



REPORT

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

Project No. G102171228

Original Issue Date: August 12, 2016

Revision Date: September 1, 2016

REPORT NO. 102171228CHI-029

TEST OF ONE LED WALL SCONCE

MODEL NO. 700OWTUR18SCC8401201

LED MODEL NO. CITIZEN CLU028-1202C4-403M2K1

DRIVER MODEL NO. LTF DS20W350C3058LI2D010-0000

RENDERED TO

GENERATION BRANDS

7400 LINDER AVE.

SKOKIE, IL, 60077

Revision Note September 1, 2016: This report was revised to add BUG rating data.

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

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 700OWTUR18SCC8401201. The sample was received by Intertek on August 3, 2016, in undamaged condition and one sample was tested as received. The sample designation was AH08032016091921E.

DATES OF TESTS: August 9, 2016 through August 12, 2016.

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SUMMARY

Model No.:	700OWTUR18SCC8401201
Description:	LED Wall Sconce

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	597.7	571.5
Total Power (W)	15.78	15.28
Luminaire Efficacy (LPW)	37.88	37.40

Criteria	Result
Power Factor	0.988
Current ATHD %	9.78
Correlated Color Temperature (CCT - K)	3139
Color Rendering Index (CRI - Ra)	82.7
Color Rendering Index (CRI - R9)	12.7
DUV	0.001
Chromaticity Coordinate (x)	0.426
Chromaticity Coordinate (y)	0.398
Chromaticity Coordinate (u')	0.246
Chromaticity Coordinate (v')	0.517
BUG Rating	B1-U2-G0

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	08/12/16
Omega Newport Thermometer	DPI8-C24	146920	10/09/15	10/09/16	08/12/16
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	08/12/16
Newport Thermohygrometer	iServer	146956	01/04/16	01/04/17	08/12/16
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	08/12/16
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	08/09/16
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	08/09/16
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	08/09/16
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	08/09/16
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	08/09/16
Yokogawa Power Meter	WT1600	146768	01/14/16	01/14/17	08/09/16
Omega Temperature Meter	MDSi8	146139	03/21/16	03/21/17	08/09/16

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.

BUG Ratings (Backlight, Uplight, Glare) – for Outdoor Fixtures Only

Zonal Lumens were calculated and grouped using the formula in IESNA TM-15-11 for each zone as defined in the BUG addendum. The maximum lumen rating in each zone was compared against the BUG zonal requirements of Energy Star. Photometric Toolbox software was used to calculate results.

RESULTS OF TEST

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

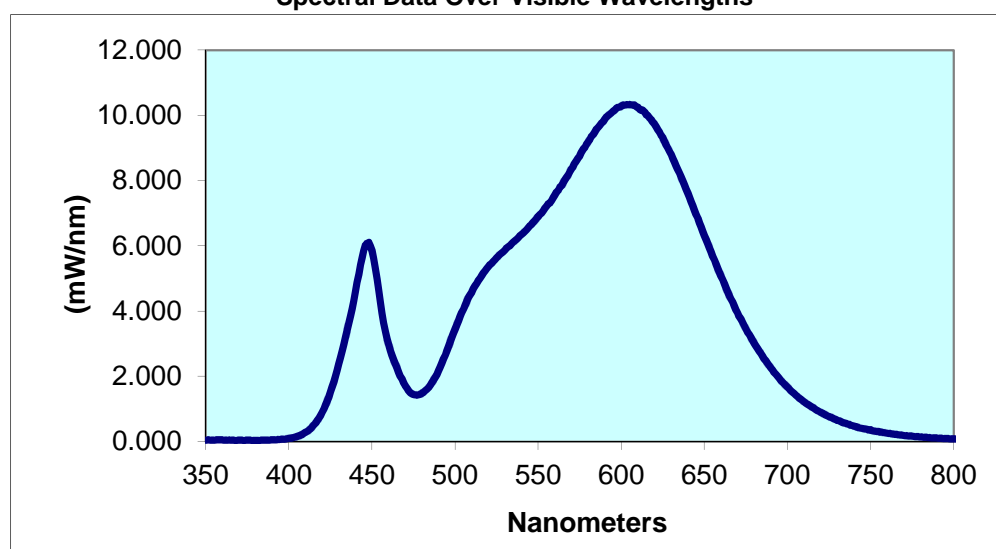
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH08032016091921E	Up	120.0	133.0	15.78	0.988	9.78	597.7	37.88

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')
3139	82.7	12.7	0.001	0.426	0.398	0.246	0.517

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.040	440	4.596	530	5.873	620	9.727	710	1.219
355	0.043	445	5.856	535	6.112	625	9.311	715	1.048
360	0.046	450	5.852	540	6.348	630	8.799	720	0.897
365	0.037	455	4.281	545	6.612	635	8.228	725	0.769
370	0.038	460	2.969	550	6.900	640	7.609	730	0.653
375	0.042	465	2.256	555	7.213	645	6.971	735	0.558
380	0.033	470	1.713	560	7.561	650	6.324	740	0.471
385	0.040	475	1.439	565	7.932	655	5.688	745	0.403
390	0.051	480	1.479	570	8.359	660	5.076	750	0.349
395	0.064	485	1.730	575	8.759	665	4.481	755	0.301
400	0.096	490	2.169	580	9.185	670	3.944	760	0.257
405	0.154	495	2.789	585	9.580	675	3.459	765	0.221
410	0.280	500	3.453	590	9.889	680	3.009	770	0.189
415	0.508	505	4.063	595	10.13	685	2.618	775	0.162
420	0.892	510	4.582	600	10.29	690	2.256	780	0.139
425	1.519	515	5.015	605	10.33	695	1.943		
430	2.381	520	5.356	610	10.25	700	1.666		
435	3.404	525	5.636	615	10.03	705	1.428		

Spectral Data Over Visible Wavelengths



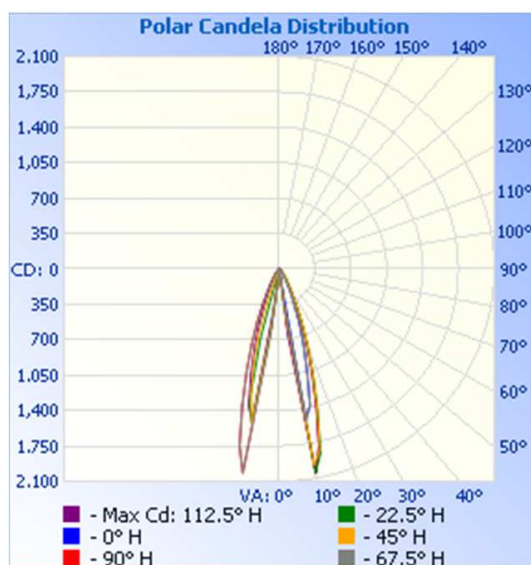
RESULTS OF TEST (cont'd)

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)
AH08032016091921E	Up	120.0	189.8	15.28	0.671	571.5	37.40

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	2	2	2	2	2
5	3	3	7	9	3
10	1491	2042	1966	1525	2045
15	1052	1447	1443	1064	1395
20	578	819	817	574	788
25	272	400	398	274	389
30	129	195	188	126	184
35	70	100	98	63	95
40	43	62	60	38	58
45	26	37	36	23	34
50	15	20	19	13	17
55	10	10	10	7	8
60	7	8	7	5	6
65	6	6	5	4	4
70	4	5	4	3	3
75	3	4	3	2	2
80	3	3	2	2	1
85	2	2	2	2	1
90	2	2	1	1	1
95	2	2	1	2	1
100	2	2	2	2	1
105	3	2	2	2	1
110	3	3	2	2	2
115	3	3	2	3	2
120	3	3	3	3	2
125	4	3	3	3	3
130	4	4	3	3	3
135	4	4	3	4	3
140	4	4	4	4	4
145	5	5	4	5	4
150	5	5	5	5	5
155	5	5	5	6	6
160	6	6	6	6	6
165	6	6	5	6	6
170	4	3	2	3	4
175	1	1	1	1	1
180	1	1	1	1	1

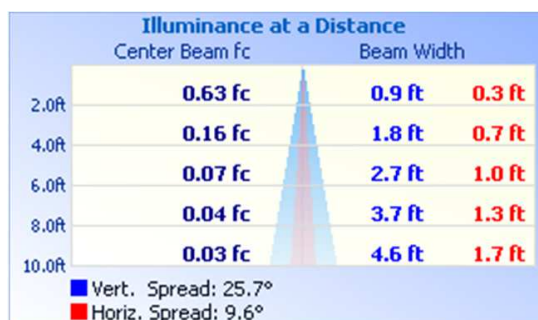


RESULTS OF TEST (cont'd)

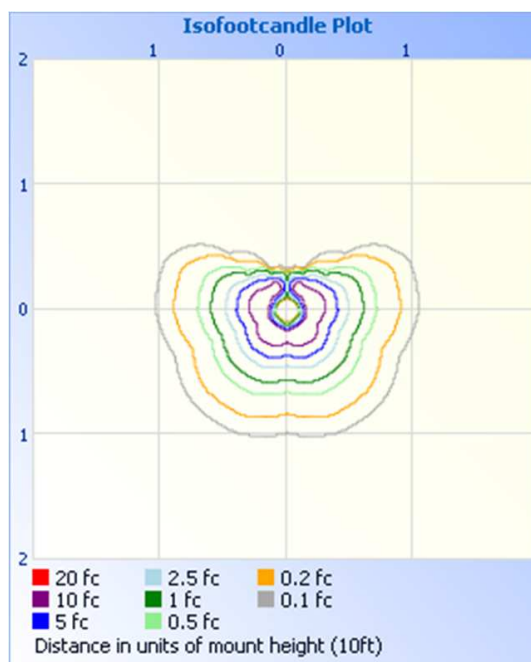
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	480.3	84.0
0-40	522.4	91.4
0-60	547.1	95.7
60-90	8.1	1.4
0-90	555.2	97.2
90-180	16.3	2.8
0-180	571.5	100.0

Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	287.5	50.3
FM	(30-60)	46.1	8.1
FH	(60-80)	4.1	0.7
FVH	(80-90)	0.9	0.2
BL	(0-30)	192.5	33.7
BM	(30-60)	20.9	3.7
BH	(60-80)	2.6	0.5
BVH	(80-90)	0.4	0.1
UL	(90-100)	1.4	0.2
UH	(100-180)	14.9	2.6
Total		571.3	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	53.8	9.4
10-20	301.2	52.7
20-30	125.3	21.9
30-40	42.1	7.4
40-50	18.2	3.2
50-60	6.6	1.1
60-70	4.2	0.7
70-80	2.6	0.4
80-90	1.4	0.2
90-100	1.4	0.2
100-110	1.8	0.3
110-120	2.2	0.4
120-130	2.4	0.4
130-140	2.5	0.4
140-150	2.5	0.4
150-160	2.1	0.4
160-170	1.2	0.2
170-180	0.2	0.0

BUG Rating: B1-U2-G0

IES Classification: Type I

Longitudinal Classification: Very Short

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 Report:



Vladimir Kozak
Senior Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley
Engineer
Lighting Division