



# REPORT

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

Project No. G102171228

Date: August 25, 2016

REPORT NO. 102171228CHI-045

TEST OF ONE LED WALL-MOUNT LUMINAIRE

MODEL NO. 700OWTEG12UDWWCUNV830Y  
LED MODEL NO. (CITIZEN) CLU028-1202C4-303M2K1  
DRIVER MODEL NO. LTF DS30W700C2042LI2D010-0000

RENDERED TO

GENERATION BRANDS  
7400 LINDER AVE.  
SKOKIE, IL, 60077

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

AUTHORIZATION: The testing performed was authorized by signed quote number Qu-00718855-0.

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 700OWTEG12UDWWCUNV830Y. The sample was received by Intertek on August 18, 2016, in undamaged condition and one sample was tested as received. The sample designation was AH08182016094438-045.

DATES OF TESTS: August 23, 2016 through August 25, 2016.



## SUMMARY

Model No.:	700OWTEG12UDWWCUNV830Y
Description:	LED Wall-Mount Luminaire

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	2294	2346
Total Power (W)	29.24	29.24
Luminaire Efficacy (LPW)	78.45	80.23

Criteria	Result
Power Factor	0.993
Current ATHD %	2.14
Correlated Color Temperature (CCT - K)	3108
Color Rendering Index (CRI - Ra)	84.5
Color Rendering Index (CRI - R9)	15.5
DUV	0.000
Chromaticity Coordinate (x)	0.430
Chromaticity Coordinate (y)	0.402
Chromaticity Coordinate (u')	0.247
Chromaticity Coordinate (v')	0.519
BUG Rating	B1-U5-G0
IES Classification	Type VS
Longitudinal Classification	Very Short

## 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	08/25/16
Omega Newport Thermometer	DPI8-C24	146920	10/09/15	10/09/16	08/25/16
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	08/25/16
Newport Thermohygrometer	iServer	146956	01/04/16	01/04/17	08/25/16
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	08/25/16
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	08/23/16
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	08/23/16
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	08/23/16
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	08/23/16
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	08/23/16
Yokogawa Power Meter	WT1600	146768	01/14/16	01/14/17	08/23/16
Omega Temperature Meter	MDSi8	146139	03/21/16	03/21/17	08/23/16



## 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

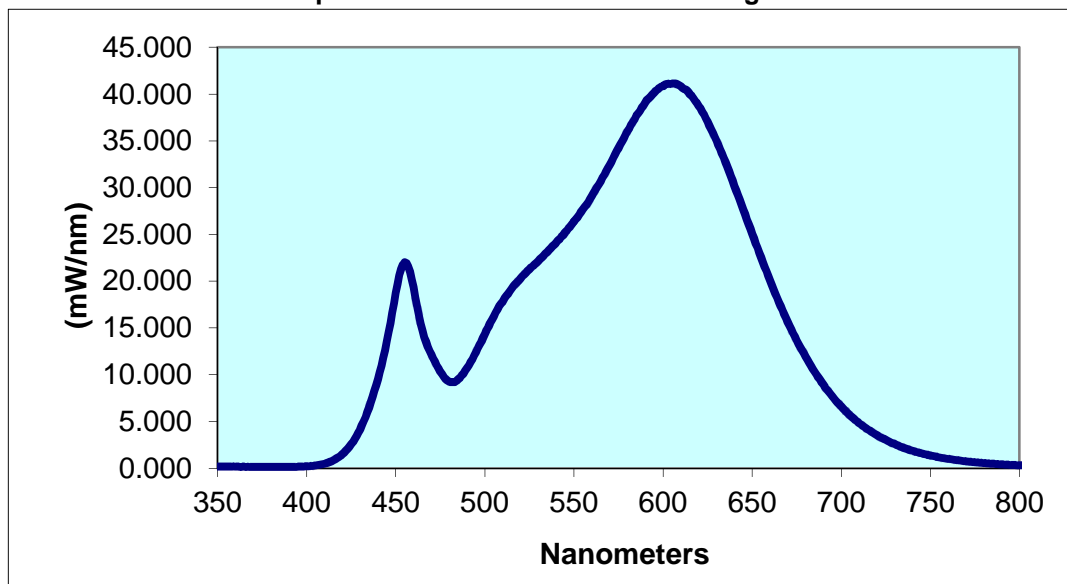
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH08182016094438-045	Up/Down	120.0	245.3	29.24	0.993	2.14	2294	78.45

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')
3108	84.5	15.5	0.000	0.430	0.402	0.247	0.519

### Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.148	440	9.534	530	22.17	620	38.73	710	4.820
355	0.150	445	13.53	535	23.11	625	37.04	715	4.142
360	0.163	450	18.74	540	24.07	630	34.98	720	3.536
365	0.159	455	22.03	545	25.21	635	32.70	725	3.025
370	0.136	460	19.34	550	26.37	640	30.20	730	2.580
375	0.126	465	14.72	555	27.66	645	27.67	735	2.182
380	0.121	470	12.15	560	29.10	650	25.06	740	1.863
385	0.117	475	10.33	565	30.69	655	22.54	745	1.585
390	0.127	480	9.260	570	32.44	660	20.12	750	1.364
395	0.152	485	9.497	575	34.20	665	17.76	755	1.165
400	0.195	490	10.71	580	36.02	670	15.63	760	1.001
405	0.294	495	12.43	585	37.70	675	13.67	765	0.858
410	0.485	500	14.35	590	39.10	680	11.92	770	0.733
415	0.851	505	16.24	595	40.17	685	10.33	775	0.631
420	1.484	510	17.80	600	40.85	690	8.919	780	0.543
425	2.541	515	19.19	605	41.12	695	7.704		
430	4.144	520	20.29	610	40.83	700	6.594		
435	6.503	525	21.27	615	40.00	705	5.639		

Spectral Data Over Visible Wavelengths



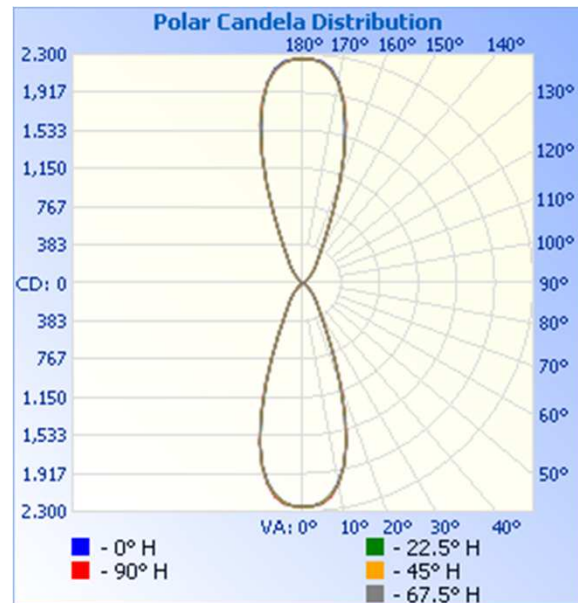
## RESULTS OF TEST (cont'd)

### 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)
AH08182016094438-045	Up/Down	120.2	244.6	29.24	0.995	2346	80.23

### Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	2245	2245	2245	2245	2245
5	2209	2208	2212	2222	2226
10	2029	2039	2040	2046	2049
15	1660	1658	1661	1668	1665
20	1075	1082	1091	1103	1108
25	583	592	594	596	594
30	333	337	341	342	341
35	225	229	232	234	236
40	159	161	163	163	164
45	95	96	97	99	99
50	46	48	49	51	52
55	19	20	21	22	24
60	6	6	7	8	10
65	3	3	4	5	6
70	2	2	2	4	5
75	1	1	1	2	4
80	0	0	0	1	2
85	0	0	0	0	1
90	0	0	0	0	0
95	0	0	0	0	1
100	0	0	0	1	2
105	2	1	1	2	3
110	3	2	2	4	5
115	4	3	4	5	6
120	6	6	6	8	9
125	17	17	18	20	21
130	42	43	44	46	46
135	89	90	91	92	92
140	154	156	157	158	159
145	223	224	226	227	228
150	323	325	328	328	330
155	559	562	568	570	573
160	1057	1057	1065	1066	1066
165	1615	1628	1635	1651	1654
170	2046	2034	2039	2038	2041
175	2233	2222	2222	2219	2217
180	2251	2251	2251	2251	2251



## RESULTS OF TEST (cont'd)

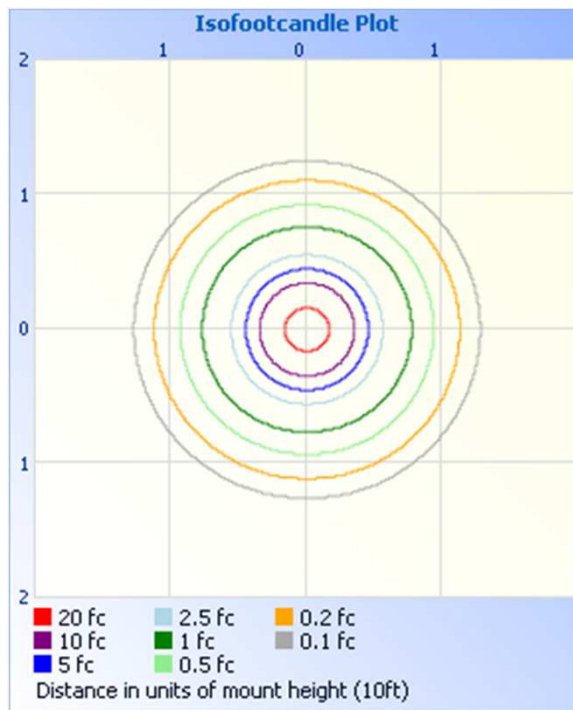
### Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



### Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	935.7	39.9
0-40	1083	46.2
0-60	1181	50.3
60-90	6.3	0.3
0-90	1187	50.6
90-180	1159	49.4
0-180	2346	100.0

### Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	469.2	19.9
FM	(30-60)	122.7	5.2
FH	(60-80)	3.1	0.1
FVH	(80-90)	0.1	0.0
BL	(0-30)	469.2	19.9
BM	(30-60)	122.7	5.2
BH	(60-80)	3.1	0.1
BVH	(80-90)	0.1	0.0
UL	(90-100)	0.1	0.0
UH	(100-180)	1162.3	49.4
Total		2352.6	100.0

### Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	205.6	8.8
10-20	445.1	19.0
20-30	285.1	12.2
30-40	147.6	6.3
40-50	76.6	3.3
50-60	20.9	0.9
60-70	4.5	0.2
70-80	1.7	0.1
80-90	0.1	0.0
90-100	0.1	0.0
100-110	1.7	0.1
110-120	4.4	0.2
120-130	18.5	0.8
130-140	72.4	3.1
140-150	143.2	6.1
150-160	274.1	11.7
160-170	438.7	18.7
170-180	205.9	8.8

BUG Rating: B1-U5-G0

IES Classification: Type VS

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 Tests:



Timothy Quigley  
Engineer  
Lighting Division

Attachment: None

Report Reviewed By:



Vladimir Kozak  
Senior Associate Engineer  
Lighting Division