LIGHT LABORATORY INC.
8165 E Kaiser Blvd. Anaheim, CA 92808
p. 714.282.2270
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Report No: L041608811
Date: 5/20/2016

NVLAP LAB CODE 200927-0

Report No: L041608811

Prepared For: Number Eight Lighting Company
526 Portal Street, Cotati, CA 94931

Model Number: 400-HI-15/DIM1-4(PR1-4, DIM2-4, PR2-4)-1000/FLS(FS)-4-WH(OB)

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. Catalog number is 400-HI-15/DIM1-4(PR1-4, DIM2-4, PR2-4)-1000/FLS(FS)-4-WH(OB). Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 5/9/16

Date of Tests: 5/17/16 - 5/17/16

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-S1	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
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.

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Test Summary	
Manufacturer:	Number Eight Lighting Company
Model Number:	400-HI-15/DIM1-4(PR1-4, DIM2-4, PR2-4)-1000/FLS(FS)-4-WH(OB)
Driver Model Number:	INTUITIVE SYSTEMS ISD-601-1050-15-D
Total Lumens:	907.83
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.13
Input Power (W):	14.68
Input Power Factor:	0.97
Current ATHD @ 120V(%):	14%
Current ATHD @ 277V(%):	N/A
Efficacy:	62
Ambient Temperature (^{o}C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:10
Off State Power(W):	0.00

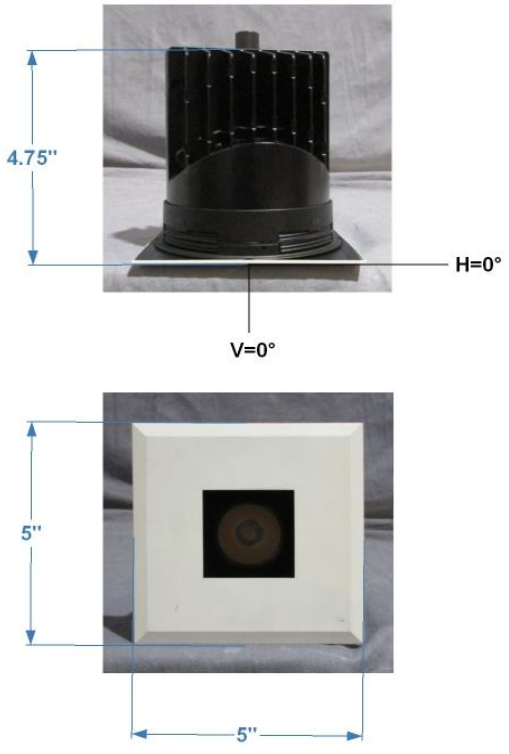

FIG.1 LUMINAIRE

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

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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 : Dennis Malonzo

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: 9*

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

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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608811.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L41608811
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 05/20/2016
[MANUFAC] Number Eight Lighting Company
[LUMCAT] 400-HI-15/DIM1-4(PR1-4, DIM2-4, PR2-4)-1000/FLS(FS)-4-WH(OB)
[LUMINAIRE] "L. X "W. LED Recessed Adjustable Downlight, 90+ CRI, 15° Beam Spread,
[MORE] 0° Aiming Angle, 2"x2" Aperture Trim
[BALLASTCAT]
[LAMPPOSITION] 0,0
[LAMPCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 14.68W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	908
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	62
Total Luminaire Watts	14.68
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.32
Spacing Criterion (90-270)	0.32
Spacing Criterion (Diagonal)	0.36
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.17 ft
Luminous Width (90-270)	0.17 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	2631	3684	2894
55	1297	1297	1297
65	880	880	880
75	1438	1438	1438
85	4269	4269	4269

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608811.IES

CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0.0	5549	5549	5549	5549	5549	5549	5549	5549	5549	5549
1.0	5502	5502	5502	5501	5501	5500	5499	5498	5497	5496
3.0	5111	5111	5112	5110	5108	5105	5103	5100	5098	5095
5.0	4438	4437	4437	4434	4434	4430	4432	4431	4431	4430
7.0	3597	3599	3602	3604	3606	3612	3616	3619	3620	3618
9.0	2793	2793	2797	2803	2813	2822	2828	2832	2833	2831
11.0	2111	2115	2125	2140	2155	2168	2178	2186	2190	2190
13.0	1595	1599	1612	1631	1651	1666	1677	1687	1693	1697
15.0	1222	1227	1238	1252	1267	1283	1295	1303	1308	1309
17.0	939	942	947	956	968	980	990	998	1003	1005
19.5	665	666	667	668	673	682	691	698	704	707
22.5	415	416	417	417	419	426	431	438	443	444
25.5	256	256	258	258	261	266	269	274	276	277
29.0	137	138	140	144	148	152	156	159	162	163
33.0	62	63	64	66	70	73	78	82	85	85
37.5	20	20	21	22	24	27	30	32	34	35
42.5	7	7	7	8	8	9	9	10	11	10
47.5	3	3	4	4	4	4	4	4	4	4
55.0	2	2	2	2	2	2	2	2	2	2
65.0	1	1	1	1	1	2	1	1	1	1
75.0	1	1	1	1	1	1	1	1	1	1
85.0	1	1	1	1	1	1	1	1	1	1
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Angles	**Horizontal Angles**								
	50	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**
0.0	5549	5549	5549	5549	5549	5549	5549	5549	5549
1.0	5496	5494	5493	5493	5492	5491	5491	5491	5490
3.0	5093	5092	5090	5090	5091	5090	5091	5090	5088
5.0	4428	4427	4425	4422	4418	4414	4413	4410	4413
7.0	3612	3607	3598	3591	3583	3575	3570	3564	3564
9.0	2827	2820	2812	2802	2790	2779	2769	2763	2761
11.0	2186	2181	2170	2158	2144	2129	2119	2110	2107
13.0	1694	1686	1676	1664	1652	1636	1623	1613	1610
15.0	1309	1303	1294	1284	1273	1262	1252	1244	1242
17.0	1005	1000	993	983	973	964	957	954	955
19.5	706	700	692	684	677	670	667	667	667
22.5	443	436	428	423	419	415	413	414	412
25.5	276	272	268	263	259	255	254	254	252
29.0	161	160	156	151	147	143	140	138	137
33.0	84	82	78	74	69	66	64	62	62
37.5	34	33	30	27	24	22	21	20	20
42.5	10	10	10	9	8	8	8	7	7
47.5	4	4	4	4	4	4	4	4	4
55.0	2	2	2	2	2	2	2	2	2
65.0	1	1	1	1	1	1	1	1	1
75.0	1	1	1	1	2	1	1	1	1
85.0	1	1	1	1	1	1	1	1	1
90.0	0	0	0	0	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608811.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	706.44	N.A.	77.80
0-30	854.18	N.A.	94.10
0-40	893.40	N.A.	98.40
0-60	903.92	N.A.	99.60
0-80	906.45	N.A.	99.80
0-90	907.83	N.A.	100.00
10-90	599.43	N.A.	66.00
20-40	186.95	N.A.	20.60
20-50	195.58	N.A.	21.50
40-70	11.97	N.A.	1.30
60-80	2.54	N.A.	0.30
70-80	1.09	N.A.	0.10
80-90	1.38	N.A.	0.20
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	907.83	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	308.40
10-20	398.04
20-30	147.74
30-40	39.21
40-50	8.62
50-60	1.90
60-70	1.45
70-80	1.09
80-90	1.38
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

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608811.IES

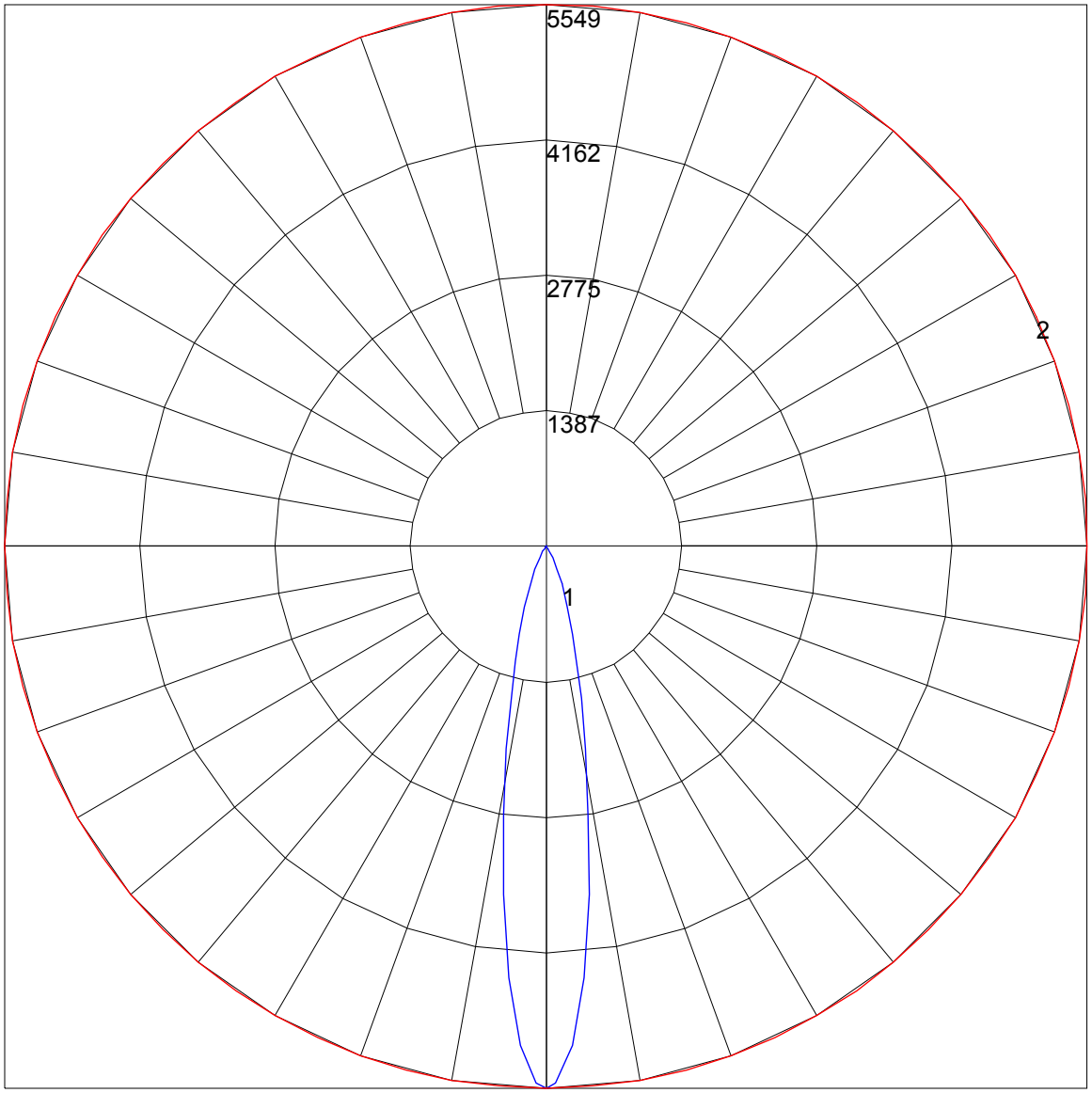
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	115	113	111	109	112	111	109	107	107	105	104	103	102	101	100	99	98	96
2	111	107	104	102	109	106	103	101	103	100	98	100	98	96	97	96	94	93
3	107	103	99	96	106	101	98	95	99	96	94	97	94	92	94	93	91	90
4	104	98	94	91	102	97	94	91	95	92	90	94	91	89	92	90	88	87
5	101	95	91	88	99	94	90	87	92	89	86	91	88	86	89	87	85	84
6	98	91	87	84	97	91	87	84	89	86	83	88	85	83	87	84	82	81
7	95	88	84	81	94	88	84	81	87	83	81	86	83	80	85	82	80	79
8	92	86	81	78	91	85	81	78	84	81	78	83	80	78	82	80	77	76
9	90	83	79	76	89	83	79	76	82	78	76	81	78	76	80	77	75	74
10	87	81	77	74	87	80	76	74	80	76	74	79	76	73	78	75	73	72

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608811.IES

POLAR GRAPH



Maximum Candela = 5549 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.)

Addendum: Illuminance cone diagram

Mounting Height = 12 ft.