



REPORT

545 E. Algonquin Rd., Arlington Heights, IL 60005

Project No. G102171228

Date: January 30, 2017

REPORT NO. 102171228CHI-075

TEST OF ONE LED LIGHT COLUMN

MODEL NO. 700OCTUR12SC1UNV830C
LED MODEL NO. CITIZEN CLU038-1206C4-303M2K1
DRIVER MODEL NO. YG LS60W-43-C1400-RD

RENDERED TO

GENERATION BRANDS
7400 LINDER AVE.
SKOKIE, IL, 60077

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

STATEMENT OF LIMITATION: This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION: The testing performed was authorized by signed quote number 500606081.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

ANSI NEMA ANSLG C78.377: 2012: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number 700OCTUR12SC1UNV830C. The sample was received by Intertek on December 13, 2016, in undamaged condition and one sample was tested as received. The sample designation was AH12132016115542.

DATES OF TESTS: January 24, 2017 through January 30, 2017.

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SUMMARY

Model No.:	700OCTUR12SC1UNV830C
Description:	LED Light Column

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	4509	4517
Total Power (W)	60.24	60.42
Luminaire Efficacy (LPW)	74.85	74.76

Criteria	Result
Power Factor at 120Vac	0.998
Power Factor at 277Vac	0.929
Current ATHD % at 120Vac	2.76
Current ATHD % at 277Vac	13.66
Correlated Color Temperature (CCT - K)	4194
Color Rendering Index (CRI - Ra)	83.5
Color Rendering Index (CRI - R9)	11.6
DUV	0.001
Chromaticity Coordinate (x)	0.373
Chromaticity Coordinate (y)	0.375
Chromaticity Coordinate (u')	0.221
Chromaticity Coordinate (v')	0.500

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Yokogawa Power Meter	WT210	146919	07/11/16	07/11/17	01/30/17
Omega Newport Thermometer	DPI8-C24	146920	10/07/16	10/07/17	01/30/17
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	01/30/17
Newport Thermohygrometer	iServer	146956	01/06/17	01/06/18	01/30/17
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	01/30/17
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	01/24/17
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	01/24/17
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	01/24/17
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	01/24/17
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	01/24/17
Yokogawa Power Meter	WT1600	146768	01/10/17	01/10/18	01/24/17
Fluke K/J Thermometer	52	146004	01/10/17	01/10/18	01/24/17

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 Labsphere Model CDS 1100 CCD Array Spectroradiometer and Two Meter or Ten Foot 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. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa 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 LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

RESULTS OF TEST

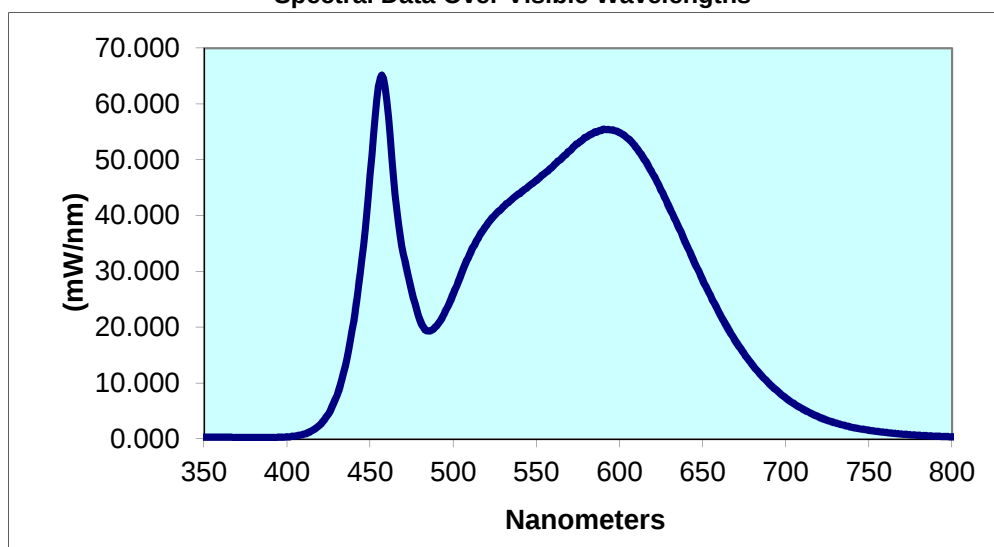
Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH12132016115542	Up	120.0 277.0	503.3 237.7	60.24 61.18	0.998 0.929	2.76 13.66	4509	74.85
Correlated Color Temperature (K)	CRI -Ra	CRI -R9	DUV	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')	
4194	83.5	11.6	0.001	0.373	0.375	0.221	0.500	

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.309	440	20.99	530	41.59	620	47.51	710	5.394
355	0.277	445	32.02	535	42.83	625	44.59	715	4.609
360	0.307	450	47.30	540	43.95	630	41.50	720	3.929
365	0.270	455	63.17	545	45.18	635	38.34	725	3.356
370	0.257	460	60.77	550	46.32	640	35.01	730	2.854
375	0.242	465	43.81	555	47.59	645	31.70	735	2.447
380	0.221	470	33.09	560	48.87	650	28.52	740	2.086
385	0.224	475	26.51	565	50.22	655	25.51	745	1.801
390	0.230	480	21.26	570	51.63	660	22.61	750	1.558
395	0.271	485	19.33	575	52.94	665	19.89	755	1.340
400	0.359	490	20.26	580	54.11	670	17.43	760	1.164
405	0.528	495	22.72	585	54.98	675	15.23	765	1.006
410	0.862	500	25.99	590	55.44	680	13.25	770	0.864
415	1.475	505	29.70	595	55.34	685	11.50	775	0.739
420	2.575	510	33.07	600	54.89	690	9.914	780	0.639
425	4.556	515	35.96	605	53.82	695	8.593		
430	7.803	520	38.25	610	52.19	700	7.345		
435	13.11	525	40.11	615	50.01	705	6.293		

Spectral Data Over Visible Wavelengths



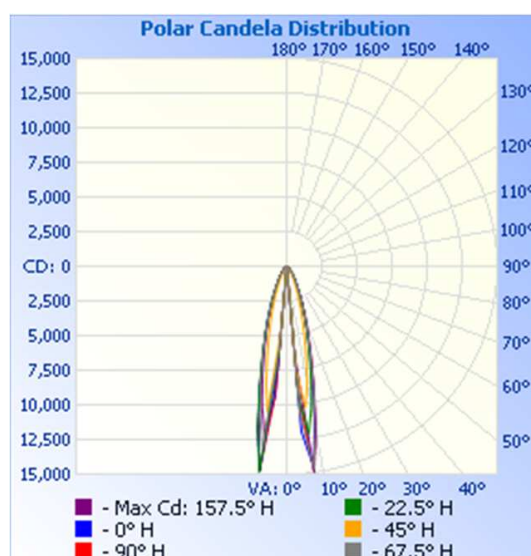
RESULTS OF TEST (cont'd)

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH12132016115542	Up	120.1	0.505	60.42	0.995	4517	74.76

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	18	18	18	18	18
5	11958	9445	7466	10543	9285
10	11469	10144	8439	11709	11784
15	6305	6104	4653	6566	6562
20	3686	3654	2579	3739	3779
25	2075	2070	1418	2092	2121
30	1218	1223	813	1220	1236
35	813	802	521	795	793
40	518	516	335	509	509
45	337	337	219	336	331
50	233	231	155	233	227
55	165	165	115	171	165
60	120	119	86	126	119
65	82	83	61	85	83
70	52	54	37	46	53
75	24	26	17	14	25
80	2	5	3	5	3
85	2	5	3	5	3
90	1	5	3	5	3
95	1	4	3	5	2
100	1	4	3	4	2
105	1	4	3	4	2
110	1	4	2	4	2
115	1	4	3	4	2
120	1	3	2	4	2
125	3	5	4	5	4
130	6	7	7	7	6
135	6	8	9	8	8
140	7	9	9	9	9
145	10	11	11	11	10
150	12	13	14	13	12
155	13	15	16	16	15
160	9	13	15	19	19
165	11	16	17	17	19
170	9	11	19	25	22
175	9	9	12	15	16



RESULTS OF TEST (cont'd)

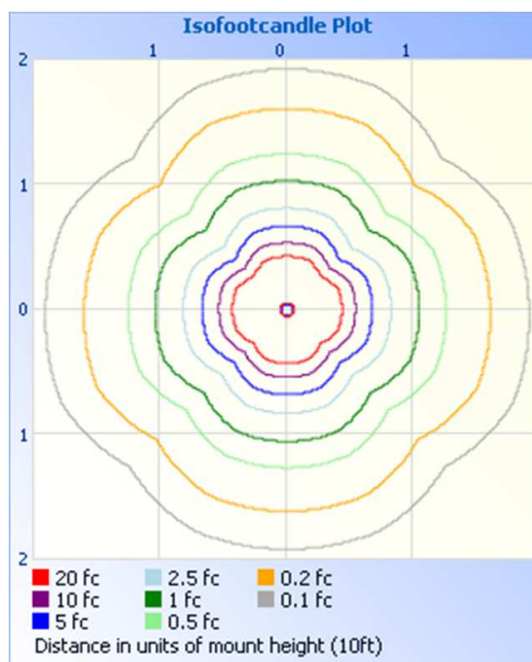
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



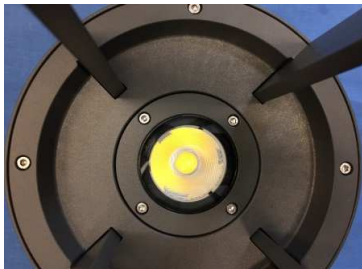
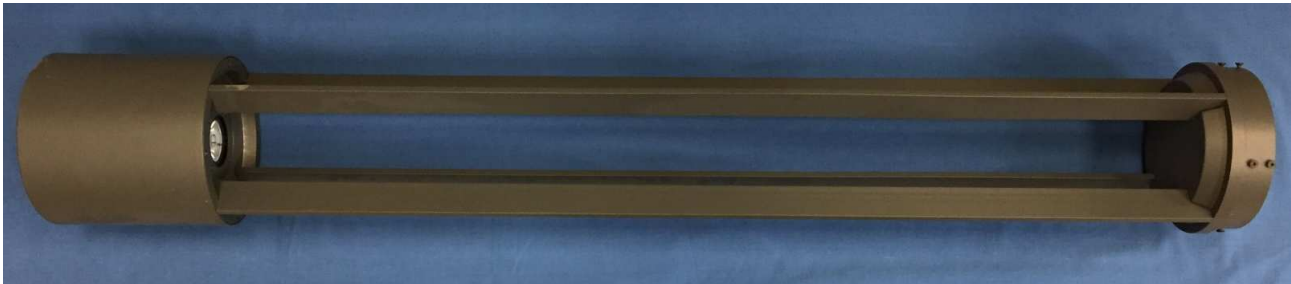
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	3534	78.2
0-40	3996	88.5
0-60	4373	96.8
60-90	104.9	2.3
0-90	4478	99.1
90-180	39.2	0.9
0-180	4517	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	898.2	19.9
10-20	1710	37.8
20-30	926.3	20.5
30-40	461.6	10.2
40-50	240.0	5.3
50-60	137.6	3.0
60-70	76.9	1.7
70-80	23.9	0.5
80-90	4.1	0.1
90-100	3.7	0.1
100-110	3.3	0.1
110-120	2.9	0.1
120-130	3.8	0.1
130-140	6.0	0.1
140-150	6.6	0.1
150-160	6.7	0.1
160-170	4.6	0.1
170-180	1.4	0.0

PICTURES (not to scale)



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:



Jehue Williams
Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley
Engineer
Lighting Division