



8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

Report No: L071802301



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Issue Date: 7/16/2018

Prepared For: Stone Lighting LLC
226 Commerce St Unit C, Broomfield, CO 80020

Model Number: CL461OPWHLED

Test: Photometric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 7/11/18

Date of Tests: 7/12/18 - 7/16/18

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S4	1/9/19
BK PRECISION	1747	PS-DC04	1/10/19
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/19
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Summary

Manufacturer:	Stone Lighting LLC
Model Number:	CL461OPWHLED
Driver Model Number:	L.T.F.TECHNOLOGY DA22W600C2036BF1-00HE
Total Lumens:	1120.74
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.16
Input Power (W):	19.09
Input Power Factor:	0.98
Current ATHD @ 120V(%):	9%
Current ATHD @ 277V(%):	N/A
Efficacy:	58.70
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:05

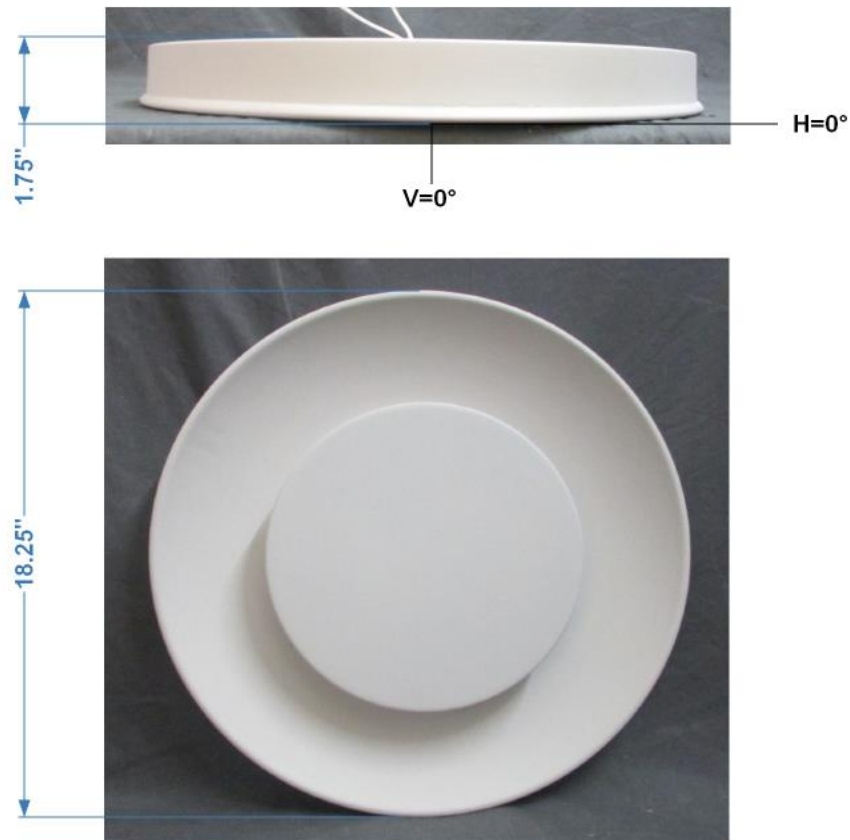


FIG.1 LUMINAIRE

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Keyur Patel

Test Report Released by:



Jeff Ahn
Engineering Manager

Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 8*



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L071802301.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L071802301
[TESTLAB] LIGHT LABORATORY, INC. (WWW.LIGHTLABORATORY.COM)
[ISSUEDATE] 7/16/2018
[MANUFAC] STONE LIGHTING LLC
[LUMCAT] CL461OPWHLED
[LUMINAIRE] HALO FLUSH CEILING MOUNT, 46.5X4.5CM, WHITE, D
[MORE] DIMMABLE 18W LED, 3000K, UL CERTIFIED
[BALLASTCAT] L.T.F.TECHNOLOGY DA22W600C2036BF1-00HE
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 19.09W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1121
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	59
Total Luminaire Watts	19.09
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.36
Spacing Criterion (90-270)	1.36
Spacing Criterion (Diagonal)	1.52
Basic Luminous Shape	Circular
Luminous Length (0-180)	1.48 ft (Diameter)
Luminous Width (90-270)	1.48 ft (Diameter)
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	2244	2244	2244
55	2364	2364	2364
65	2548	2548	2548
75	2360	2360	2360
85	1448	1448	1448

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L071802301.IES

CANDELA TABULATION

	<u>0</u>
0.0	320.50
5.0	318.92
10.0	315.78
15.0	311.51
20.0	306.03
25.0	299.18
30.0	291.02
35.0	280.75
37.5	274.95
40.0	268.61
42.5	261.55
45.0	253.82
47.5	245.75
50.0	236.92
52.5	226.88
55.0	216.87
57.5	206.75
60.0	196.35
62.5	185.19
65.0	172.27
67.5	156.30
70.0	137.46
72.5	117.55
75.0	97.72
77.5	77.64
80.0	57.55
85.0	20.19
90.0	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L071802301.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	118.45	N.A.	10.60
0-30	256.62	N.A.	22.90
0-40	432.49	N.A.	38.60
0-60	822.60	N.A.	73.40
0-80	1094.09	N.A.	97.60
0-90	1120.74	N.A.	100.00
10-90	1090.39	N.A.	97.30
20-40	314.04	N.A.	28.00
20-50	510.00	N.A.	45.50
40-70	558.65	N.A.	49.80
60-80	271.49	N.A.	24.20
70-80	102.95	N.A.	9.20
80-90	26.65	N.A.	2.40
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	1120.74	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	30.35
10-20	88.10
20-30	138.17
30-40	175.87
40-50	195.97
50-60	194.14
60-70	168.54
70-80	102.95
80-90	26.65
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

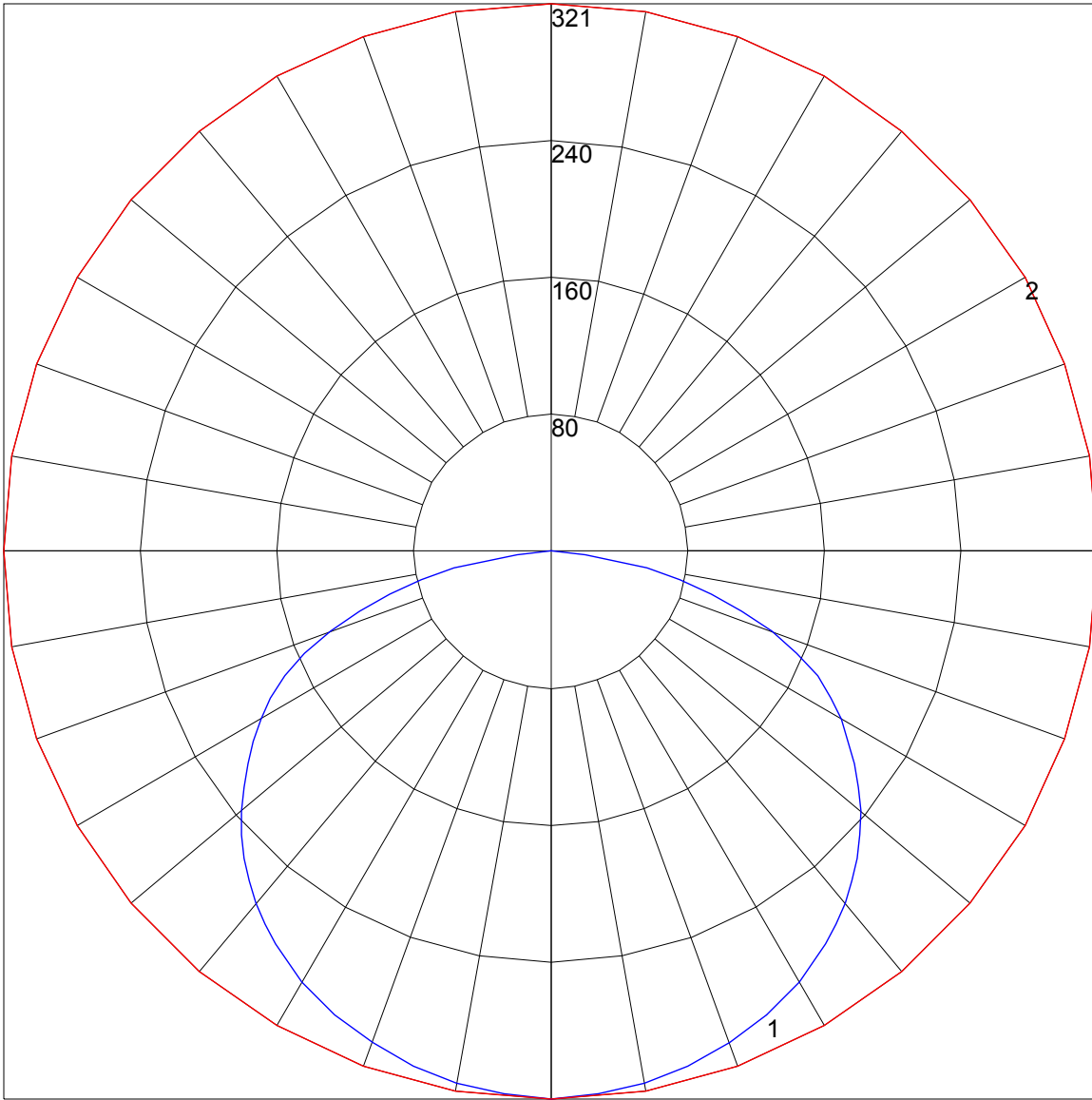
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	108	102	98	94	105	100	96	92	96	92	89	92	89	86	88	86	84	82
2	97	88	81	75	94	86	79	74	83	77	72	79	74	70	76	72	69	66
3	88	77	68	61	85	75	67	60	72	65	59	69	63	58	66	61	57	55
4	80	67	58	51	78	66	57	50	63	56	50	61	54	49	59	53	48	46
5	73	60	50	43	71	58	49	43	56	48	42	54	47	42	52	46	41	39
6	67	53	44	37	65	52	43	37	51	43	37	49	42	36	47	41	36	34
7	62	48	39	33	60	47	39	32	46	38	32	44	37	32	43	36	32	30
8	58	44	35	29	56	43	35	29	42	34	28	40	33	28	39	33	28	26
9	54	40	31	26	52	39	31	26	38	31	25	37	30	25	36	30	25	23
10	51	37	29	23	49	36	28	23	35	28	23	34	28	23	33	27	23	21

POLAR GRAPH



Maximum Candela = 320.5 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)