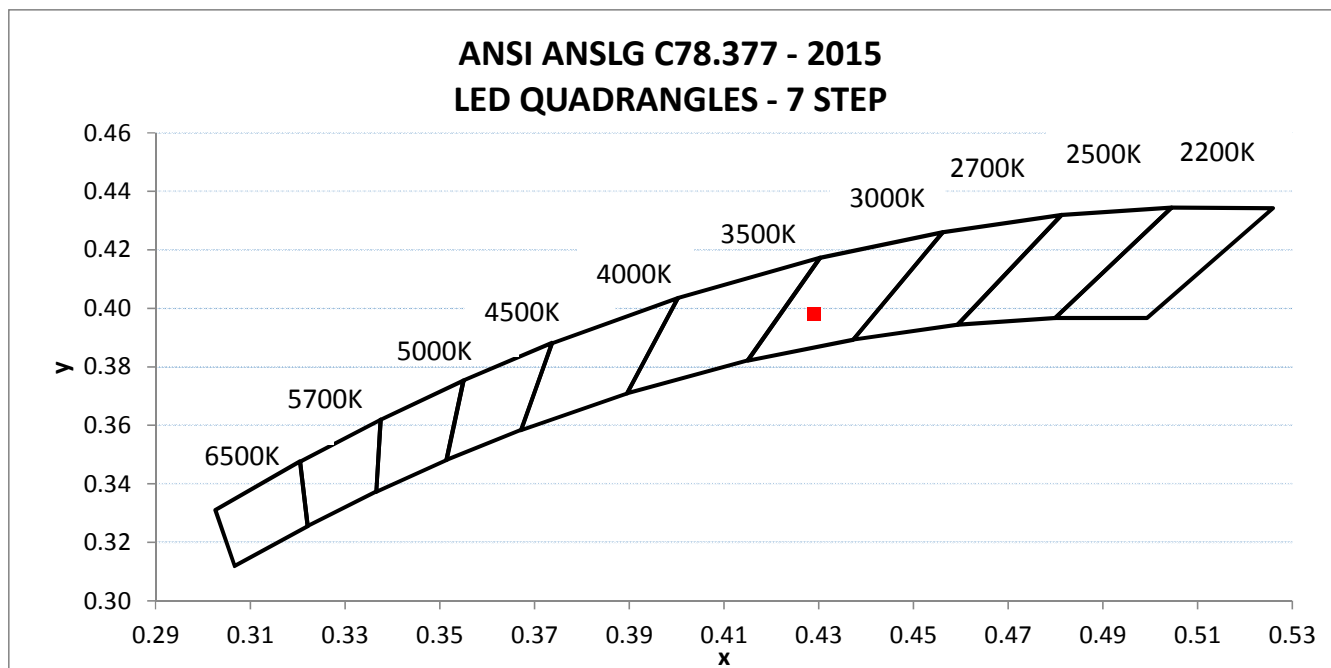
RESULTS OF TESTS

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 (%)
AH06142019092403-22	Base Up	119.99	198.30	22.02	0.925	23.06

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
1961.8	89.1	3085	92.6	61.0	0.0019

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.429	0.398	0.248	0.518



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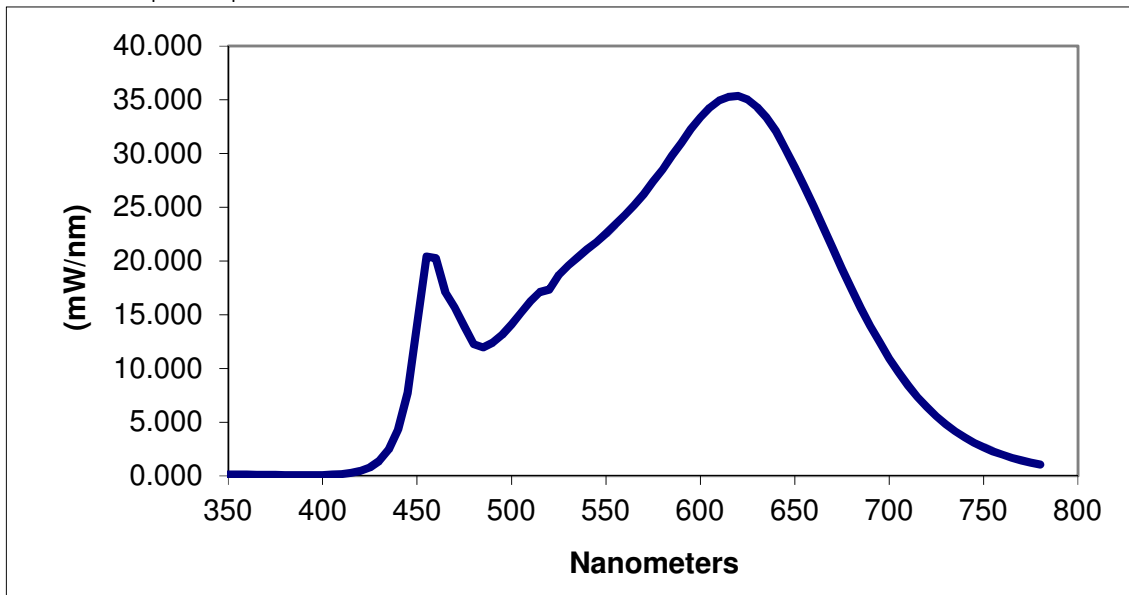
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RESULTS OF TESTS

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	0.143	460	20.272	570	26.224	680	17.410
355	0.139	465	17.094	575	27.371	685	15.626
360	0.135	470	15.683	580	28.516	690	13.963
365	0.129	475	13.930	585	29.804	695	12.460
370	0.120	480	12.271	590	30.972	700	10.935
375	0.108	485	11.962	595	32.278	705	9.627
380	0.098	490	12.421	600	33.356	710	8.413
385	0.092	495	13.114	605	34.245	715	7.360
390	0.084	500	14.119	610	34.936	720	6.411
395	0.092	505	15.180	615	35.281	725	5.566
400	0.100	510	16.238	620	35.355	730	4.827
405	0.131	515	17.108	625	35.042	735	4.164
410	0.189	520	17.351	630	34.302	740	3.596
415	0.296	525	18.688	635	33.360	745	3.100
420	0.485	530	19.582	640	32.074	750	2.672
425	0.813	535	20.323	645	30.467	755	2.295
430	1.400	540	21.104	650	28.730	760	1.978
435	2.461	545	21.743	655	26.954	765	1.701
440	4.321	550	22.557	660	25.094	770	1.457
445	7.746	555	23.393	665	23.179	775	1.249
450	13.990	560	24.294	670	21.206	780	1.071
455	20.411	565	25.183	675	19.290		

*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:

Timothy Quigley
Project Engineer
Lighting Division

Attachments: IES File

REVISION HISTORY

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