

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

700OCTUR8401240HUNV1S

REPORT NUMBER

103643585CHI-086

ISSUE DATE

April 30, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT NO.: 103643585CHI-086

REPORT DATE: April 30, 2019

TEST REPORT

TEST OF ONE LED LIGHT COLUMN

MODEL NO. 700OCTUR8401240HUNV1S
LED MODEL NO. CITIZEN CLU038-1205C4-302M2M2-F1
DRIVER MODEL NO. LS60W-43-C1400-RD

RENDERED TO:

VISUAL COMFORT GROUP
7400 LINDER AVE.
SKOKIE, IL, 60077

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-00912313.

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 700OCTUR8401240HUNV1S. The sample was received by Intertek on April 16, 2019 in undamaged condition and one sample was tested as received. The sample designation was AH04162019023032-086.

DATE OF TESTS

April 18, 2019 through April 30, 2019.

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SUMMARY

MODEL NO:	700OCTUR8401240HUNV1S
DESCRIPTION:	LED Light Column

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	4181.3	4113.1
Input Power (W) @ 120 (VAC)	65.20	65.24
Lumen Efficacy (lm/W)	64.1	63.1
Input Power Factor @ 120 (VAC)	0.997	0.997

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	4.54
Correlated Color Temperature (K)	4147
Color Rendering Index - Ra	81.8
Color Rendering - R9	5.1
DUV	0.0021
Chromaticity Coordinate (x)	0.376
Chromaticity Coordinate (y)	0.379
Chromaticity Coordinate (u')	0.221
Chromaticity Coordinate (v')	0.502
Input Power Factor (W) @ 277 (VAC)	0.934
Input Current ATHD (%) @ 277 (VAC)	15.63

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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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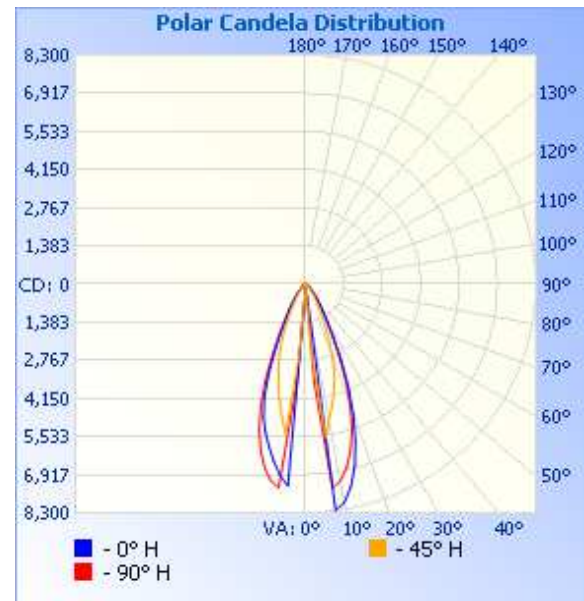
RESULTS OF TESTS

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)
AH04162019023032-086	Base Up	120.1	544.9	65.24	0.997	4113.1	63.1

INTENSITY SUMMARY - CANDELAS

Angle	0	45	90	135	180
0	25	25	25	25	25
5	87	2604	3552	2514	7344
10	8053	4924	7236	4902	6552
15	6834	3964	6254	3773	5582
20	5037	2855	4737	2761	4347
25	3030	1616	2851	1731	2524
30	1567	870	1512	940	1346
35	902	506	877	550	820
40	529	291	508	329	470
45	302	169	292	189	267
50	184	106	179	117	167
55	121	75	120	81	115
60	85	56	85	59	82
65	59	40	59	43	57
70	39	26	39	29	36
75	20	14	18	15	14
80	2	2	3	3	2
85	1	2	2	3	2
90	1	2	2	3	2
95	2	2	3	3	2
100	1	2	2	3	2
105	1	2	2	2	2
110	1	2	2	2	2
115	2	2	3	3	1
120	2	2	2	3	2
125	2	3	3	4	2
130	4	4	4	5	3
135	4	6	5	5	4
140	5	6	6	6	6
145	7	8	7	7	5
150	9	9	8	9	7
155	10	11	10	10	8
160	12	13	12	12	10
165	14	16	14	15	12
170	14	17	16	16	12
175	11	10	11	10	8
180	8	8	8	8	8



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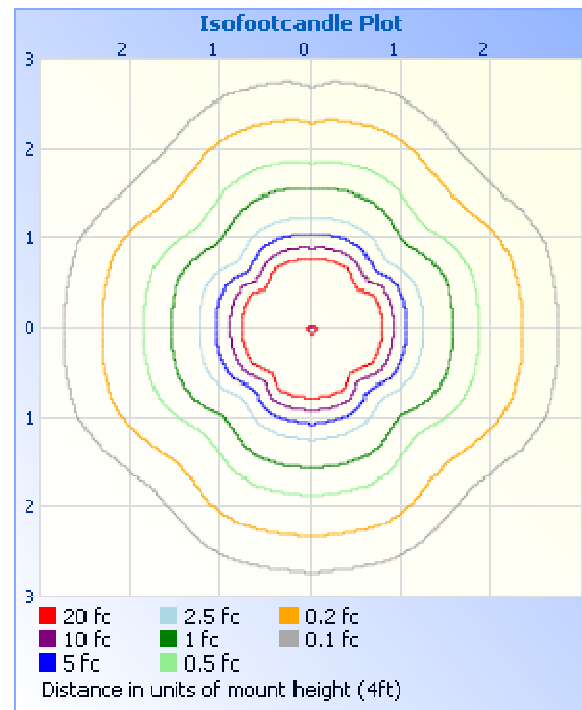
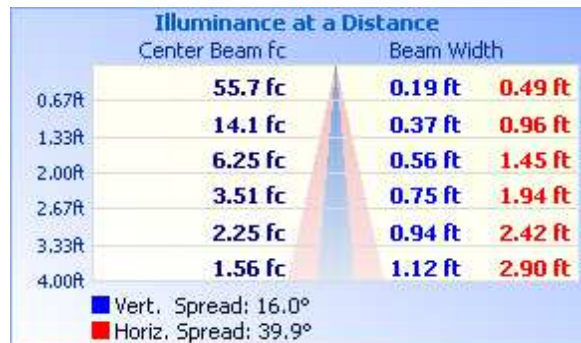
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RESULTS OF TESTS

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

MOUNTING HEIGHT: 4ft	
ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	3173.9	77.2
0-40	3683.6	89.6
0-60	4000.1	97.3
60-90	79.4	1.9
70-100	28.4	0.7
90-120	11.2	0.3
0-90	4079.5	99.2
90-180	33.6	0.8
0-180	4113.1	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	467.0	11.4
10-20	1526.3	37.1
20-30	1180.6	28.7
30-40	509.7	12.4
40-50	215.3	5.2
50-60	101.3	2.5
60-70	55.2	1.3
70-80	19.9	0.5
80-90	4.4	0.1
90-100	4.1	0.1
100-110	3.8	0.1
110-120	3.3	0.1
120-130	3.5	0.1
130-140	4.4	0.1
140-150	4.6	0.1
150-160	4.7	0.1
160-170	4.0	0.1
170-180	1.2	0.0

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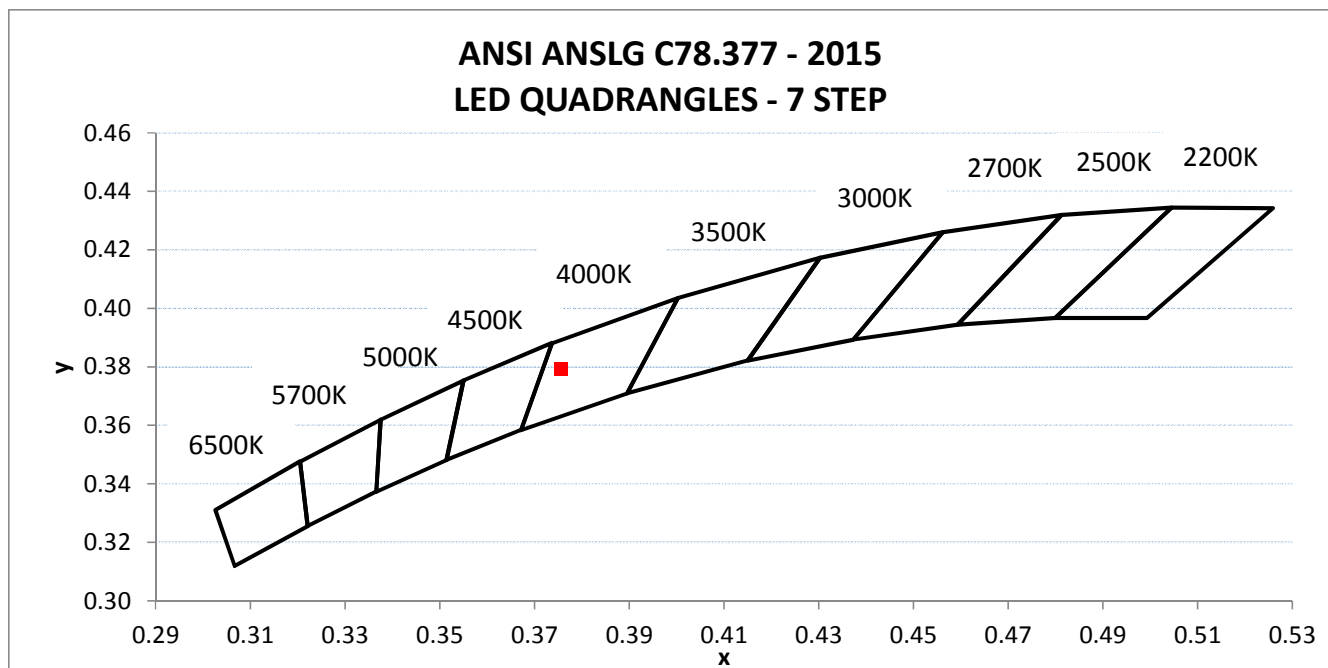
RESULTS OF TESTS

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 (%)
AH04162019023032-086	Base Up	120.03	544.90	65.20	0.997	4.54
		277.02	252.1	65.21	0.934	15.63

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
4181.3	64.1	4147	81.8	5.1	0.0021

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.376	0.379	0.221	0.502



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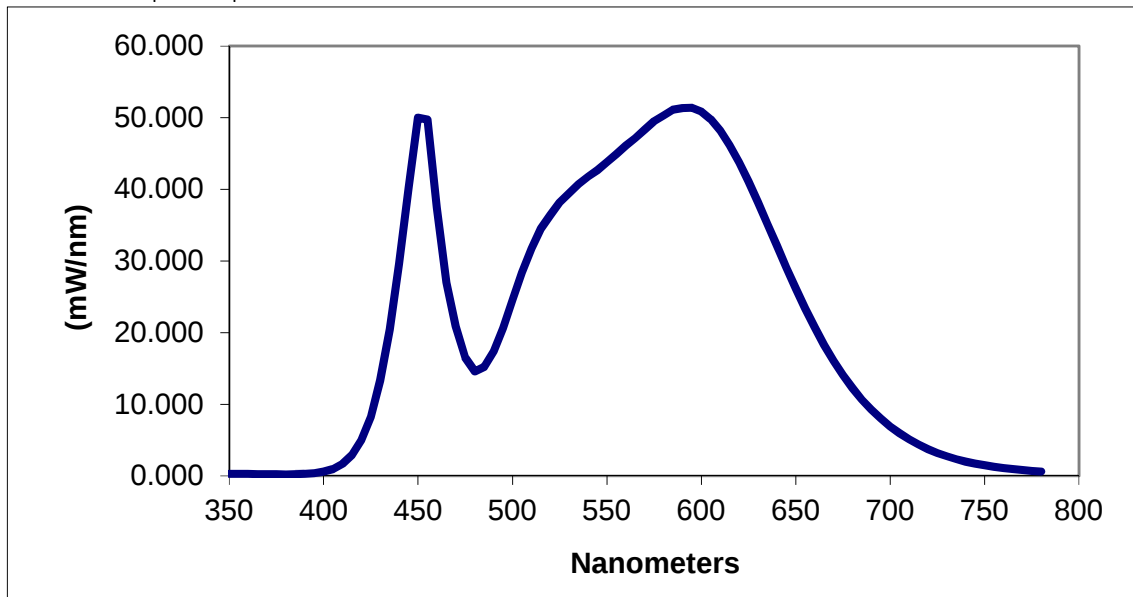
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RESULTS OF TESTS

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	0.295	460	37.454	570	48.355	680	12.276
355	0.289	465	26.986	575	49.517	685	10.644
360	0.288	470	20.885	580	50.337	690	9.260
365	0.280	475	16.533	585	51.126	695	8.011
370	0.263	480	14.612	590	51.355	700	6.903
375	0.242	485	15.219	595	51.384	705	5.958
380	0.237	490	17.388	600	50.872	710	5.116
385	0.263	495	20.624	605	49.765	715	4.397
390	0.309	500	24.613	610	48.169	720	3.751
395	0.402	505	28.387	615	46.179	725	3.200
400	0.604	510	31.760	620	43.762	730	2.747
405	0.970	515	34.507	625	41.105	735	2.353
410	1.696	520	36.446	630	38.155	740	2.018
415	2.930	525	38.165	635	35.163	745	1.745
420	4.988	530	39.485	640	32.151	750	1.510
425	8.274	535	40.697	645	29.095	755	1.304
430	13.355	540	41.783	650	26.176	760	1.129
435	20.430	545	42.684	655	23.368	765	0.978
440	29.585	550	43.806	660	20.754	770	0.837
445	40.239	555	44.903	665	18.322	775	0.724
450	50.014	560	46.138	670	16.057	780	0.624
455	49.738	565	47.155	675	14.083		

*Without correction of sample absorption.



End Of Test Results

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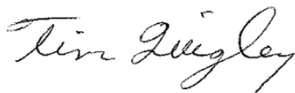
PICTURES



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
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				