

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER
700FMLFOW-LED930

REPORT NUMBER
103982892CHI-002

ISSUE DATE
June 22, 2019

REVISION DATE
None

DOCUMENT CONTROL NUMBER
TBD
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TEST REPORT

TEST OF ONE LED FLUSHMOUNT

MODEL NO. 700FMLFOW-LED930
LED MODEL NO. LUMINUS MP-3030-2100-30-90
DRIVER MODEL NO. LTF DA22W600C2036BF1-00HE

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 700FMLFOW-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 AH06142019092403-002.

DATE OF TESTS

June 17, 2019 through June 22, 2019.

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SUMMARY

MODEL NO:	700FMLFOW-LED930
DESCRIPTION:	LED flushmount

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	1174.6	1134.1
Input Power (W) @ 120 (VAC)	22.25	22.13
Lumen Efficacy (lm/W)	52.8	51.3
Input Power Factor @ 120 (VAC)	0.984	0.985

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	8.03
Correlated Color Temperature (K)	3109
Color Rendering Index - Ra	97.3
Color Rendering - R9	95.0
DUV	0.0015
Chromaticity Coordinate (x)	0.428
Chromaticity Coordinate (y)	0.398
Chromaticity Coordinate (u')	0.247
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	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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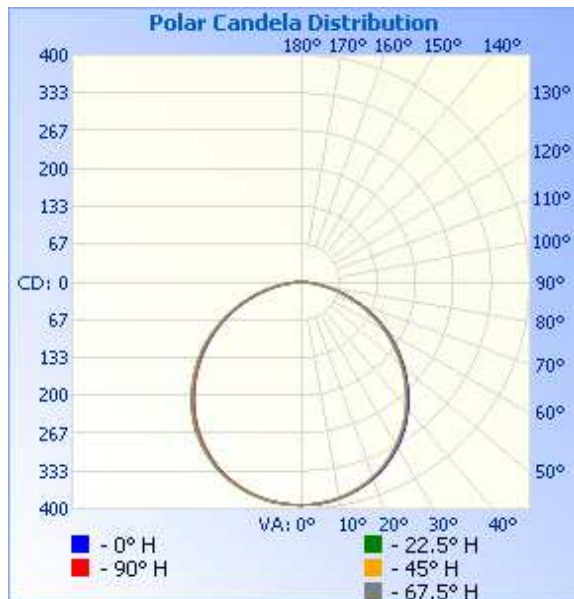
RESULTS OF TESTS

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)
AH06142019092403-002	Base Up	120.0	187.3	22.13	0.985	1134.1	51.3

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	393	393	393	393	393
5	392	391	391	391	392
10	387	386	386	386	387
15	380	378	378	378	379
20	369	366	366	367	368
25	355	351	351	352	354
30	337	332	333	334	335
35	316	311	311	313	315
40	291	286	287	288	290
45	264	259	260	262	264
50	236	230	231	233	235
55	206	199	200	202	205
60	174	167	168	171	174
65	141	134	136	138	141
70	107	101	102	105	108
75	75	69	71	73	75
80	44	39	41	43	45
85	19	16	17	19	20
90	3	2	3	4	4
95	0	0	0	1	1
100	0	0	0	1	1
105	0	0	0	1	1



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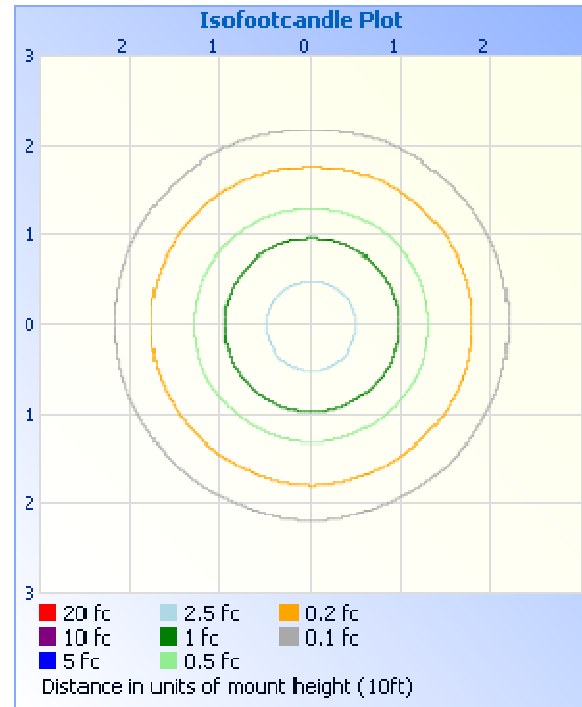
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RESULTS OF TESTS

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	307.3	27.1
0-40	504.4	44.5
0-60	891.6	78.6
60-90	241.1	21.3
70-100	102.9	9.1
90-120	1.4	0.1
0-90	1132.7	99.9
90-180	1.4	0.1
0-180	1134.1	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	37.2	3.3
10-20	107.1	9.4
20-30	163.1	14.4
30-40	197.0	17.4
40-50	203.7	18.0
50-60	183.5	16.2
60-70	139.2	12.3
70-80	79.3	7.0
80-90	22.6	2.0
90-100	1.0	0.1
100-110	0.3	0.0

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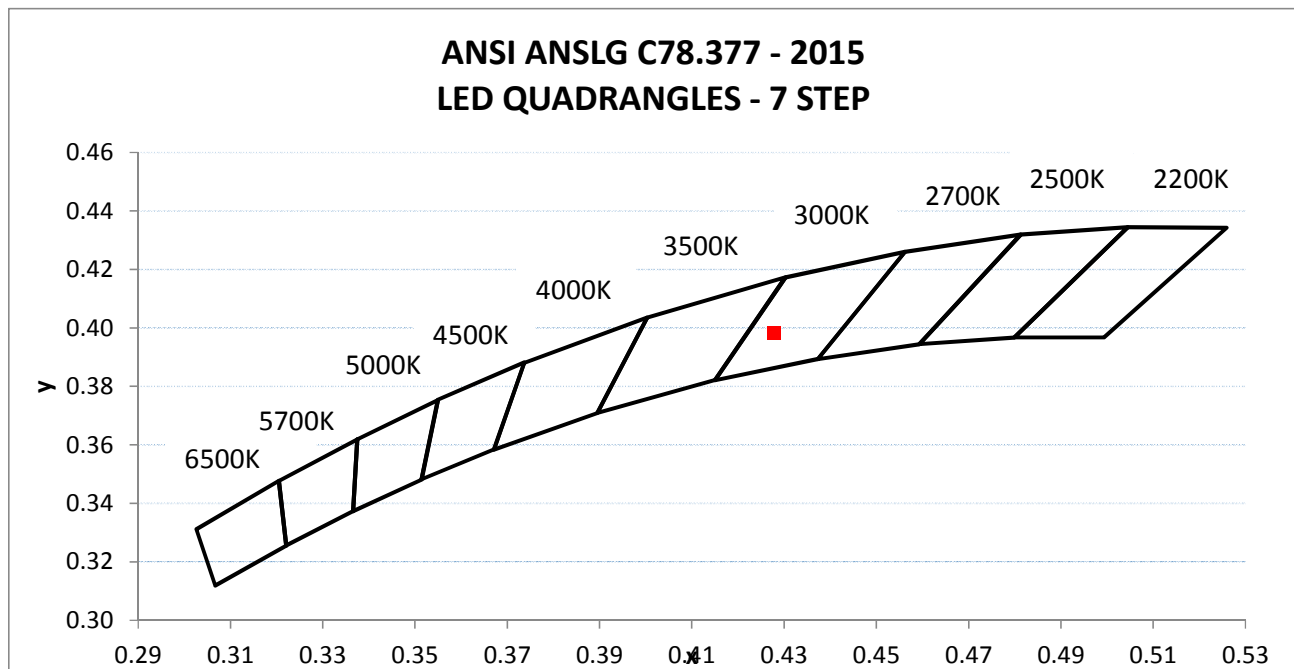
RESULTS OF TESTS

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 (%)
AH06142019092403-002	Base Up	120.02	188.31	22.25	0.984	8.03

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
1174.6	52.8	3109	97.3	95.0	0.0015

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.428	0.398	0.247	0.518



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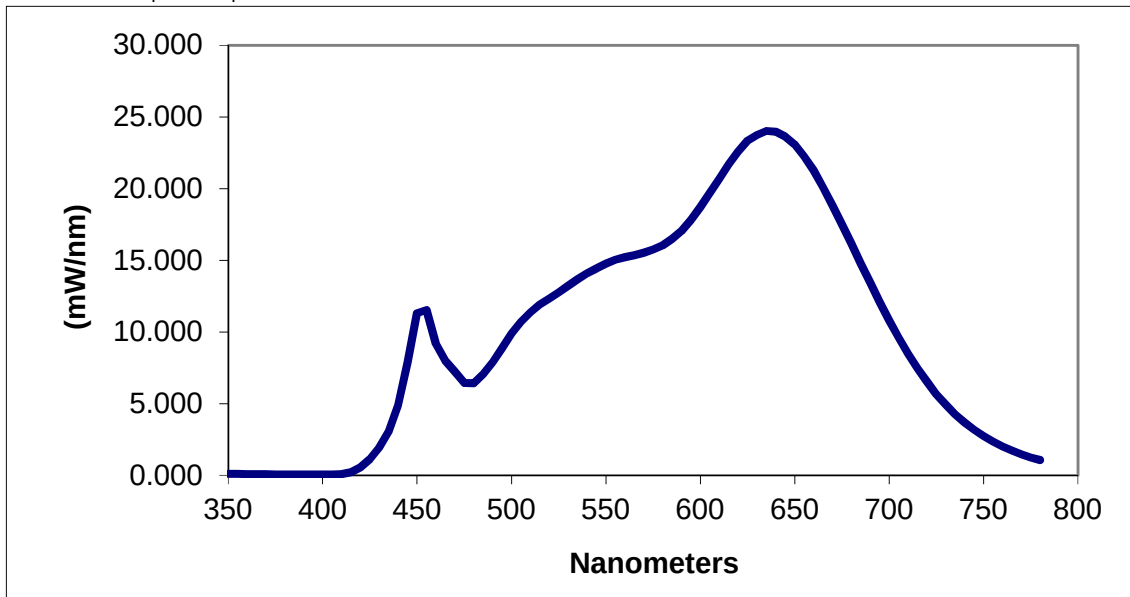
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RESULTS OF TESTS

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	0.098	460	9.202	570	15.541	680	16.158
355	0.102	465	7.991	575	15.758	685	14.767
360	0.094	470	7.262	580	16.048	690	13.428
365	0.087	475	6.459	585	16.505	695	12.096
370	0.085	480	6.420	590	17.045	700	10.812
375	0.074	485	7.041	595	17.823	705	9.622
380	0.064	490	7.895	600	18.717	710	8.490
385	0.058	495	8.865	605	19.677	715	7.475
390	0.058	500	9.900	610	20.694	720	6.529
395	0.054	505	10.720	615	21.705	725	5.673
400	0.058	510	11.390	620	22.600	730	4.930
405	0.068	515	11.927	625	23.340	735	4.263
410	0.097	520	12.345	630	23.754	740	3.683
415	0.218	525	12.772	635	24.030	745	3.187
420	0.548	530	13.236	640	23.970	750	2.732
425	1.126	535	13.690	645	23.633	755	2.353
430	1.938	540	14.101	650	23.074	760	2.014
435	3.082	545	14.441	655	22.264	765	1.732
440	4.876	550	14.768	660	21.268	770	1.475
445	7.897	555	15.044	665	20.100	775	1.258
450	11.319	560	15.233	670	18.824	780	1.072
455	11.537	565	15.363	675	17.521		

*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				