

**Report No:** L111700901R01 **Issue Date:** 11/17/2017

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

**Model Number:** 400-HI-R-40/EL1-4-1000/FLS-4-WH/WW4

**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:** 11/8/17

**Date of Tests:** 11/16/17 - 11/17/17

**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	11/28/17
ITECH	IT6122	PS-DC03-S1	11/28/17
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/28/17
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>	400-HI-R-40/EL1-4-1000/FLS-4-WH/WW4
<b>Driver Model Number:</b>	eldoLED ECOdrive 261/S
<b>Total Lumens:</b>	615.42
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.12
<b>Input Power (W):</b>	14.35
<b>Input Power Factor:</b>	0.99
<b>Current ATHD @ 120V(%):</b>	11%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	43
<b>Color Rendering Index (CRI):</b>	93
<b>Correlated Color Temperature (K):</b>	2859
<b>Chromaticity Coordinate x:</b>	0.4503
<b>Chromaticity Coordinate y:</b>	0.4131
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:30
<b>Total Operating Time (Hours):</b>	0:55

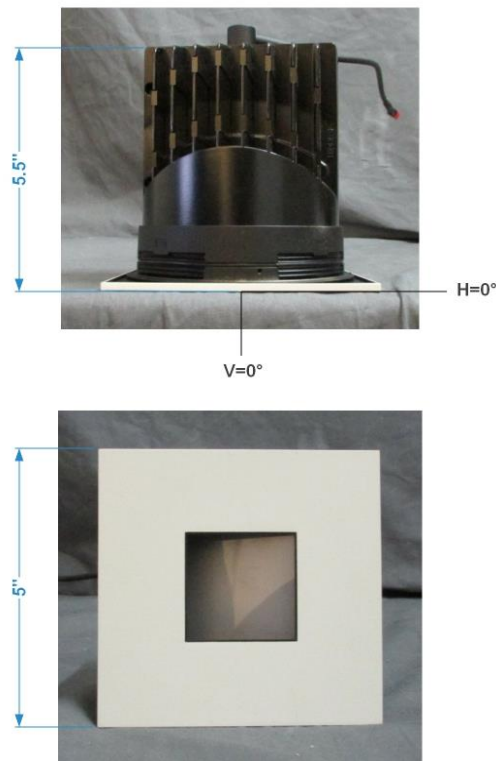
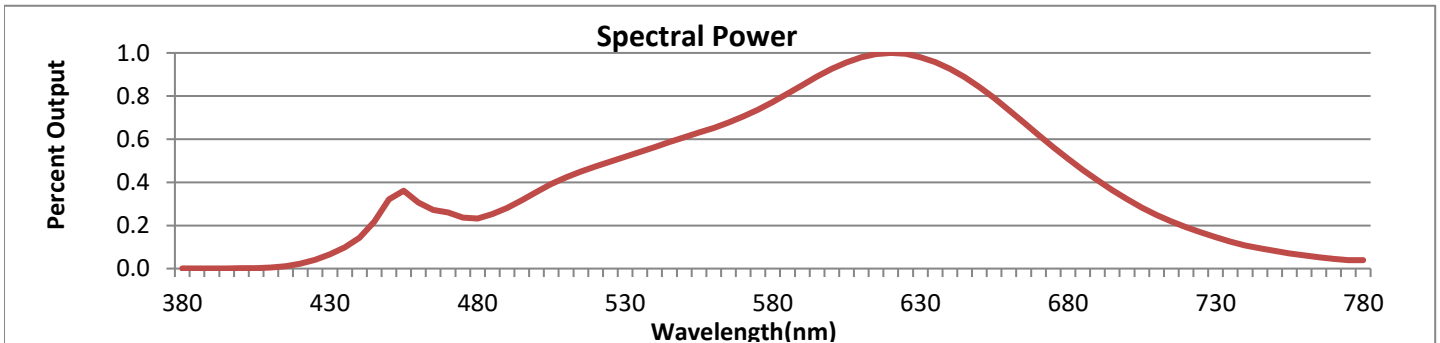


FIG. 1 LUMINAIRE

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



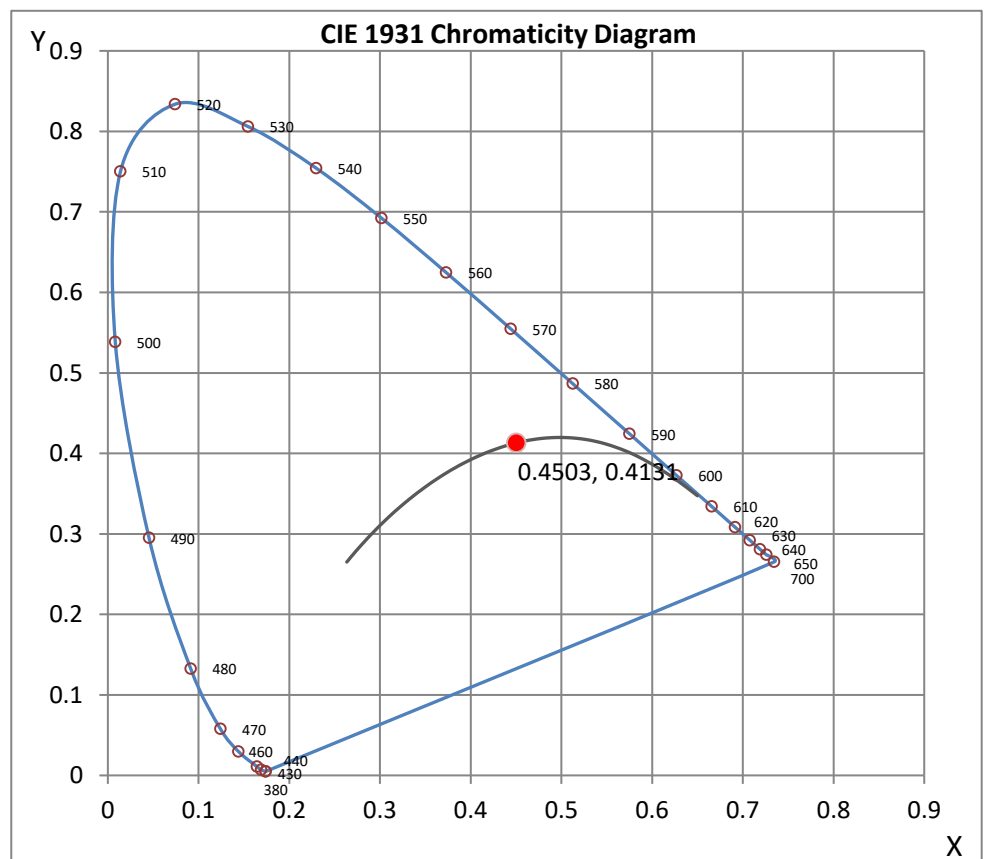
Wavelength	W/m <sup>2</sup> nm	440	0.1433	510	0.4238	580	0.7723	650	0.8425	720	0.1923
380	0.0007	450	0.3204	520	0.4742	590	0.8513	660	0.7353	730	0.1455
390	0.0009	460	0.3063	530	0.5178	600	0.9263	670	0.6187	740	0.1078
400	0.0012	470	0.2608	540	0.5629	610	0.9804	680	0.5094	750	0.0816
410	0.0044	480	0.2324	550	0.6083	620	1.0000	690	0.4097	760	0.0611
420	0.0223	490	0.2816	560	0.6525	630	0.9798	700	0.3223	770	0.0454
430	0.0655	500	0.3555	570	0.7054	640	0.9264	710	0.2485	780	0.0392

**CRI & CCT**

x	0.4503
y	0.4131
u'	0.2553
v'	0.5269
CRI	92.90
CCT	2859
Duv	0.11629

**R Values**

R1	92.77
R2	96.64
R3	99.53
R4	92.82
R5	92.54
R6	96.73
R7	91.76
R8	80.60
R9	56.92
R10	91.48
R11	94.12
R12	83.86
R13	93.85
R14	99.11



\*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: 10*



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

# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L111700901R01.IES**

## DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L111700901R01  
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)  
[ISSUE DATE] 11/17/2017  
[MANUFAC] Number Eight Lighting Company  
[LUMCAT] 400-HI-R-40/EL1-4-1000/FLS-4-WH/WW4  
[LUMINAIRE] LED Recessed Downlight, 90+ CRI, 40° Beam Spread, 20° Aiming Angle,  
[MORE] 2" x 2" Aperture Trim, Wall Wash Lens Accessory  
[BALLASTCAT] eldoLED ECOdrive 261/S  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[INPUT] 120VAC, 14.35W  
[TEST PROCEDURE] IESNA:LM-79-08

## CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	615
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	43
Total Luminaire Watts	14.35
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.68
Spacing Criterion (90-270)	1.30
Spacing Criterion (Diagonal)	1.28
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	18629	33732	96512
55	8563	19333	64615
65	1761	7132	27383
75	2588	2013	2875
85	5550	4696	5550

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L111700901R01.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</b>	300.4	300.4	300.4	300.4	300.4	300.4	300.4	300.4	300.4	300.4
<b>5</b>	271.4	271.5	271.8	272.4	273.2	274.1	275.3	276.6	278.2	280.0
<b>10</b>	236.4	236.6	237.3	238.4	240.1	242.2	244.7	247.8	251.6	255.4
<b>15</b>	199.8	200.2	201.3	203.1	205.5	208.8	212.7	217.2	222.5	228.6
<b>20</b>	162.7	163.1	164.4	166.8	169.9	173.9	179.0	184.7	191.6	199.5
<b>25</b>	127.4	128.0	129.5	131.8	135.5	140.0	145.2	152.0	160.6	169.6
<b>30</b>	97.1	97.5	98.9	101.4	104.8	109.3	115.0	121.6	129.8	139.9
<b>35</b>	71.0	71.4	72.7	74.8	77.9	82.0	87.5	93.7	101.5	111.0
<b>40</b>	51.1	51.5	52.6	54.4	56.9	60.6	65.1	70.6	77.5	86.3
<b>45</b>	35.4	35.6	36.4	37.9	40.1	42.8	46.7	51.1	56.9	64.1
<b>50</b>	23.5	23.8	24.4	25.4	27.0	29.2	32.0	35.7	40.7	46.2
<b>55</b>	13.2	13.4	13.8	14.6	16.4	18.7	20.1	22.4	25.7	29.8
<b>60</b>	6.5	6.6	6.9	7.5	8.3	9.4	10.8	12.5	15.4	18.6
<b>65</b>	2.0	2.0	2.1	2.2	2.5	3.1	4.1	5.3	6.6	8.1
<b>70</b>	1.9	1.9	1.9	1.9	1.8	1.8	1.7	1.6	1.7	2.1
<b>75</b>	1.8	1.8	1.8	1.7	1.7	1.6	1.6	1.5	1.4	1.4
<b>80</b>	1.6	1.6	1.6	1.6	1.5	1.4	1.4	1.3	1.3	1.3
<b>85</b>	1.3	1.3	1.3	1.3	1.2	1.2	1.1	1.1	1.1	1.1
<b>90</b>	0.0	0.0	0.0	0.0	0.0	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>
<b>0</b>	300.4	300.4	300.4	300.4	300.4	300.4	300.4	300.4	300.4	300.4
<b>5</b>	282.0	283.9	286.0	288.1	290.1	292.5	294.8	296.9	299.4	301.8
<b>10</b>	259.2	263.7	268.3	273.1	278.0	282.8	287.7	292.7	297.6	302.3
<b>15</b>	235.0	241.7	248.7	256.2	264.1	271.5	278.9	286.8	294.2	301.1
<b>20</b>	208.2	216.9	226.2	236.6	246.6	256.8	267.8	277.9	288.4	298.4
<b>25</b>	178.8	189.9	201.7	213.1	226.4	239.9	253.1	266.3	279.2	291.8
<b>30</b>	150.5	162.0	174.8	188.8	203.3	219.0	235.0	249.5	265.4	280.4
<b>35</b>	121.9	133.8	146.8	161.2	177.0	193.4	210.4	227.8	245.0	261.5
<b>40</b>	95.9	107.4	119.6	133.2	149.3	165.3	182.1	200.7	218.4	235.2
<b>45</b>	72.5	81.7	92.9	105.5	118.3	133.6	149.9	165.5	183.4	200.8
<b>50</b>	52.1	59.7	68.4	78.1	89.1	101.0	114.1	128.3	143.1	158.1
<b>55</b>	34.3	39.4	45.2	51.9	59.9	65.5	76.0	88.3	99.6	111.6
<b>60</b>	20.7	23.8	27.4	31.7	36.2	41.4	47.8	54.8	62.8	71.5
<b>65</b>	9.6	11.3	13.3	16.0	18.8	20.7	23.7	27.2	31.1	35.6
<b>70</b>	2.8	3.7	4.4	5.2	5.8	6.4	7.1	7.8	8.5	9.5
<b>75</b>	1.3	1.3	1.3	1.4	1.6	1.6	1.7	1.9	2.0	2.0
<b>80</b>	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.5
<b>85</b>	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.3	1.3
<b>90</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**Vert. Horizontal Angles**  
**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>
<b>0</b>	300.4	300.4	300.4	300.4	300.4	300.4	300.4	300.4	300.4	300.4
<b>5</b>	303.9	306.1	308.3	310.1	312.0	313.9	315.5	317.0	318.3	319.5
<b>10</b>	306.8	311.1	315.3	319.1	322.5	325.8	328.7	331.1	333.3	335.1
<b>15</b>	308.1	314.5	320.2	325.3	330.1	334.3	338.0	341.0	343.4	345.5
<b>20</b>	307.1	315.6	322.8	329.2	335.3	340.1	343.7	346.8	349.2	350.8
<b>25</b>	303.3	312.8	322.0	329.9	336.0	341.3	345.1	347.8	349.4	350.4
<b>30</b>	292.9	305.2	315.9	324.0	331.0	336.6	340.2	342.1	342.9	342.7
<b>35</b>	276.7	290.2	301.7	311.3	318.8	324.1	327.1	328.2	328.1	326.8

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L111700901R01.IES**

**CANDELA TABULATION - (Cont.)**

<b>40</b>	252.0	266.3	278.6	289.4	297.3	302.6	305.4	306.1	304.6	301.9
<b>45</b>	215.8	231.0	244.5	255.0	263.8	269.4	272.3	272.2	269.9	265.7
<b>50</b>	172.8	186.4	198.8	209.7	218.7	224.9	227.7	227.5	224.3	219.0
<b>55</b>	124.1	135.4	145.8	155.7	163.4	168.5	170.6	170.0	167.0	162.0
<b>60</b>	80.6	89.7	98.4	106.4	112.9	116.5	117.1	115.9	113.7	111.0
<b>65</b>	41.2	47.0	53.4	60.4	65.2	69.8	71.8	71.0	69.7	67.7
<b>70</b>	10.9	12.8	15.3	18.6	23.2	27.7	30.5	31.8	31.6	30.4
<b>75</b>	2.1	2.2	2.4	2.7	3.2	4.0	4.9	5.8	6.7	7.0
<b>80</b>	1.5	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.6	1.6
<b>85</b>	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
<b>90</b>	0.0	0.0	0.0	0.0	0.0	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>
<b>0</b>	300.4	300.4	300.4	300.4	300.4	300.4	300.4
<b>5</b>	320.6	321.4	322.2	322.8	323.2	323.4	323.4
<b>10</b>	336.8	338.1	339.2	340.1	340.6	340.9	341.1
<b>15</b>	347.2	348.5	349.6	350.3	350.8	351.0	351.1
<b>20</b>	352.0	352.8	353.2	353.5	353.7	353.7	353.8
<b>25</b>	350.7	350.6	350.1	349.7	349.3	349.0	348.9
<b>30</b>	341.9	340.8	339.3	337.8	336.7	336.0	335.8
<b>35</b>	324.6	322.1	319.3	316.8	314.9	313.7	313.3
<b>40</b>	298.6	294.4	289.9	286.4	283.7	281.9	281.3
<b>45</b>	260.3	254.8	249.4	244.4	240.7	238.6	237.9
<b>50</b>	212.3	205.7	199.4	194.1	190.3	187.9	187.1
<b>55</b>	156.5	150.5	144.7	140.4	137.2	135.1	134.4
<b>60</b>	107.2	102.9	98.7	95.0	92.1	90.5	89.9
<b>65</b>	65.1	61.6	58.0	54.8	52.4	50.8	50.3
<b>70</b>	28.1	25.4	22.6	20.3	18.7	17.7	17.4
<b>75</b>	6.4	5.6	4.9	4.3	4.0	3.9	3.8
<b>80</b>	1.7	1.7	1.8	1.8	1.8	1.8	1.8
<b>85</b>	1.3	1.3	1.4	1.4	1.4	1.4	1.4
<b>90</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L111700901R01.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	108.58	N.A.	17.60
0-30	227.55	N.A.	37.00
0-40	364.22	N.A.	59.20
0-60	574.07	N.A.	93.30
0-80	614.35	N.A.	99.80
0-90	615.42	N.A.	100.00
10-90	587.10	N.A.	95.40
20-40	255.63	N.A.	41.50
20-50	381.31	N.A.	62.00
40-70	244.92	N.A.	39.80
60-80	40.27	N.A.	6.50
70-80	5.21	N.A.	0.80
80-90	1.07	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	615.42	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	28.32
10-20	80.26
20-30	118.96
30-40	136.67
40-50	125.68
50-60	84.18
60-70	35.06
70-80	5.21
80-90	1.07
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



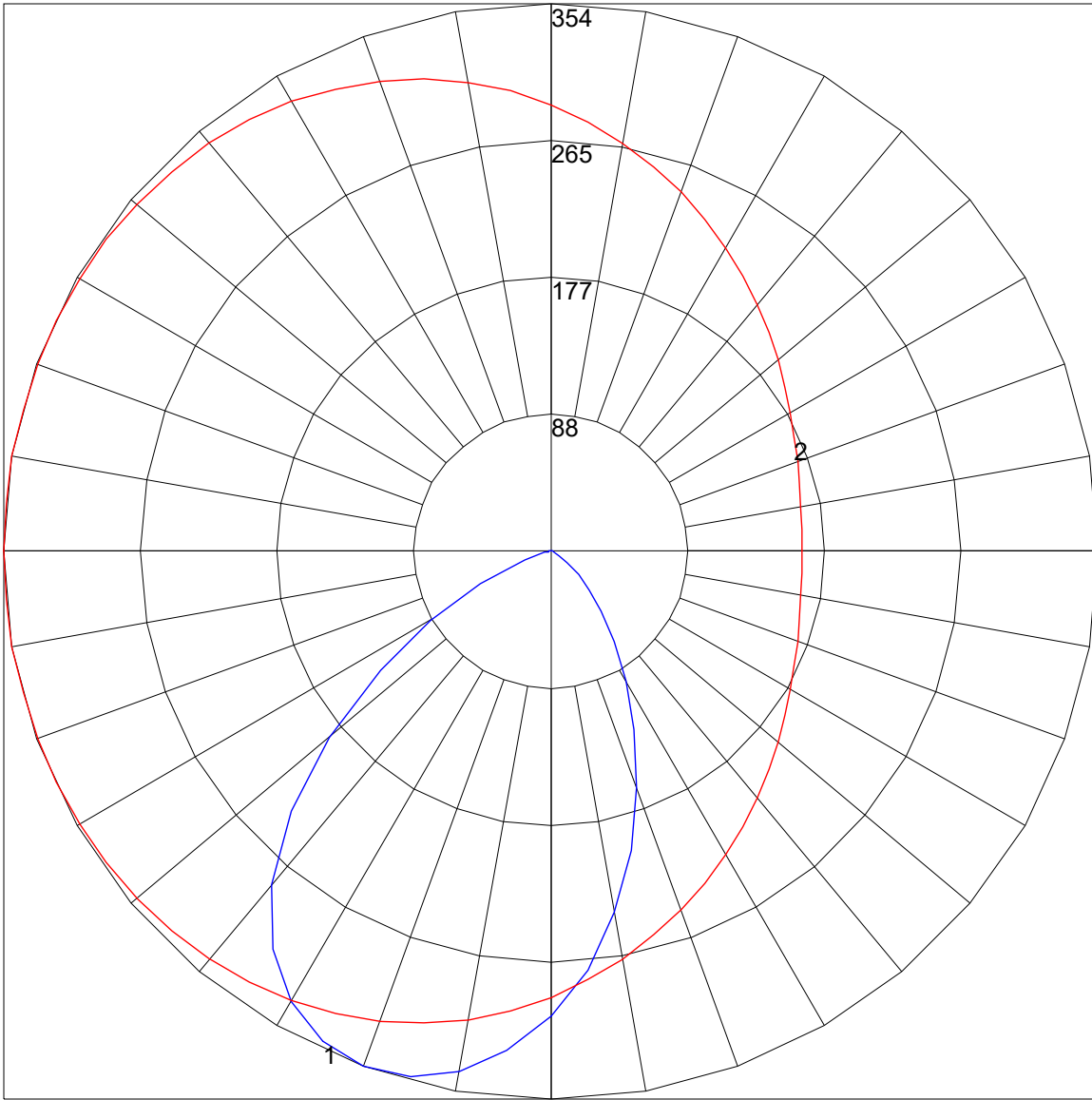
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L111700901R01.IES**

**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	111	108	104	101	109	105	102	100	101	99	97	98	96	94	94	92	91	89
2	103	97	91	86	101	95	90	85	91	87	83	88	85	82	85	82	80	78
3	95	87	80	74	93	85	79	74	82	77	72	80	75	71	77	73	70	68
4	88	78	70	65	86	77	70	64	74	68	63	72	67	63	70	66	62	60
5	82	71	63	57	80	69	62	57	67	61	56	66	60	55	64	59	55	53
6	76	64	56	50	74	63	56	50	62	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42
8	66	54	46	41	65	53	46	41	52	45	40	51	45	40	50	44	40	38
9	62	50	42	37	61	49	42	37	48	41	37	47	41	36	46	40	36	35
10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32

POLAR GRAPH



Maximum Candela = 353.8 Located At Horizontal Angle = 180, Vertical Angle = 20  
# 1 - Vertical Plane Through Horizontal Angles (180 - 0) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (20) (Through Max. Cd.)