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

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L081910639 **Issue Date: 9/6/2019**

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

Model Number: 202-S-HI-3000-60/DIM1-2-SO/FLS-2-WH

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.

Special Test Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 8/16/19

Date of Tests: 8/28/19 - 9/6/19

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	1/9/21
BK PRECISION	1747	PS-DC04	1/10/21
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/21
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

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General Information	
Manufacturer:	Number Eight Lighting Company
Model Number:	202-S-HI-3000-60/DIM1-2-SO/FLS-2-WH
Driver Model Number:	INTUITIVE SYSTEMS ISD-701-350-15-D

Photometric & Electrical Test Results	
Total Lumens:	1012.32
Efficacy:	72.72
Input Voltage (VAC/60Hz):	119.98
Input Current (Amp):	0.1169
Input Power (W):	13.92
Input Power Factor:	0.9928
Current ATHD (%):	7.6%

Test Condition	
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	1:00
Total Operating Time (Hours):	2:00

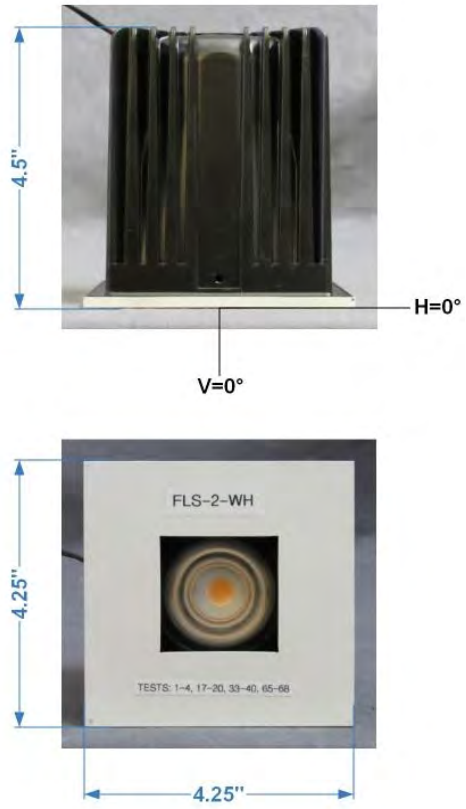

FIG. 1 LUMINAIRE

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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^{o}C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25^{o}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^{o}C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25^{o}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 Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 9*

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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L081910639.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L081910639
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 9/6/2019
[MANUFAC] Number Eight Lighting Company
[LUMCAT] 202-S-HI-3000-60/DIM1-2-SO/FLS-2-WH
[LUMINAIRE] LED Recessed Adjustable Downlight, 0° Aiming Angle, 3000K 90+ CRI, 60° Beam Spread,
[MORE] Standard Output 1% Dimming Driver, Square Flanged Trim, 1.875" x 1.875" Aperture
[BALLASTCAT] INTUITIVE SYSTEMS ISD-701-350-15-D
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 119.98VAC, 13.92W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1012
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	73
Total Luminaire Watts	13.92
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.88
Spacing Criterion (90-270)	0.88
Spacing Criterion (Diagonal)	0.84
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.15 ft
Luminous Width (90-270)	0.15 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	20954	25009	21292
55	833	2500	833
65	0	0	0
75	0	0	0
85	0	0	0

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CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0.0	1339	1339	1339	1339	1339	1339	1339	1339	1339	1339
1.0	1339	1338	1336	1337	1337	1338	1337	1337	1337	1336
3.0	1338	1338	1338	1339	1338	1339	1338	1338	1338	1338
5.0	1342	1340	1341	1341	1342	1342	1341	1342	1341	1341
7.0	1341	1341	1342	1343	1342	1342	1342	1343	1343	1343
9.0	1334	1334	1334	1335	1335	1338	1336	1337	1339	1339
11.0	1319	1319	1319	1320	1319	1321	1322	1324	1324	1324
13.0	1296	1296	1296	1298	1298	1299	1298	1299	1298	1298
15.0	1260	1260	1261	1263	1265	1266	1266	1264	1262	1262
17.0	1213	1214	1214	1216	1218	1219	1219	1219	1219	1219
19.5	1136	1137	1139	1142	1144	1145	1146	1147	1148	1149
22.5	966	969	978	992	1007	1020	1030	1036	1038	1038
25.5	715	720	734	755	782	814	846	871	886	892
29.0	429	433	446	465	491	526	564	606	642	658
33.0	202	203	206	214	227	248	277	309	333	342
37.5	100	101	101	102	104	107	112	119	127	131
42.5	46	46	46	47	47	49	49	50	51	51
47.5	16	17	17	18	19	20	21	22	23	23
55.0	1	1	1	2	2	2	2	3	3	3
65.0	0	0	0	0	0	0	0	0	0	0
75.0	0	0	0	0	0	0	0	0	0	0
85.0	0	0	0	0	0	0	0	0	0	0
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	1339	1339	1339	1339	1339	1339	1339	1339	1339
1.0	1337	1338	1337	1337	1337	1337	1338	1336	1336
3.0	1339	1338	1339	1338	1338	1338	1338	1338	1338
5.0	1342	1342	1342	1343	1342	1342	1342	1341	1341
7.0	1343	1343	1344	1343	1343	1343	1343	1342	1343
9.0	1340	1338	1337	1335	1335	1335	1334	1332	1332
11.0	1324	1324	1321	1319	1318	1318	1317	1317	1317
13.0	1298	1297	1297	1296	1296	1296	1294	1295	1294
15.0	1262	1263	1265	1265	1263	1262	1260	1260	1261
17.0	1219	1219	1218	1217	1216	1216	1214	1214	1214
19.5	1148	1147	1146	1146	1144	1143	1139	1137	1137
22.5	1038	1036	1030	1021	1008	993	980	972	968
25.5	888	874	849	817	787	760	739	726	723
29.0	644	611	571	533	499	473	452	440	436
33.0	336	313	281	251	229	215	207	203	202
37.5	127	119	112	106	103	102	101	100	100
42.5	51	50	49	49	48	47	47	46	46
47.5	23	22	21	21	20	19	18	17	17
55.0	3	3	2	2	2	2	1	1	1
65.0	0	0	0	0	0	0	0	0	0
75.0	0	0	0	0	0	0	0	0	0
85.0	0	0	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0	0	0

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	458.08	N.A.	45.30
0-30	823.01	N.A.	81.30
0-40	963.33	N.A.	95.20
0-60	1011.37	N.A.	99.90
0-80	1012.32	N.A.	100.00
0-90	1012.32	N.A.	100.00
10-90	908.65	N.A.	89.80
20-40	505.25	N.A.	49.90
20-50	546.28	N.A.	54.00
40-70	48.98	N.A.	4.80
60-80	0.95	N.A.	0.10
70-80	0.00	N.A.	0.00
80-90	0.00	N.A.	0.00
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	1012.32	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	103.66
10-20	354.42
20-30	364.93
30-40	140.32
40-50	41.03
50-60	7.01
60-70	0.95
70-80	0.00
80-90	0.00
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	114	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94
2	109	104	100	97	106	102	99	96	99	96	94	96	94	92	93	92	90	88
3	104	98	93	89	102	96	92	88	94	90	87	91	88	86	89	87	84	83
4	99	92	86	83	97	91	86	82	88	84	81	86	83	80	85	82	79	78
5	94	86	81	77	93	85	80	76	84	79	76	82	78	75	80	77	74	73
6	90	81	76	72	88	81	75	72	79	75	71	78	74	71	77	73	70	69
7	86	77	71	67	84	76	71	67	75	70	67	74	70	66	73	69	66	65
8	82	73	67	63	81	72	67	63	71	66	63	70	66	63	69	65	62	61
9	78	69	63	60	77	69	63	60	68	63	59	67	62	59	66	62	59	58
10	75	66	60	56	74	65	60	56	64	60	56	64	59	56	63	59	56	55

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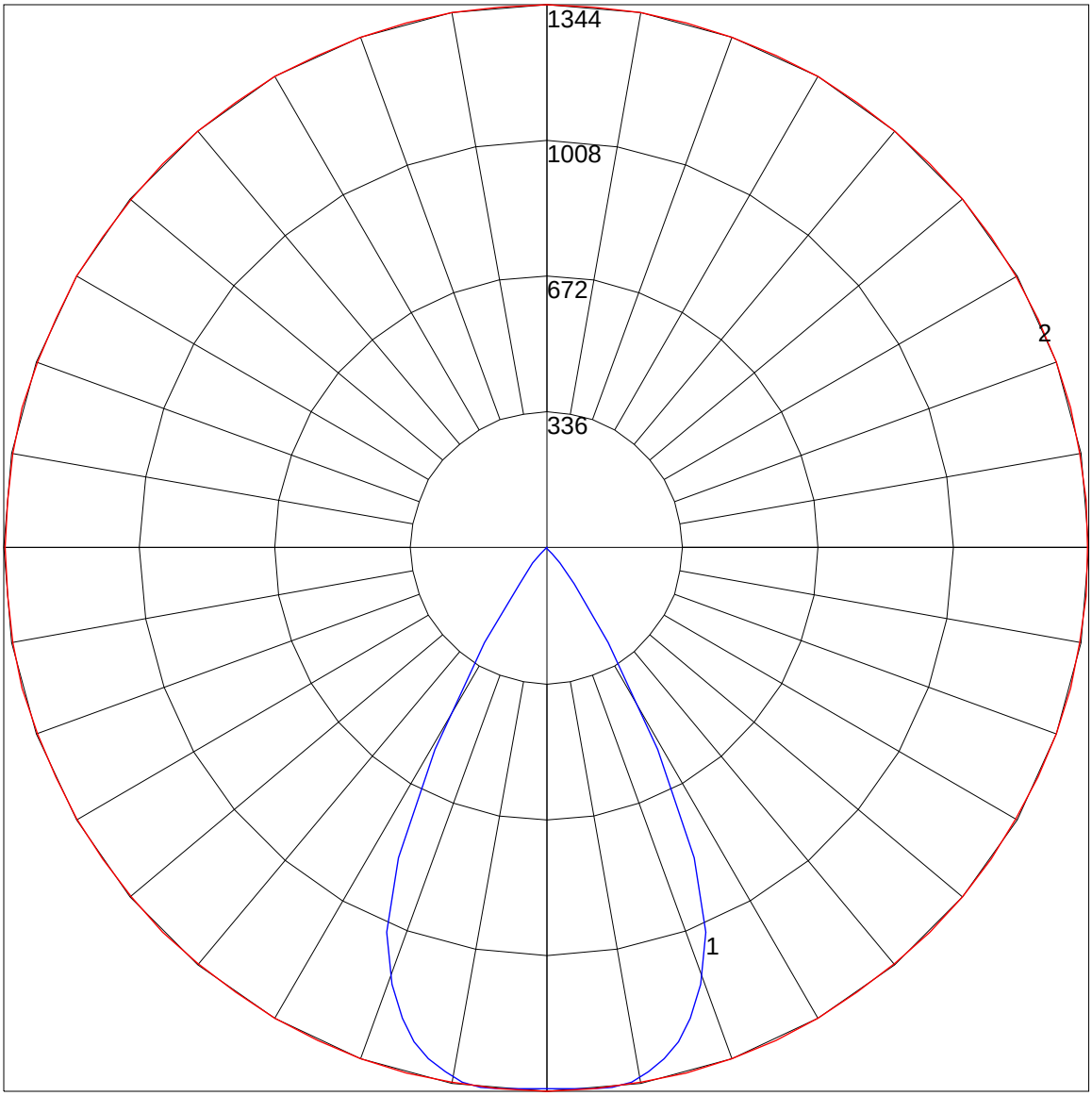
POLAR GRAPH



Maximum Candela = 1344 Located At Horizontal Angle = 60, Vertical Angle = 7
1 - Vertical Plane Through Horizontal Angles (60 - 240) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (7) (Through Max. Cd.)

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ILLUMINANCE CONE DIAGRAM: BEAM (50%)
MOUNT HEIGHT(Ft): 12