



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

Report No: L081910646



**Report No:** L081910646

**Issue Date:** 9/5/2019

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

**Model Number:** 202-R-HI-3000-40/DIM1-2-SO/FLR-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:** 8/15/19

**Date of Tests:** 8/28/19 - 9/5/19

**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

### General Information

<b>Manufacturer:</b>	Number Eight Lighting Company
<b>Model Number:</b>	202-R-HI-3000-40/DIM1-2-SO/FLR-2-WH
<b>Driver Model Number:</b>	INTUITIVE SYSTEMS ISD-701-350-15-D

### Photometric & Electrical Test Results

<b>Total Lumens:</b>	945.57
<b>Efficacy:</b>	68.01
<b>Input Voltage (VAC/60Hz):</b>	120.01
<b>Input Current (Amp):</b>	0.1167
<b>Input Power (W):</b>	13.90
<b>Input Power Factor:</b>	0.9927
<b>Current ATHD (%):</b>	7.7%

### Test Condition

<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	1:00
<b>Total Operating Time (Hours):</b>	2:20

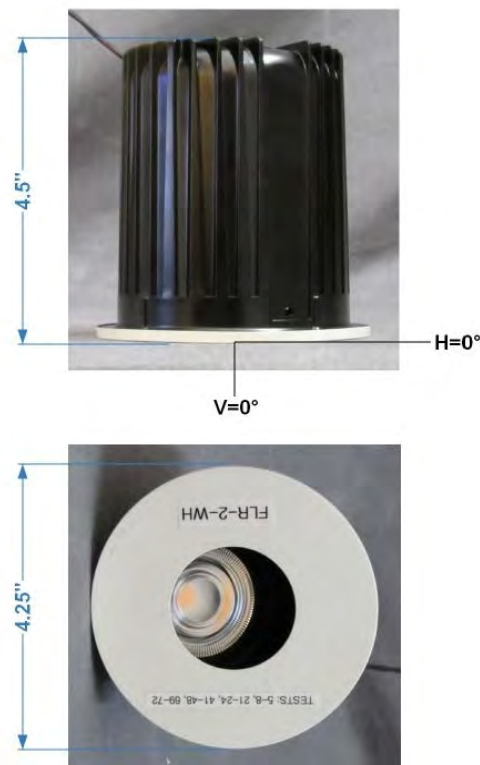


FIG. 1 LUMINAIRE



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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°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 Reviewed by:

Steve Kang  
Quality Assurance

*\*Attached are photometric data reports. Total number of pages: 10*



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## Photometric Test Report

### IES INDOOR REPORT

PHOTOMETRIC FILENAME : L081910646.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L081910646  
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)  
[ISSUE DATE] 9/5/2019  
[MANUFAC] Number Eight Lighting Company  
[LUMCAT] 202-R-HI-3000-40/DIM1-2-SO/FLR-2-WH  
[LUMINAIRE] LED Recessed Adjustable Downlight, 30° Aiming Angle, 3000K 90+ CRI, 40° Beam Spread,  
[MORE] Standard Output 1% Dimming Driver, Round Flanged Trim, 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] 120.05VAC, 13.90W  
[TEST PROCEDURE] IESNA:LM-79-08

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	946
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	68
Total Luminaire Watts	13.9
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	2.78
Spacing Criterion (90-270)	0.56
Spacing Criterion (Diagonal)	1.26
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.16 ft (Diameter)
Luminous Width (90-270)	0.16 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	1465893	77152	1513
55	283476	15852	0
65	25311	1266	0
75	0	0	0
85	0	0	0

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L081910646.IES**

**CANDELA TABULATION**

	<u>0</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>	<u>40</u>	<u>45</u>
<b>0.0</b>	172	172	172	172	172	172	172	172	172	172
<b>2.5</b>	227	227	226	224	222	220	218	215	211	206
<b>5.0</b>	349	348	345	339	331	321	311	298	283	270
<b>7.5</b>	557	555	544	528	508	480	451	420	389	357
<b>10.0</b>	857	852	831	800	756	705	646	583	522	461
<b>12.5</b>	1230	1219	1187	1135	1063	976	883	777	673	573
<b>15.0</b>	1610	1597	1552	1482	1388	1270	1130	981	834	689
<b>17.0</b>	1891	1874	1825	1746	1632	1486	1323	1136	941	762
<b>19.0</b>	2123	2111	2056	1967	1846	1674	1484	1274	1050	832
<b>21.0</b>	2284	2273	2231	2154	2021	1843	1630	1381	1113	863
<b>23.0</b>	2387	2373	2337	2271	2147	1965	1725	1458	1168	888
<b>25.0</b>	2472	2470	2424	2352	2241	2051	1796	1498	1172	869
<b>27.0</b>	2504	2497	2476	2406	2287	2091	1818	1504	1163	845
<b>29.0</b>	2502	2511	2519	2436	2308	2103	1820	1471	1103	779
<b>31.0</b>	2504	2523	2510	2435	2301	2077	1774	1404	1034	705
<b>33.0</b>	2476	2485	2470	2421	2277	2028	1696	1306	925	615
<b>35.0</b>	2501	2491	2463	2395	2221	1929	1584	1192	809	521
<b>37.0</b>	2520	2510	2455	2345	2125	1798	1430	1031	679	383
<b>39.0</b>	2499	2477	2397	2235	1967	1629	1251	864	542	317
<b>41.0</b>	2389	2354	2245	2053	1769	1423	1048	685	372	229
<b>43.0</b>	2206	2159	2037	1831	1534	1178	816	501	277	152
<b>45.0</b>	1938	1891	1750	1531	1238	898	575	336	181	102
<b>50.0</b>	980	944	822	656	470	300	177	104	67	42
<b>55.0</b>	304	289	244	189	134	92	65	44	28	17
<b>60.0</b>	86	82	73	61	48	35	23	13	7	4
<b>65.0</b>	20	19	15	11	7	5	4	3	2	1
<b>70.0</b>	3	3	3	2	2	1	5	1	1	0
<b>75.0</b>	0	0	0	0	0	0	0	0	0	0
<b>80.0</b>	0	0	0	0	0	0	0	0	0	0
<b>85.0</b>	0	0	0	0	0	0	0	0	0	0
<b>90.0</b>	0	0	0	0	0	0	0	0	0	0

**Vert. Angles**      **Horizontal Angles**

	<u>50</u>	<u>55</u>	<u>60</u>	<u>65</u>	<u>70</u>	<u>75</u>	<u>80</u>	<u>85</u>	<u>90</u>	<u>95</u>
<b>0.0</b>	172	172	172	172	172	172	172	172	172	172
<b>2.5</b>	203	199	195	190	186	181	177	173	169	165
<b>5.0</b>	257	243	230	217	204	192	183	172	162	154
<b>7.5</b>	325	294	268	242	219	199	182	166	152	138
<b>10.0</b>	400	340	302	262	229	201	177	156	137	119
<b>12.5</b>	484	401	330	276	232	195	167	142	120	100
<b>15.0</b>	555	446	338	279	226	185	152	123	100	81
<b>17.0</b>	600	462	344	276	217	173	138	108	85	62
<b>19.0</b>	636	477	342	262	202	157	120	90	66	47
<b>21.0</b>	643	467	333	249	186	140	103	77	51	34
<b>23.0</b>	646	454	316	226	169	123	87	59	39	25
<b>25.0</b>	615	419	290	207	147	104	72	44	28	20
<b>27.0</b>	581	363	257	178	123	83	51	32	21	16
<b>29.0</b>	516	335	223	152	99	63	37	23	17	13
<b>31.0</b>	460	292	187	121	80	44	26	18	14	11
<b>33.0</b>	359	240	152	93	55	32	20	15	12	10
<b>35.0</b>	320	190	116	76	39	23	16	12	10	8
<b>37.0</b>	241	145	86	47	27	18	13	11	8	7
<b>39.0</b>	182	104	59	33	20	14	11	9	7	6

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CANDELA TABULATION - (Cont.)

41.0	126	79	41	24	16	12	9	7	6	3
43.0	87	50	29	18	13	10	8	6	3	2
45.0	60	36	21	14	11	8	6	3	2	1
50.0	26	16	11	8	5	3	2	1	1	1
55.0	10	6	4	2	1	1	1	0	0	0
60.0	3	2	1	1	1	0	0	0	0	0
65.0	0	0	0	0	0	0	0	0	0	0
70.0	0	0	0	0	0	0	0	0	0	0
75.0	0	0	0	0	0	0	0	0	0	0
80.0	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									
	<u>100</u>	<u>105</u>	<u>110</u>	<u>115</u>	<u>120</u>	<u>125</u>	<u>130</u>	<u>135</u>	<u>140</u>	<u>145</u>
0.0	172	172	172	172	172	172	172	172	172	172
2.5	161	157	153	149	147	143	140	138	136	134
5.0	145	137	128	122	114	108	102	97	93	89
7.5	125	113	102	92	84	76	69	63	59	54
10.0	103	90	77	66	57	50	44	38	34	31
12.5	85	67	55	45	37	31	26	23	20	18
15.0	61	47	36	29	23	19	17	15	14	13
17.0	46	34	26	21	17	15	14	13	12	11
19.0	34	24	19	16	14	13	11	11	10	9
21.0	24	19	15	13	12	11	10	9	8	8
23.0	19	15	13	11	10	9	8	8	7	6
25.0	16	13	11	10	9	8	7	6	6	5
27.0	13	11	10	8	7	7	6	5	4	4
29.0	11	9	8	7	6	5	5	3	2	2
31.0	10	8	7	6	5	4	2	2	1	1
33.0	8	7	6	4	3	2	2	1	1	1
35.0	7	5	4	2	2	1	1	1	1	1
37.0	5	4	2	1	1	1	1	1	1	1
39.0	3	2	1	1	1	1	1	0	0	0
41.0	2	1	1	1	1	0	0	0	0	0
43.0	1	1	1	1	0	0	0	0	0	0
45.0	1	1	1	0	0	0	0	0	0	0
50.0	0	0	0	0	0	0	0	0	0	0
55.0	0	0	0	0	0	0	0	0	0	0
60.0	0	0	0	0	0	0	0	0	0	0
65.0	0	0	0	0	0	0	0	0	0	0
70.0	0	0	0	0	0	0	0	0	0	0
75.0	0	0	0	0	0	0	0	0	0	0
80.0	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						
	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0.0	172	172	172	172	172	172	172
2.5	132	130	126	125	125	124	124
5.0	86	81	78	77	76	75	75
7.5	51	48	44	43	41	41	40
10.0	28	26	24	23	22	22	21

IES INDOOR REPORT  
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CANDELA TABULATION - (Cont.)

12.5	17	16	15	15	14	14	14
15.0	13	12	11	11	11	11	11
17.0	10	10	10	9	9	9	9
19.0	9	8	8	8	7	7	7
21.0	7	7	7	6	6	6	6
23.0	6	6	5	5	5	5	5
25.0	5	4	4	4	3	3	3
27.0	3	2	2	2	2	2	2
29.0	2	1	1	1	1	1	1
31.0	1	1	1	1	1	1	1
33.0	1	1	1	1	1	1	1
35.0	1	1	1	1	1	0	0
37.0	0	0	0	0	0	0	0
39.0	0	0	0	0	0	0	0
41.0	0	0	0	0	0	0	0
43.0	0	0	0	0	0	0	0
45.0	0	0	0	0	0	0	0
50.0	0	0	0	0	0	0	0
55.0	0	0	0	0	0	0	0
60.0	0	0	0	0	0	0	0
65.0	0	0	0	0	0	0	0
70.0	0	0	0	0	0	0	0
75.0	0	0	0	0	0	0	0
80.0	0	0	0	0	0	0	0
85.0	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L081910646.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	118.93	N.A.	12.60
0-30	362.47	N.A.	38.30
0-40	666.31	N.A.	70.50
0-60	941.55	N.A.	99.60
0-80	945.57	N.A.	100.00
0-90	945.57	N.A.	100.00
10-90	925.20	N.A.	97.80
20-40	547.38	N.A.	57.90
20-50	779.09	N.A.	82.40
40-70	279.12	N.A.	29.50
60-80	4.02	N.A.	0.40
70-80	0.14	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	945.57	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	20.37
10-20	98.56
20-30	243.54
30-40	303.83
40-50	231.71
50-60	43.53
60-70	3.88
70-80	0.14
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



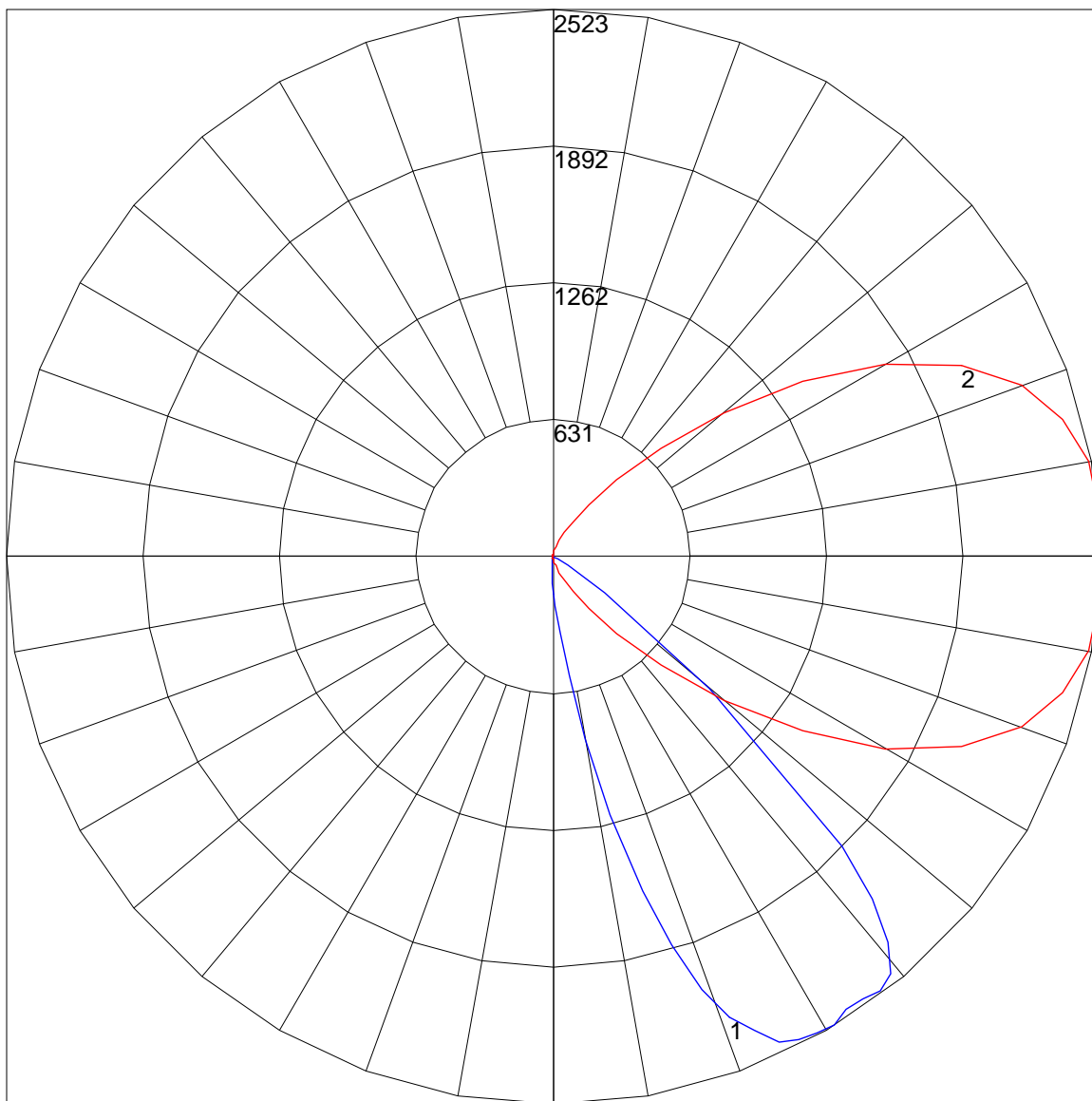
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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	112	109	106	103	110	107	104	101	102	100	98	99	97	95	95	94	93	91
2	105	99	94	90	102	97	92	89	94	90	87	91	87	85	88	85	83	81
3	98	90	83	78	95	88	82	78	85	80	76	83	79	75	80	77	74	72
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	69	66	64
5	84	74	66	61	82	73	66	61	71	65	60	69	64	60	67	63	59	57
6	78	67	60	54	77	66	59	54	65	58	54	63	57	53	62	57	53	51
7	73	61	54	48	71	60	53	48	59	53	48	58	52	48	56	51	47	46
8	68	56	48	43	66	55	48	43	54	48	43	53	47	43	52	47	43	41
9	63	51	44	39	62	51	44	39	50	43	39	49	43	39	48	42	38	37
10	59	47	40	35	58	47	40	35	46	39	35	45	39	35	44	39	35	33

POLAR GRAPH



Maximum Candela = 2523 Located At Horizontal Angle = 5, Vertical Angle = 31

# 1 - Vertical Plane Through Horizontal Angles (5 - 185) (Through Max. Cd.)

# 2 - Horizontal Cone Through Vertical Angle (31) (Through Max. Cd.)