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Report No: L101605133

Date: 12/13/2016



NVLAP LAB CODE 200927-0

**Report No:** L101605133

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

**Model Number:** 803/M2-S-HI-40-XX/DIM1-8-1000/FS-P-1-WH

**Test:** Electrical and Photometric tests

**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 803/M2-S-HI-40-XX/DIM1-8-1000/FS-P-1-WH. Received in working and undamaged condition. No modifications were necessary.

**Testing Condition:** Fixture is tested with no special conditions.

**Sample Arrival Date:** 10/31/16

**Date of Tests:** 12/13/16 - 12/13/16

**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-GB	2/10/17
Xitron Power Analyzer	2802	MT-EL02-2	12/22/16
BK PRECISION	1747	PS-DC04	12/8/16
Fluke Digital Thermometer	52k/J	MT-TP02-GB	12/8/16
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.

**Test Summary**

<b>Manufacturer:</b>	Number Eight Lighting Company
<b>Model Number:</b>	803/M2-S-HI-40-XX/DIM1-8-1000/FS-P-1-WH
<b>Driver Model Number:</b>	INTUITIVE SYSTEMS ISD-601-1050-15D
<b>Total Lumens:</b>	596.37
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.11
<b>Input Power (W):</b>	15.15
<b>Input Power Factor:</b>	0.98
<b>Current ATHD @ 120V(%):</b>	7%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	39
<b>Color Rendering Index (CRI):</b>	92
<b>Correlated Color Temperature (K):</b>	2948
<b>Chromaticity Coordinate x:</b>	0.4428
<b>Chromaticity Coordinate y:</b>	0.4096
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:45
<b>Total Operating Time (Hours):</b>	2:10
<b>Off State Power(W):</b>	0.00

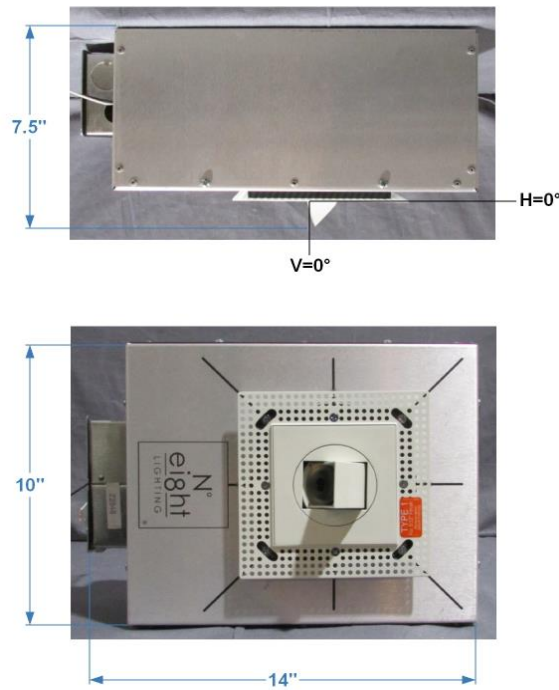
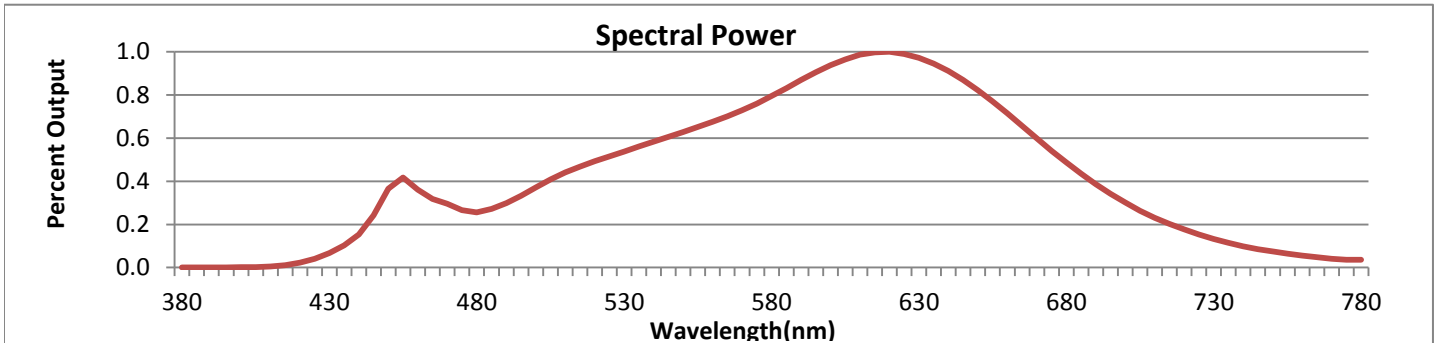


FIG. 1 LUMINAIRE

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



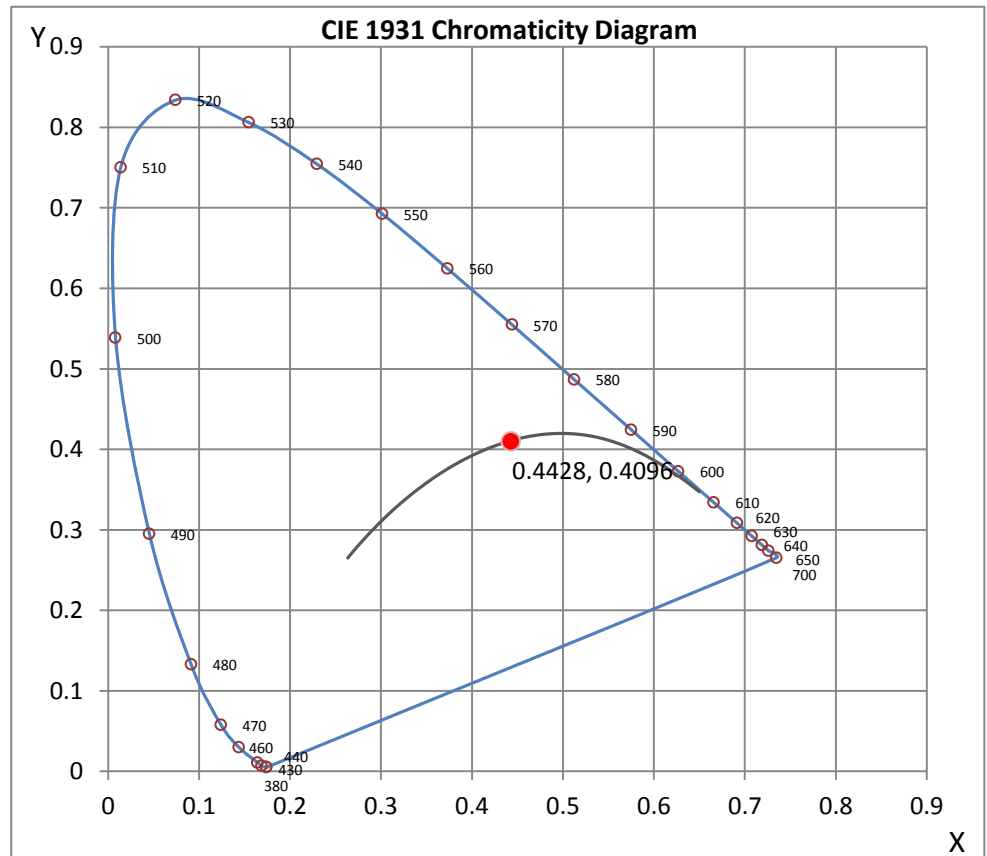
Wavelength	W/m <sup>2</sup> nm	440	0.1539	510	0.4407	580	0.7958	650	0.8222	720	0.1765
380	0.0009	450	0.3652	520	0.4933	590	0.8706	660	0.7158	730	0.1327
390	0.0009	460	0.3610	530	0.5382	600	0.9385	670	0.5984	740	0.0987
400	0.0012	470	0.2956	540	0.5839	610	0.9868	680	0.4879	750	0.0742
410	0.0049	480	0.2562	550	0.6279	620	1.0000	690	0.3870	760	0.0554
420	0.0222	490	0.2992	560	0.6753	630	0.9724	700	0.3012	770	0.0411
430	0.0667	500	0.3709	570	0.7290	640	0.9123	710	0.2303	780	0.0354

**CRI & CCT**

x	0.4428
y	0.4096
u'	0.2520
v'	0.5244
CRI	92.40
CCT	2948
Duv	0.00140

**R Values**

R1	92.27
R2	96.63
R3	99.18
R4	91.85
R5	91.97
R6	96.34
R7	91.15
R8	79.67
R9	54.95
R10	91.36
R11	92.87
R12	82.11
R13	93.51
R14	99.37



\*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.

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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: 12*



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# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L101605133.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] L101605133  
 [TESTLAB] LIGHT LABORATORY, INC.  
 [ISSUE DATE] 12/13/2016  
 [MANUFAC] Number Eight Lighting Company  
 [LUMCAT] 803/M2-S-HI-40-XX/DIM1-8-1000/FS-P-1-WH  
 [LUMINAIRE] LED Recessed Adjustable Mirror-Reflector Downlight,  
 [MORE] 90+ CRI, 40° Beam Spread, 45° Aiming Angle  
 [BALLASTCAT] INTUITIVE SYSTEMS ISD-601-1050-15D  
 [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,15.15W  
 [\_TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	596
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	39
Total Luminaire Watts	15.15
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.68
Spacing Criterion (90-270)	0.86
Spacing Criterion (Diagonal)	1.88
Basic Luminous Shape	Unknown
Luminous Length (0-180)	0.00 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	0	0	0
55	0	0	0
65	0	0	0
75	0	0	0
85	0	0	0

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>
0.0	53	53	53	53	53	53	53	53	53	53
5.0	52	52	53	53	53	53	53	53	54	54
10.0	56	56	55	55	55	55	54	54	53	52
15.0	56	56	57	57	57	57	55	54	53	52
20.0	21	21	22	24	27	31	36	40	44	45
25.0	13	13	13	13	14	15	17	18	22	28
30.0	8	8	9	9	10	11	12	13	15	17
35.0	7	7	7	7	7	8	9	10	11	12
37.5	7	7	7	7	7	7	8	9	10	11
40.0	4	4	5	6	6	7	8	8	9	10
42.5	3	3	3	4	4	5	7	8	9	9
45.0	3	3	3	3	4	4	5	7	8	9
47.5	3	3	3	3	4	4	5	6	7	8
50.0	2	2	3	3	3	4	4	5	6	7
52.5	2	2	3	3	3	4	4	5	6	6
55.0	2	2	2	3	3	3	4	4	5	6
57.5	2	2	2	3	3	3	4	4	5	6
60.0	2	2	2	2	3	3	3	4	5	5
62.5	2	2	2	2	3	3	3	4	4	5
65.0	2	2	2	2	2	3	3	4	4	5
67.5	1	2	2	2	2	3	3	3	4	4
70.0	1	1	2	2	2	3	3	3	4	4
72.5	1	1	2	2	2	2	3	3	4	4
75.0	1	1	1	2	2	2	3	3	3	4
77.5	1	1	1	2	2	2	2	3	3	4
80.0	1	1	1	1	2	2	2	3	3	3
85.0	1	1	1	1	1	1	2	2	2	3
90.0	1	1	1	1	1	1	1	1	2	2
95.0	1	1	1	1	1	1	1	1	1	2
100.0	1	1	1	1	1	1	1	1	1	2
105.0	1	1	1	1	1	1	1	1	1	2
110.0	1	1	1	1	1	1	1	1	2	2
115.0	1	1	1	2	2	2	2	2	2	2
120.0	2	2	2	2	2	2	2	2	2	2
125.0	3	3	3	3	3	3	3	3	3	3
130.0	4	4	4	4	4	4	4	4	4	4
135.0	4	4	4	5	5	5	5	5	5	5
140.0	0	0	0	0	0	0	0	0	0	0
145.0	0	0	0	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0	0	0	0
155.0	0	0	0	0	0	0	0	0	0	0
160.0	0	0	0	0	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0	0	0	0
170.0	0	0	0	0	0	0	0	0	0	0
175.0	0	0	0	0	0	0	0	0	0	0
180.0	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>
0.0	53	53	53	53	53	53	53	53	53	53
5.0	54	55	55	55	55	54	54	53	53	52
10.0	52	51	51	51	51	52	51	51	49	48
15.0	50	49	47	46	46	46	46	45	44	42

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L101605133.IES**

**CANDELA TABULATION - (Cont.)**

20.0	45	44	43	42	41	40	40	39	38	36
25.0	32	35	36	35	35	34	33	32	32	31
30.0	21	24	26	27	27	27	27	26	26	26
35.0	15	17	19	20	20	20	21	21	22	23
37.5	12	15	16	17	17	18	19	19	21	22
40.0	11	12	14	15	15	16	17	18	19	22
42.5	10	11	12	13	13	14	15	17	19	21
45.0	9	10	11	12	12	13	15	16	18	21
47.5	9	9	10	11	11	12	13	15	17	20
50.0	8	9	9	10	10	11	12	14	16	19
52.5	7	8	9	9	9	10	11	14	16	19
55.0	7	8	8	8	9	9	10	12	15	18
57.5	6	7	8	8	8	8	9	11	14	17
60.0	6	7	7	8	8	8	9	10	14	16
62.5	6	6	7	7	7	7	8	9	13	15
65.0	5	6	6	7	7	7	7	9	11	14
67.5	5	6	6	6	6	6	6	8	10	14
70.0	5	5	6	6	6	6	6	7	9	13
72.5	4	5	5	5	5	5	5	6	8	11
75.0	4	5	5	5	5	5	5	6	7	10
77.5	4	5	5	5	5	5	5	5	6	9
80.0	4	4	5	5	5	5	4	5	6	8
85.0	3	3	4	4	4	4	4	4	5	6
90.0	2	2	2	2	2	2	2	2	3	5
95.0	2	2	2	2	2	2	2	2	3	4
100.0	2	2	2	2	2	2	2	2	2	3
105.0	2	2	2	2	2	2	2	2	2	2
110.0	2	2	2	2	2	2	2	2	2	2
115.0	2	2	2	2	2	2	2	2	2	2
120.0	2	2	2	2	2	2	2	2	2	2
125.0	3	3	2	2	2	2	2	2	2	2
130.0	3	3	3	3	2	2	2	2	2	2
135.0	4	4	3	3	3	3	2	2	2	2
140.0	0	0	0	0	0	0	0	0	0	0
145.0	0	0	0	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0	0	0	0
155.0	0	0	0	0	0	0	0	0	0	0
160.0	0	0	0	0	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0	0	0	0
170.0	0	0	0	0	0	0	0	0	0	0
175.0	0	0	0	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0	0	0	0

**Vert. 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	53	53	53	53	53	53	53	53	53	53
5.0	51	50	49	47	46	45	44	42	42	41
10.0	46	44	41	39	37	36	34	33	32	31
15.0	40	37	35	33	32	30	30	32	37	44
20.0	34	32	31	30	31	36	47	67	94	129
25.0	30	29	29	30	36	50	78	113	164	224
30.0	27	27	28	30	39	61	115	149	224	316
35.0	25	26	29	31	37	60	114	169	264	391
37.5	24	26	29	31	36	56	112	173	278	412
40.0	24	26	29	32	35	52	118	167	247	409

**IES INDOOR REPORT**  
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**CANDELA TABULATION - (Cont.)**

42.5	24	26	29	33	36	48	119	154	237	389
45.0	23	26	30	33	37	46	117	138	220	358
47.5	23	26	30	34	37	43	67	120	199	319
50.0	23	26	30	34	37	42	59	118	172	277
52.5	22	26	30	34	37	41	53	119	146	216
55.0	22	25	29	33	37	40	47	70	120	184
57.5	21	24	29	32	36	39	43	59	96	151
60.0	20	23	27	31	35	38	41	50	77	116
62.5	19	23	26	30	34	37	39	43	58	90
65.0	18	22	25	29	32	35	37	39	46	67
67.5	17	20	24	27	30	34	36	37	39	49
70.0	15	19	23	26	29	32	34	35	36	39
72.5	14	18	21	24	27	30	32	33	33	33
75.0	13	16	20	23	26	28	30	31	32	31
77.5	12	15	18	21	24	27	29	30	30	30
80.0	11	14	17	20	23	25	27	28	28	28
85.0	9	12	14	17	19	22	23	24	24	24
90.0	7	9	12	14	16	18	19	20	20	20
95.0	5	7	9	11	12	13	14	15	16	16
100.0	4	5	6	6	4	3	3	2	1	3
105.0	2	2	2	2	2	1	1	1	1	1
110.0	2	2	2	2	2	1	1	1	1	1
115.0	2	2	2	2	2	1	1	1	1	1
120.0	2	2	2	2	2	1	1	1	1	1
125.0	2	2	2	2	2	1	1	1	1	1
130.0	2	2	2	2	2	1	1	1	1	1
135.0	2	2	2	2	2	1	1	1	1	1
140.0	0	0	0	0	0	0	0	0	0	0
145.0	0	0	0	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0	0	0	0
155.0	0	0	0	0	0	0	0	0	0	0
160.0	0	0	0	0	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0	0	0	0
170.0	0	0	0	0	0	0	0	0	0	0
175.0	0	0	0	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0	0	0	0

**Vert. 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	53	53	53	53	53	53	53
5.0	40	39	39	39	38	38	38
10.0	30	30	29	29	28	28	28
15.0	53	64	75	83	93	99	101
20.0	170	211	246	280	308	324	330
25.0	290	361	438	503	566	611	624
30.0	413	542	689	835	891	1040	1064
35.0	549	719	914	1058	1289	1414	1450
37.5	567	773	979	1157	1370	1499	1535
40.0	564	781	994	1133	1399	1534	1575
42.5	548	764	978	1121	1392	1531	1576
45.0	514	728	937	1101	1350	1488	1534
47.5	469	674	873	1051	1267	1396	1436
50.0	413	597	778	968	1119	1227	1259
52.5	349	497	649	799	897	1025	1052
55.0	283	396	522	648	753	795	861



**IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L101605133.IES**

**CANDELA TABULATION - (Cont.)**

<b>57.5</b>	223	309	406	491	568	619	637
<b>60.0</b>	160	245	319	394	457	502	519
<b>62.5</b>	132	194	249	313	364	401	414
<b>65.0</b>	100	133	192	238	279	302	311
<b>67.5</b>	70	97	123	161	184	197	200
<b>70.0</b>	46	60	76	88	97	102	103
<b>72.5</b>	35	39	44	48	50	51	51
<b>75.0</b>	31	32	32	33	33	33	33
<b>77.5</b>	29	30	30	31	31	31	30
<b>80.0</b>	28	28	28	29	28	28	27
<b>85.0</b>	24	24	24	24	23	23	23
<b>90.0</b>	20	20	19	19	18	18	17
<b>95.0</b>	17	18	18	18	18	18	18
<b>100.0</b>	5	8	10	11	13	13	14
<b>105.0</b>	1	0	0	0	0	0	0
<b>110.0</b>	1	0	0	0	0	0	0
<b>115.0</b>	0	0	0	0	0	0	0
<b>120.0</b>	1	0	0	0	0	0	0
<b>125.0</b>	1	0	0	0	0	0	0
<b>130.0</b>	1	0	0	0	0	0	0
<b>135.0</b>	1	0	0	0	0	0	0
<b>140.0</b>	0	0	0	0	0	0	0
<b>145.0</b>	0	0	0	0	0	0	0
<b>150.0</b>	0	0	0	0	0	0	0
<b>155.0</b>	0	0	0	0	0	0	0
<b>160.0</b>	0	0	0	0	0	0	0
<b>165.0</b>	0	0	0	0	0	0	0
<b>170.0</b>	0	0	0	0	0	0	0
<b>175.0</b>	0	0	0	0	0	0	0
<b>180.0</b>	0	0	0	0	0	0	0

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L101605133.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	21.18	N.A.	3.60
0-30	80.01	N.A.	13.40
0-40	217.18	N.A.	36.40
0-60	501.82	N.A.	84.10
0-80	570.44	N.A.	95.70
0-90	582.41	N.A.	97.70
10-90	577.88	N.A.	96.90
20-40	195.99	N.A.	32.90
20-50	365.73	N.A.	61.30
40-70	335.87	N.A.	56.30
60-80	68.62	N.A.	11.50
70-80	17.40	N.A.	2.90
80-90	11.97	N.A.	2.00
90-110	9.49	N.A.	1.60
90-120	10.91	N.A.	1.80
90-130	12.56	N.A.	2.10
90-150	13.96	N.A.	2.30
90-180	13.96	N.A.	2.30
110-180	4.46	N.A.	0.70
0-180	596.37	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	4.53
10-20	16.65
20-30	58.82
30-40	137.17
40-50	169.74
50-60	114.90
60-70	51.22
70-80	17.40
80-90	11.97
90-100	7.46
100-110	2.04
110-120	1.42
120-130	1.65
130-140	1.40
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

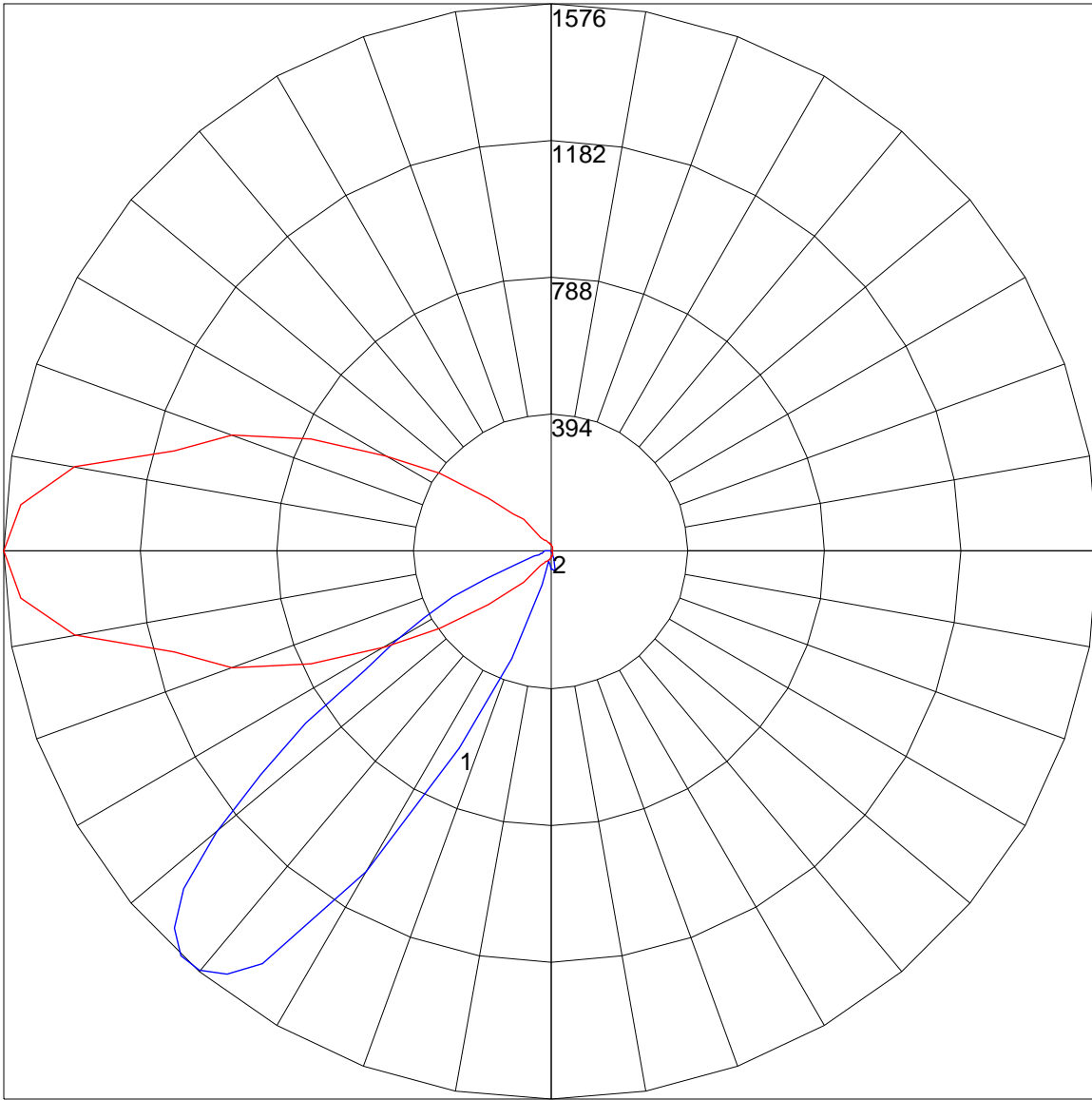
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L101605133.IES**

**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	110	110	110	105	105	105	100	100	100	98
1	109	104	100	96	106	101	98	94	97	94	91	92	90	88	88	86	85	82
2	99	90	84	78	96	88	82	77	84	79	75	81	76	73	77	74	71	68
3	89	79	71	64	87	77	69	63	74	67	62	71	65	60	68	63	59	57
4	81	69	60	53	79	67	59	53	65	57	52	62	56	51	59	54	50	47
5	74	61	51	44	72	59	51	44	57	49	43	55	48	43	52	47	42	40
6	67	54	44	37	65	52	44	37	50	43	37	48	41	36	47	40	36	33
7	62	48	38	32	60	47	38	32	45	37	31	43	36	31	42	35	30	28
8	57	43	34	27	55	42	33	27	40	32	27	39	32	27	37	31	26	24
9	52	38	30	24	51	38	29	24	36	29	23	35	28	23	34	27	23	21
10	49	35	26	21	47	34	26	21	33	25	20	32	25	20	31	24	20	18

POLAR GRAPH



Maximum Candela = 1576 Located At Horizontal Angle = 180, Vertical Angle = 42.5  
# 1 - Vertical Plane Through Horizontal Angles (180 - 0) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (42.5) (Through Max. Cd.)