

Report No: L121706463 **Issue Date:** 1/22/2018

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

Model Number: 804/M2-R-HI-15/WH/DIM1-8-1400 with FR-P-1-WH trim

Test: Photometric/Colorimetric/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: 1/2/18

Date of Tests: 1/18/18 - 1/22/18

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:	Number Eight Lighting Company
Model Number:	804/M2-R-HI-15/WH/DIM1-8-1400 with FR-P-1-WH trim
Driver Model Number:	IntuitiveSystems ISD-701-1400-20-D
Total Lumens:	943.74
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.17
Input Power (W):	20.68
Input Power Factor:	0.99
Current ATHD @ 120V(%):	6%
Current ATHD @ 277V(%):	N/A
Efficacy:	46
Color Rendering Index (CRI):	92
Correlated Color Temperature (K):	2979
Chromaticity Coordinate x:	0.4394
Chromaticity Coordinate y:	0.4066
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:40
Total Operating Time (Hours):	1:25

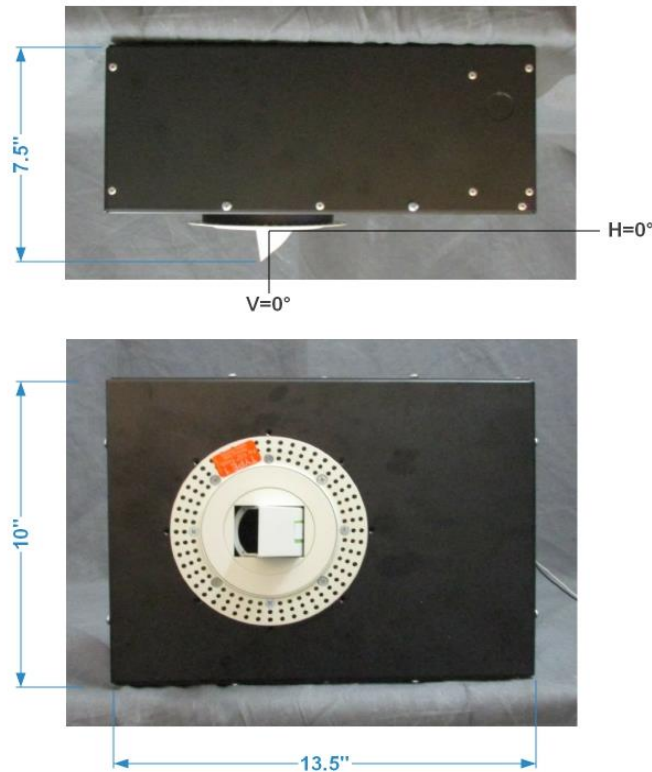
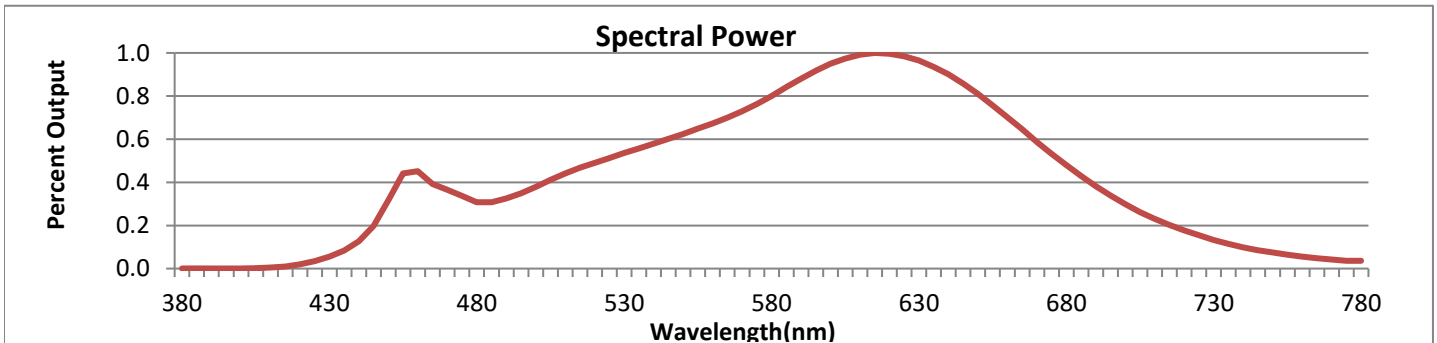


FIG. 1 LUMINAIRE

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



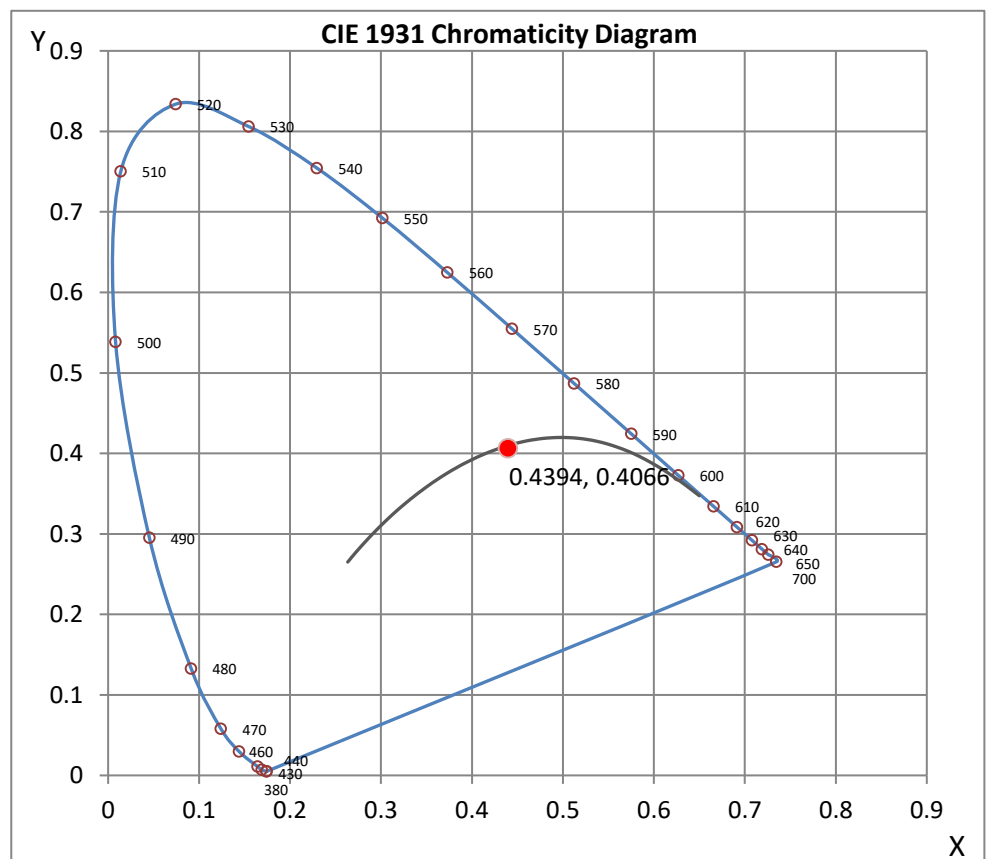
Wavelength	W/m ² nm	440	0.1272	510	0.4413	580	0.8010	650	0.8109	720	0.1767
380	0.0009	450	0.3169	520	0.4904	590	0.8810	660	0.7027	730	0.1333
390	0.0008	460	0.4511	530	0.5358	600	0.9509	670	0.5866	740	0.0989
400	0.0012	470	0.3658	540	0.5793	610	0.9922	680	0.4793	750	0.0745
410	0.0047	480	0.3082	550	0.6244	620	0.9965	690	0.3824	760	0.0555
420	0.0194	490	0.3252	560	0.6724	630	0.9644	700	0.2993	770	0.0414
430	0.0551	500	0.3789	570	0.7292	640	0.9011	710	0.2298	780	0.0356

CRI & CCT

x	0.4394
y	0.4066
u'	0.2511
v'	0.5227
CRI	92.10
CCT	2979
Duv	0.00067

R Values

R1	92.84
R2	98.25
R3	96.97
R4	90.67
R5	92.50
R6	97.26
R7	89.39
R8	78.63
R9	54.65
R10	94.93
R11	91.90
R12	82.12
R13	94.60
R14	99.19



*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 : Joseph Shin

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: 11*



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

Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121706463.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121706463
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/22/2018
[MANUFAC] Number Eight Lighting Company
[LUMCAT] 804/M2-R-HI-15/WH/DIM1-8-1400 with FR-P-1-WH trim
[LUMINAIRE] LED Recessed Downlight, 15° Beam Spread, 45° Aiming Angle,
[MORE] Mirror Lens Accessory
[BALLASTCAT] IntuitiveSystems ISD-701-1400-20-D
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 20.68W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	944
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	46
Total Luminaire Watts	20.68
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.60
Spacing Criterion (90-270)	0.90
Spacing Criterion (Diagonal)	1.28
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.06 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	8449	20278
55	0	7291	19790
65	0	8482	16964
75	0	9233	13850
85	0	0	13710

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	40	40	40	40	40	40	40	40	40	40
5.0	53	53	53	52	52	51	51	50	49	48
10.0	63	63	63	63	64	64	63	62	60	58
15.0	27	27	29	31	34	39	44	48	50	53
20.0	14	14	14	14	14	14	14	16	20	28
22.5	11	12	12	12	12	12	12	13	14	18
25.0	8	8	8	8	8	10	11	11	12	13
27.5	6	6	6	7	7	8	10	10	10	11
30.0	6	6	6	6	6	7	9	9	9	10
32.0	6	6	6	5	6	6	8	8	8	9
34.0	5	5	5	6	6	6	7	7	7	8
36.0	2	2	2	3	4	6	6	6	7	7
38.0	0	0	0	2	2	3	5	6	6	7
40.0	0	0	0	0	2	3	3	5	6	7
41.0	0	0	0	0	2	3	3	4	6	6
42.0	0	0	0	0	2	2	3	3	5	6
43.0	0	0	0	0	2	2	3	3	4	6
44.0	0	0	0	0	2	2	3	3	4	6
45.0	0	0	0	0	2	2	3	3	4	5
46.0	0	0	0	0	2	2	2	3	4	5
47.0	0	0	0	0	2	2	2	3	3	5
48.0	0	0	0	0	2	2	2	3	4	4
49.0	0	0	0	0	0	2	2	3	3	4
50.0	0	0	0	0	0	2	2	3	3	4
52.0	0	0	0	0	0	2	2	3	3	4
54.0	0	0	0	0	0	2	2	2	3	4
56.0	0	0	0	0	0	0	2	2	3	3
58.0	0	0	0	0	0	0	2	2	3	3
60.0	0	0	0	0	0	0	2	2	3	3
62.5	0	0	0	0	0	0	2	2	2	3
65.0	0	0	0	0	0	0	2	2	2	3
67.5	0	0	0	0	0	0	0	2	2	3
70.0	0	0	0	0	0	0	0	2	2	3
75.0	0	0	0	0	0	0	0	2	2	2
80.0	0	0	0	0	0	0	0	0	2	2
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. Horizontal Angles
 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	40	40	40	40	40	40	40	40	40	40
5.0	47	47	46	46	45	45	44	43	43	42
10.0	55	52	50	48	46	45	43	41	39	38
15.0	55	54	51	47	44	42	39	37	35	33
20.0	37	42	44	42	40	37	35	33	31	29
22.5	25	33	37	38	36	34	31	30	28	27
25.0	18	25	30	32	31	30	28	26	25	25
27.5	13	19	24	26	25	25	23	23	23	23
30.0	11	15	18	21	20	20	19	20	20	21
32.0	10	12	15	16	16	16	16	17	18	19
34.0	9	10	12	13	13	13	14	15	16	17
36.0	8	9	10	11	11	11	12	13	15	16
38.0	8	8	9	9	10	10	11	13	14	15

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121706463.IES

CANDELA TABULATION - (Cont.)

40.0	7	8	8	8	9	9	10	12	13	15
41.0	7	7	8	8	8	9	10	11	13	15
42.0	7	7	7	8	8	8	9	11	13	15
43.0	7	7	7	7	7	8	9	11	12	14
44.0	6	7	7	7	7	8	8	10	12	14
45.0	6	7	7	7	7	7	8	10	12	14
46.0	6	6	7	7	7	7	8	9	12	14
47.0	5	6	7	7	6	7	7	9	11	14
48.0	5	6	6	6	6	7	7	9	11	14
49.0	5	6	6	6	6	6	7	8	11	13
50.0	5	6	6	6	6	6	7	8	10	13
52.0	5	5	6	6	6	6	6	8	10	13
54.0	4	5	5	5	5	6	6	7	10	12
56.0	4	5	5	5	5	5	5	7	9	12
58.0	4	4	5	5	5	5	5	6	9	11
60.0	4	4	4	5	5	4	5	6	8	11
62.5	3	4	4	4	4	4	4	5	7	10
65.0	3	4	4	4	4	4	4	4	6	9
67.5	3	4	4	4	4	3	3	3	5	8
70.0	3	3	4	4	3	3	3	3	5	7
75.0	3	3	3	3	3	2	2	2	3	6
80.0	2	3	3	3	3	2	2	2	2	5
85.0	0	0	0	0	1	1	1	1	1	3
90.0	0	0	0	0	0	0	0	0	0	2

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	40	40	40	40	40	40	40	40	40	40
5.0	40	39	38	37	36	36	35	34	34	33
10.0	36	35	33	33	31	31	30	30	30	30
15.0	32	31	30	29	28	28	28	28	28	28
20.0	28	27	27	26	26	25	25	25	26	27
22.5	27	26	26	25	25	24	24	25	27	29
25.0	25	25	25	25	24	24	24	25	29	35
27.5	23	24	24	24	24	24	25	27	32	47
30.0	21	22	24	24	24	25	26	29	39	65
32.0	20	21	23	24	24	25	26	32	46	82
34.0	19	21	22	24	25	26	28	34	51	94
36.0	18	20	22	24	25	27	29	36	56	107
38.0	17	20	22	24	26	28	31	38	60	121
40.0	17	20	22	24	26	29	33	41	61	117
41.0	17	20	22	24	27	30	34	43	64	123
42.0	17	20	22	25	27	31	35	43	63	115
43.0	17	20	22	25	27	31	35	43	61	120
44.0	17	20	22	25	28	31	36	43	63	115
45.0	17	20	23	25	28	32	37	44	60	107
46.0	17	20	22	25	28	32	37	44	61	109
47.0	16	20	22	25	29	32	37	43	59	102
48.0	16	20	22	25	29	33	37	42	56	102
49.0	16	19	22	25	29	33	37	43	56	99
50.0	16	20	22	25	29	33	37	43	56	89
52.0	16	19	22	25	29	32	37	41	51	78
54.0	15	19	22	25	29	32	36	40	49	73
56.0	15	19	22	25	28	32	35	39	44	61
58.0	15	18	21	24	28	31	34	37	41	54

**IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121706463.IES**

CANDELA TABULATION - (Cont.)

60.0	14	18	21	24	27	30	33	36	39	48
62.5	13	17	20	23	26	29	32	35	36	40
65.0	12	16	19	22	25	28	31	33	34	36
67.5	11	15	18	21	24	27	30	31	32	32
70.0	11	14	17	20	23	25	28	29	30	30
75.0	9	12	15	18	21	23	25	27	27	27
80.0	7	10	13	16	18	21	23	25	25	24
85.0	6	8	11	13	16	18	21	22	22	22
90.0	4	6	9	11	13	15	17	18	19	18

Vert. Horizontal Angles

Angles	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0.0	40	40	40	40	40	40	40
5.0	33	32	32	32	32	32	31
10.0	29	29	29	29	29	29	29
15.0	28	28	29	29	29	29	29
20.0	29	32	35	39	43	45	46
22.5	34	42	53	64	74	80	82
25.0	48	70	96	126	155	178	187
27.5	72	120	214	323	426	510	537
30.0	110	212	405	623	832	983	1035
32.0	150	289	566	908	1268	1508	1588
34.0	187	403	817	1287	1754	2145	2283
36.0	254	690	1101	1698	2331	2717	3119
38.0	303	729	1232	1982	2645	3797	4237
40.0	296	742	1377	2369	2947	4992	5568
41.0	403	769	1427	2431	3633	5631	6199
42.0	293	789	1468	2453	3760	6045	6737
43.0	394	798	1489	2527	3824	6351	7208
44.0	365	776	1532	2575	4654	6772	7534
45.0	351	767	1520	2532	4671	6904	7784
46.0	268	788	1451	2554	4764	7048	7865
47.0	239	775	1406	2485	3893	6940	7745
48.0	243	738	1345	2476	3322	6554	7463
49.0	233	729	1336	2432	3242	6268	7078
50.0	201	680	1187	2168	3056	5705	6511
52.0	165	638	1006	1810	2714	4442	5101
54.0	148	581	857	1512	2313	2862	3714
56.0	122	284	741	1159	1731	2403	2682
58.0	94	216	458	855	1275	1716	1883
60.0	79	158	309	578	886	1140	1248
62.5	56	102	188	334	503	700	777
65.0	43	69	118	198	290	376	405
67.5	35	46	70	101	128	149	156
70.0	31	34	43	55	68	79	83
75.0	27	27	28	30	33	35	36
80.0	24	25	25	26	27	28	29
85.0	22	22	23	24	24	25	25
90.0	18	18	18	18	17	17	17

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121706463.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	13.99	N.A.	1.50
0-30	39.64	N.A.	4.20
0-40	213.55	N.A.	22.60
0-60	869.38	N.A.	92.10
0-80	934.13	N.A.	99.00
0-90	943.74	N.A.	100.00
10-90	939.72	N.A.	99.60
20-40	199.56	N.A.	21.10
20-50	615.13	N.A.	65.20
40-70	706.78	N.A.	74.90
60-80	64.76	N.A.	6.90
70-80	13.81	N.A.	1.50
80-90	9.60	N.A.	1.00
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	943.74	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	4.02
10-20	9.98
20-30	25.65
30-40	173.91
40-50	415.57
50-60	240.26
60-70	50.95
70-80	13.81
80-90	9.60
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

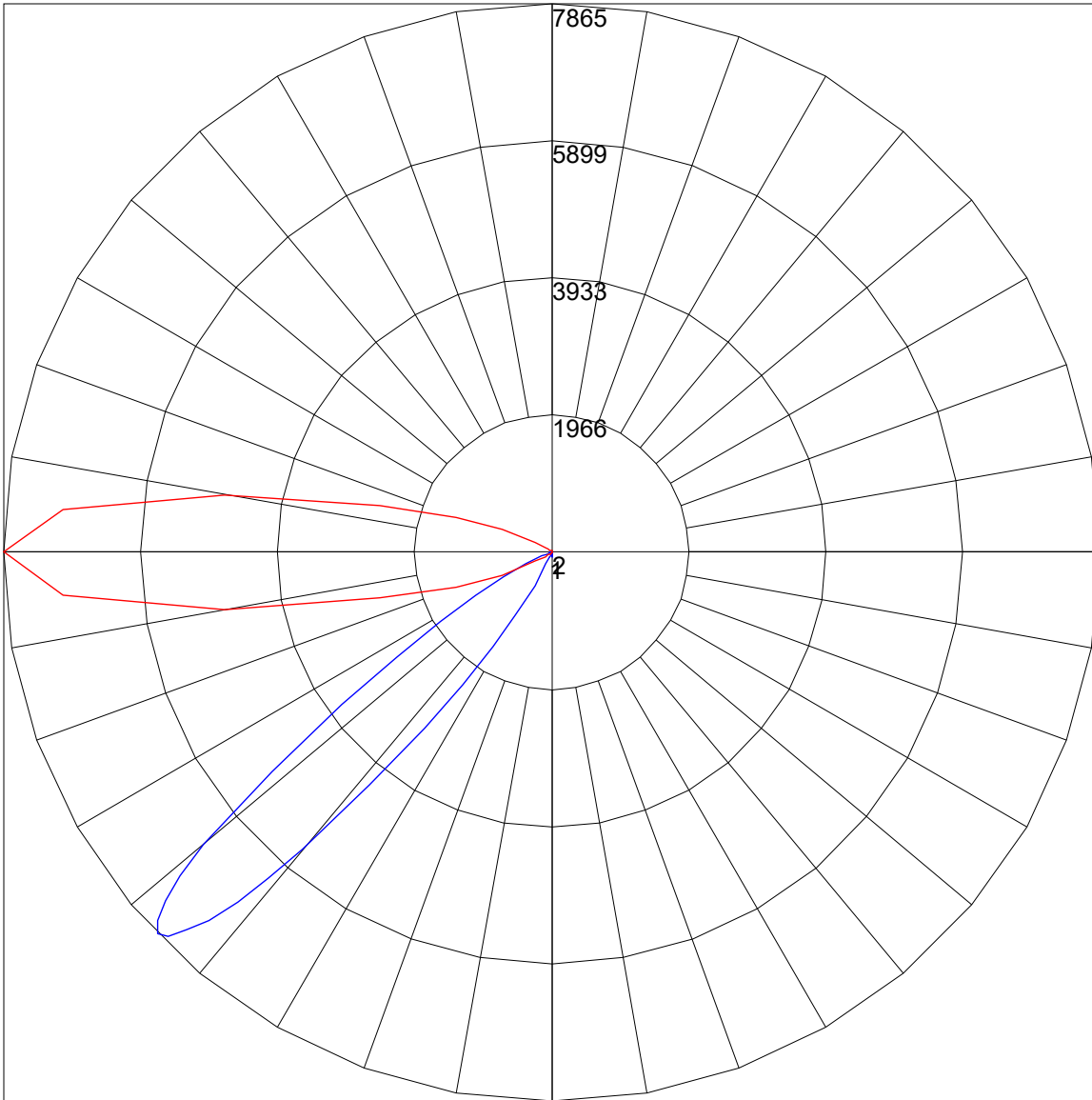
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121706463.IES

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	109	105	101	97	107	103	99	96	98	95	92	94	92	90	91	89	87	85
2	99	91	84	78	96	89	83	78	85	80	76	82	78	74	79	76	72	70
3	89	79	70	63	87	77	69	63	74	67	62	71	65	61	69	64	60	57
4	81	68	59	52	78	67	58	51	64	56	50	62	55	50	59	54	49	47
5	73	59	49	42	70	58	49	42	55	47	41	53	46	41	52	45	40	38
6	66	51	42	35	64	50	41	34	48	40	34	47	39	34	45	38	33	31
7	60	45	35	29	58	44	35	28	42	34	28	41	33	28	39	33	28	25
8	54	39	30	24	53	39	30	24	37	29	23	36	29	23	35	28	23	21
9	50	35	26	20	48	34	26	20	33	25	20	32	25	19	31	24	19	17
10	46	31	22	17	44	31	22	17	30	22	17	29	21	16	28	21	16	14

POLAR GRAPH



Maximum Candela = 7865 Located At Horizontal Angle = 180, Vertical Angle = 46
1 - Vertical Plane Through Horizontal Angles (180 - 0) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (46) (Through Max. Cd.)