



# REPORT

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

Project No. G102171228

Date: August 25, 2016

REPORT NO. 102171228CHI-046

TEST OF ONE LED WALL-MOUNT LUMINAIRE

MODEL NO. 700OWTEG18UDWWCUNV830Y  
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 700OWTEG18UDWWCUNV830Y. The sample was received by Intertek on August 18, 2016, in undamaged condition and one sample was tested as received. The sample designation was AH08182016094438-046.

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



## SUMMARY

Model No.:	700OWTEG18UDWWCUNV830Y
Description:	LED Wall-Mount Luminaire

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	2369	2419
Total Power (W)	29.98	29.99
Luminaire Efficacy (LPW)	79.02	80.66

Criteria	Result
Power Factor	0.993
Current ATHD %	2.12
Correlated Color Temperature (CCT - K)	3121
Color Rendering Index (CRI - Ra)	84.7
Color Rendering Index (CRI - R9)	16.7
DUV	0.001
Chromaticity Coordinate (x)	0.428
Chromaticity Coordinate (y)	0.400
Chromaticity Coordinate (u')	0.246
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

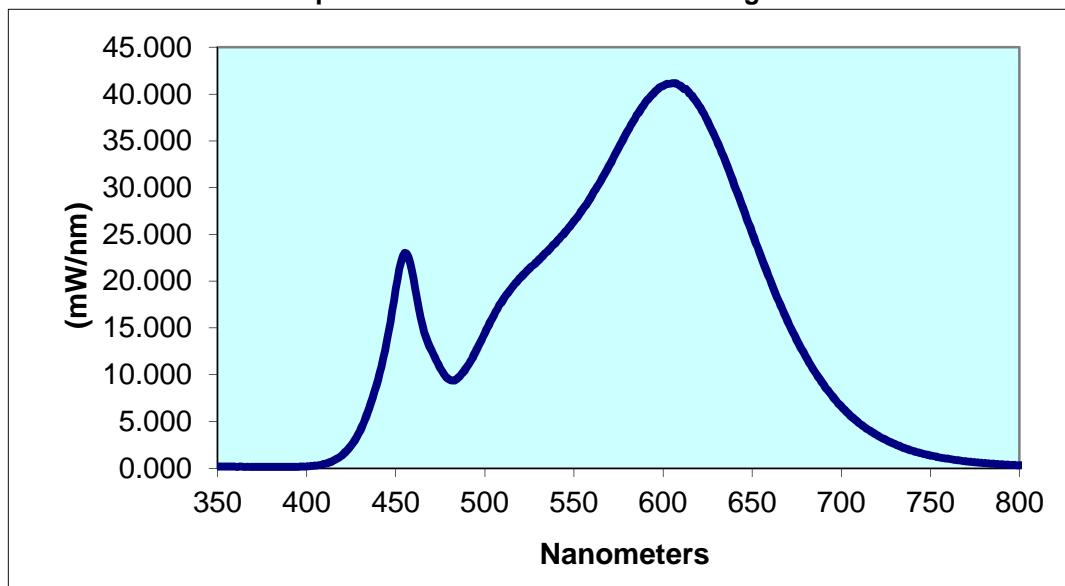
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH08182016094438-046	Up/Down	120.0	251.6	29.98	0.993	2.12	2369	79.02

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')
3121	84.7	16.7	0.001	0.428	0.400	0.246	0.519

### Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.149	440	9.435	530	22.22	620	38.79	710	4.824
355	0.174	445	13.54	535	23.15	625	37.10	715	4.139
360	0.166	450	19.14	540	24.13	630	35.07	720	3.535
365	0.143	455	23.01	545	25.24	635	32.78	725	3.030
370	0.141	460	20.26	550	26.40	640	30.29	730	2.577
375	0.124	465	15.28	555	27.69	645	27.76	735	2.192
380	0.126	470	12.60	560	29.13	650	25.14	740	1.857
385	0.115	475	10.70	565	30.71	655	22.62	745	1.587
390	0.122	480	9.488	570	32.45	660	20.19	750	1.366
395	0.146	485	9.666	575	34.20	665	17.81	755	1.165
400	0.190	490	10.84	580	36.03	670	15.69	760	1.006
405	0.283	495	12.55	585	37.70	675	13.72	765	0.858
410	0.463	500	14.47	590	39.10	680	11.95	770	0.737
415	0.807	505	16.35	595	40.17	685	10.37	775	0.631
420	1.412	510	17.92	600	40.88	690	8.946	780	0.542
425	2.434	515	19.27	605	41.15	695	7.730		
430	4.005	520	20.38	610	40.88	700	6.601		
435	6.375	525	21.34	615	40.04	705	5.651		

Spectral Data Over Visible Wavelengths



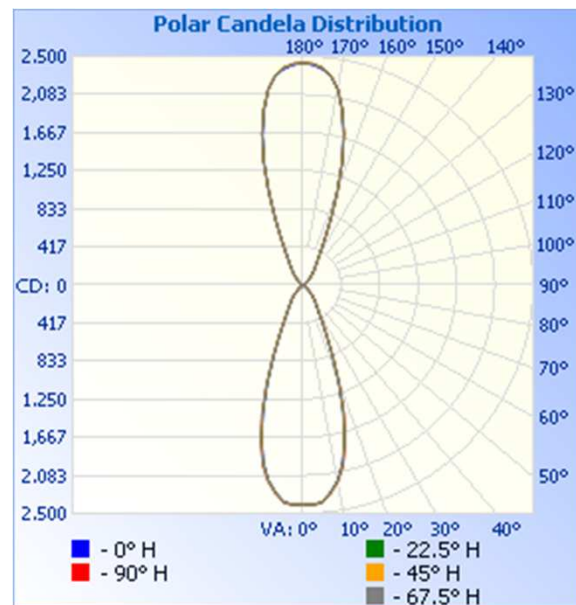
## RESULTS OF TEST (cont'd)

### 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)
AH08182016094438-046	Up/Down	120.2	250.8	29.99	0.995	2419	80.66

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

Angle	0	22.5	45	67.5	90
0	2389	2389	2389	2389	2389
5	2375	2375	2379	2382	2384
10	2163	2163	2170	2174	2178
15	1731	1738	1745	1755	1761
20	1124	1136	1150	1154	1152
25	587	600	605	605	606
30	333	339	344	345	345
35	228	232	237	237	237
40	156	160	164	164	165
45	93	96	98	99	100
50	46	48	49	50	52
55	18	19	20	22	23
60	5	6	7	8	10
65	3	3	4	6	7
70	1	1	2	4	6
75	0	0	1	2	4
80	0	0	0	0	2
85	0	0	0	0	0
90	0	0	0	0	0
95	0	0	0	0	1
100	0	0	0	1	3
105	1	1	2	3	5
110	3	2	3	5	7
115	4	4	5	7	9
120	7	7	8	10	12
125	18	18	19	22	23
130	42	43	44	47	48
135	85	87	88	91	91
140	145	148	148	150	150
145	209	214	216	216	216
150	310	316	318	317	316
155	557	563	562	562	559
160	1076	1084	1086	1090	1093
165	1693	1707	1709	1712	1709
170	2170	2163	2163	2169	2173
175	2368	2385	2384	2381	2380
180	2426	2426	2426	2426	2426



## RESULTS OF TEST (cont'd)

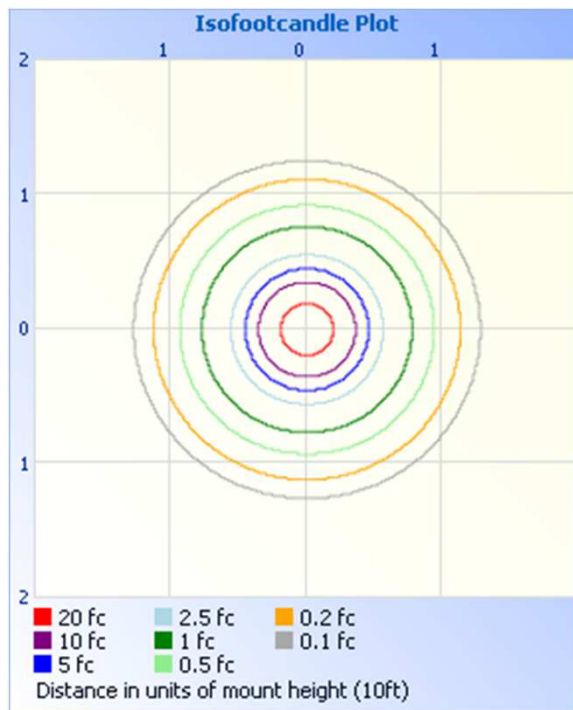
### Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



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

Zone	Lumens	% Luminaire
0-30	980.6	40.5
0-40	1130	46.7
0-60	1227	50.7
60-90	6.2	0.3
0-90	1233	51.0
90-180	1187	49.0
0-180	2419	100.0

### Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	491.7	20.3
FM	(30-60)	123.2	5.1
FH	(60-80)	3.0	0.1
FVH	(80-90)	0.1	0.0
BL	(0-30)	491.7	20.3
BM	(30-60)	123.2	5.1
BH	(60-80)	3.0	0.1
BVH	(80-90)	0.1	0.0
UL	(90-100)	0.3	0.0
UH	(100-180)	1189.9	49.0
Total		2426.2	100.0

### Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	219.4	9.1
10-20	469.4	19.4
20-30	291.8	12.1
30-40	149.0	6.2
40-50	76.8	3.2
50-60	20.3	0.8
60-70	4.6	0.2
70-80	1.5	0.1
80-90	0.1	0.0
90-100	0.3	0.0
100-110	2.4	0.1
110-120	6.1	0.3
120-130	19.8	0.8
130-140	70.1	2.9
140-150	136.5	5.6
150-160	273.3	11.3
160-170	457.8	18.9
170-180	220.2	9.1

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