

**Report No:** L111705102 **Issue Date:** 11/21/2017

**Report Prepared For:** Bartco Lighting  
5761 Research Drive, Huntington Beach, CA 92649

**Model Number:** BSS255-4-35-DIRECT-B LENS

**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 direct side turned on only with 3 side lens.

**Sample Arrival Date:** 11/15/17

**Date of Tests:** 11/17/17 - 11/20/17

**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>	Bartco Lighting
<b>Model Number:</b>	BSS255-4-35-DIRECT-B LENS
<b>Driver Model Number:</b>	PHILIPS ADVANCE XI040C110V054BST1
<b>Total Lumens:</b>	2401.78
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.22
<b>Input Power (W):</b>	26.71
<b>Input Power Factor:</b>	0.99
<b>Current ATHD @ 120V(%):</b>	9%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	90
<b>Color Rendering Index (CRI):</b>	95
<b>Correlated Color Temperature (K):</b>	3403
<b>Chromaticity Coordinate x:</b>	0.4114
<b>Chromaticity Coordinate y:</b>	0.3947
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:30
<b>Total Operating Time (Hours):</b>	2:10

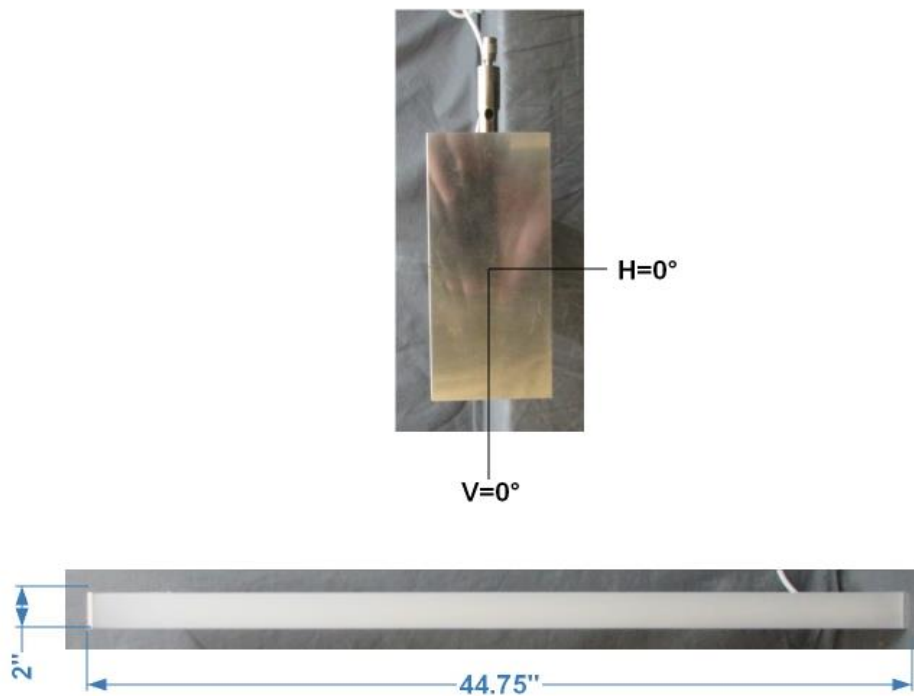
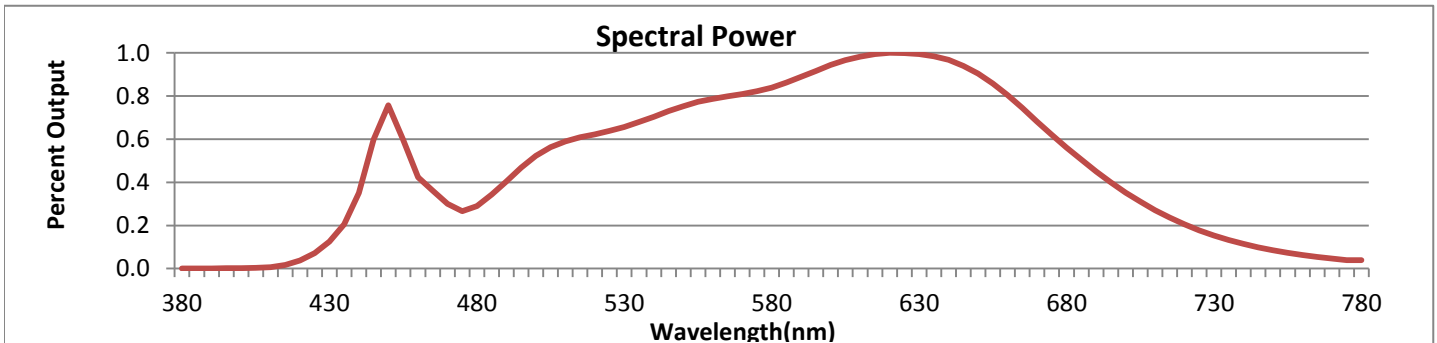


FIG. 1 LUMINAIRE

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



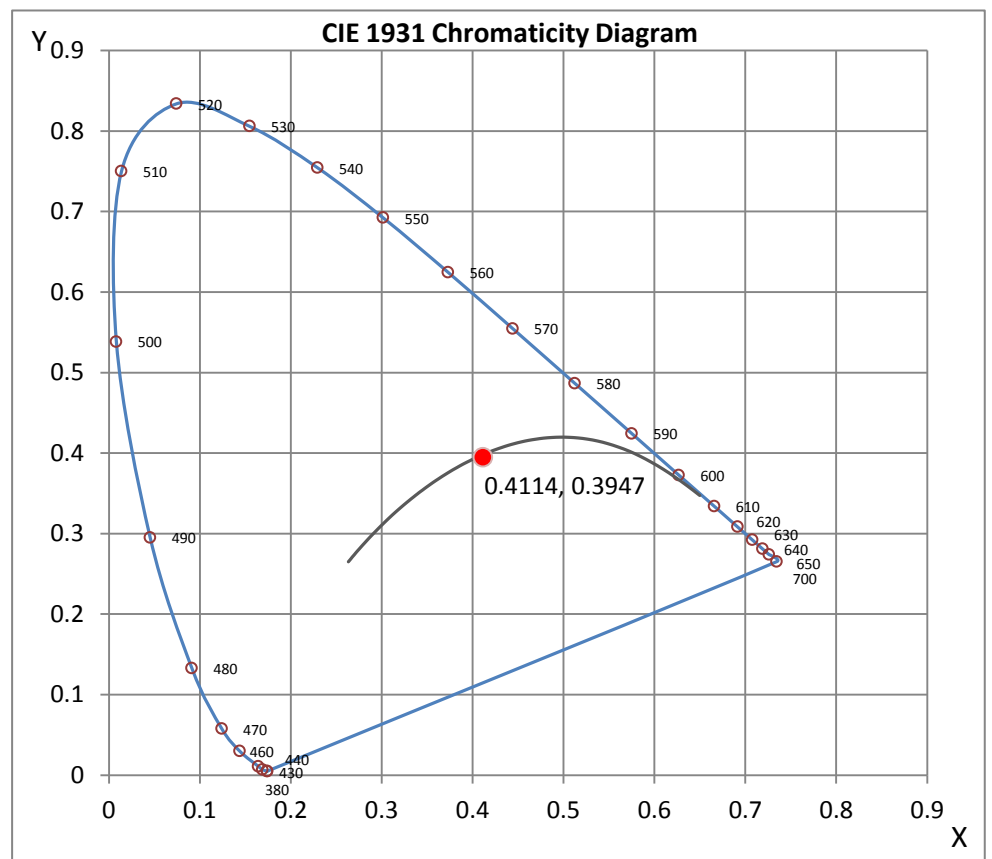
Wavelength	W/m <sup>2</sup> nm	440	0.3507	510	0.5899	580	0.8395	650	0.9040	720	0.2048
380	0.0012	450	0.7566	520	0.6224	590	0.8887	660	0.8048	730	0.1534
390	0.0012	460	0.4235	530	0.6568	600	0.9443	670	0.6817	740	0.1142
400	0.0020	470	0.3009	540	0.7033	610	0.9833	680	0.5616	750	0.0847
410	0.0071	480	0.2906	550	0.7528	620	1.0000	690	0.4496	760	0.0626
420	0.0370	490	0.4043	560	0.7877	630	0.9948	700	0.3527	770	0.0461
430	0.1253	500	0.5235	570	0.8095	640	0.9673	710	0.2712	780	0.0397

**CRI & CCT**

x	0.4114
y	0.3947
u'	0.2380
v'	0.5138
CRI	94.80
CCT	3403
Duv	0.00043

**R Values**

R1	95.16
R2	96.42
R3	96.51
R4	95.77
R5	94.81
R6	94.87
R7	95.57
R8	89.08
R9	73.19
R10	91.04
R11	96.33
R12	81.67
R13	95.46
R14	97.51



\*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 : Keyur Patel

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*



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# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L11705102.IES**

## DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L11705102  
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)  
[ISSUE DATE] 11/21/2017  
[MANUFAC] Bartco Lighting  
[LUMCAT] BSS255-4-35-DIRECT-B LENS  
[LUMINAIRE] LED Architectural Direct/indirect Rectangular Fixture  
[BALLASTCAT] PHILIPS ADVANCE XI040C110V054BST1  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[TEST CONDITION] FIXTURE IS TESTED WITH DIRECT SIDE TURNED ON ONLY WITH  
[MORE] 3 SIDE LENS.  
[INPUT] 120VAC, 26.71W  
[TEST PROCEDURE] IESNA:LM-79-08

## CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2402
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	90
Total Luminaire Watts	26.71
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.10
Spacing Criterion (90-270)	1.14
Spacing Criterion (Diagonal)	1.24
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.17 ft
Luminous Width (90-270)	3.67 ft
Luminous Height	0.38 ft

## LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3447	4190	9604
55	2585	3073	7822
65	1939	2217	6044
75	1417	1542	4427
85	960	1016	2415

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>	878.03	878.03	878.03	878.03	878.03	878.03	878.03	878.03	878.03	878.03
<b>5</b>	875.54	874.96	874.41	873.89	873.40	872.94	872.52	872.15	871.81	871.53
<b>10</b>	852.21	851.15	850.62	850.38	850.51	851.01	851.84	851.05	850.76	850.90
<b>15</b>	809.77	808.41	808.49	809.33	810.57	810.38	811.18	812.93	815.60	817.48
<b>20</b>	754.14	752.62	753.70	755.23	755.46	757.38	760.27	762.16	765.48	767.87
<b>25</b>	691.70	690.83	692.46	692.88	694.89	697.01	699.58	704.02	705.58	708.30
<b>30</b>	628.51	627.74	628.97	629.86	631.78	633.98	636.66	639.16	642.67	645.67
<b>35</b>	567.39	566.89	567.45	569.08	570.02	571.73	573.79	575.62	578.33	580.85
<b>40</b>	510.43	510.23	510.32	510.93	511.86	512.56	513.00	514.37	515.67	517.29
<b>45</b>	457.53	457.54	457.40	457.53	457.12	456.40	456.56	456.84	456.29	456.17
<b>50</b>	407.71	407.30	407.06	406.71	405.74	404.83	403.93	402.22	400.14	398.39
<b>55</b>	360.63	360.07	359.87	359.54	357.02	354.48	353.24	350.10	347.49	343.80
<b>60</b>	317.78	317.28	316.10	312.23	307.39	303.34	301.48	299.79	297.24	294.95
<b>65</b>	275.43	275.25	269.87	262.88	259.48	256.42	254.85	252.31	249.60	247.16
<b>70</b>	235.49	232.34	222.61	219.97	219.88	218.16	214.73	210.71	207.34	203.56
<b>75</b>	198.79	187.84	186.66	186.88	184.44	181.04	176.95	173.27	170.40	166.06
<b>80</b>	164.99	153.30	154.23	153.24	151.13	148.15	144.68	141.04	137.37	133.16
<b>85</b>	128.87	126.83	126.95	125.38	122.64	119.21	115.33	111.30	106.82	102.24
<b>90</b>	99.92	102.22	100.14	97.49	93.87	89.43	84.20	80.38	77.52	73.40
<b>95</b>	72.33	90.11	88.29	86.19	83.18	79.24	74.66	71.14	67.94	63.75
<b>100</b>	67.51	82.64	83.21	81.86	79.26	75.88	72.07	68.10	64.17	59.68
<b>105</b>	69.67	75.52	77.85	76.92	74.91	72.16	69.12	65.88	62.35	58.24
<b>110</b>	78.97	71.88	72.97	73.02	71.22	68.81	66.28	63.98	61.11	57.42
<b>115</b>	77.06	73.19	70.07	69.34	68.40	66.91	64.63	62.02	58.81	55.00
<b>120</b>	72.91	72.46	69.38	67.23	65.52	63.65	61.16	58.49	54.26	49.59
<b>125</b>	67.92	67.63	66.39	63.73	61.40	58.76	55.74	52.22	48.09	43.27
<b>130</b>	59.37	59.06	58.21	56.74	54.71	52.10	48.80	45.16	40.77	35.73
<b>135</b>	50.24	49.97	49.13	47.72	45.84	43.46	40.28	36.58	32.44	27.77
<b>140</b>	40.27	40.08	39.33	38.07	36.25	33.90	31.08	27.60	24.36	22.15
<b>145</b>	30.31	30.15	29.61	28.61	27.12	25.02	22.49	21.55	20.24	18.71
<b>150</b>	22.17	22.11	21.89	21.52	21.01	20.37	19.57	18.63	17.57	16.39
<b>155</b>	18.93	18.89	18.70	18.39	17.96	17.40	16.71	15.91	15.05	14.10
<b>160</b>	15.69	15.68	15.46	15.20	14.87	14.44	13.92	13.30	12.61	11.84
<b>165</b>	12.37	12.38	12.25	12.08	11.83	11.52	11.14	10.70	10.20	9.64
<b>170</b>	9.30	9.29	9.20	9.08	8.92	8.71	8.47	8.20	7.89	7.53
<b>175</b>	6.31	6.32	6.32	6.25	6.19	6.12	6.03	5.93	5.81	5.68
<b>180</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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>
<b>0</b>	878.03	878.03	878.03	878.03	878.03	878.03	878.03	878.03	878.03
<b>5</b>	871.29	871.11	870.98	870.90	870.87	870.90	870.93	871.10	871.30
<b>10</b>	851.46	852.44	853.76	852.49	851.51	850.83	850.45	850.31	850.63
<b>15</b>	818.30	817.89	818.26	819.42	821.55	819.74	818.54	817.86	818.24
<b>20</b>	769.77	771.86	774.81	774.25	774.89	776.92	774.20	772.28	772.24
<b>25</b>	712.55	714.96	716.77	720.05	719.54	719.81	719.29	715.95	715.44
<b>30</b>	648.90	652.26	654.80	655.98	658.49	657.26	658.20	653.51	652.34
<b>35</b>	583.85	587.36	588.55	589.78	590.18	589.35	587.84	583.89	581.09
<b>40</b>	518.44	520.03	520.79	521.56	520.58	519.56	515.21	510.65	506.86
<b>45</b>	455.72	455.31	454.60	453.81	452.64	449.47	444.51	439.59	434.78
<b>50</b>	396.70	395.02	391.56	388.35	387.19	381.14	374.85	367.38	356.73
<b>55</b>	341.07	335.10	329.94	327.76	324.64	318.39	311.31	304.55	298.77
<b>60</b>	291.24	285.93	280.62	274.24	267.33	259.84	251.98	243.75	238.65

**IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L111705102.IES**

**CANDELA TABULATION - (Cont.)**

<b>65</b>	243.57	237.85	230.91	223.00	214.80	206.49	198.34	189.19	181.10
<b>70</b>	199.17	194.18	187.06	178.08	169.10	160.06	151.36	141.43	133.52
<b>75</b>	161.01	155.48	148.02	138.22	128.33	118.39	108.75	100.30	92.17
<b>80</b>	127.68	121.15	113.05	103.44	93.75	84.24	78.56	64.30	56.05
<b>85</b>	97.71	92.61	85.31	76.53	63.92	53.95	43.83	34.88	26.66
<b>90</b>	69.63	62.20	55.34	47.75	37.91	28.61	18.97	9.55	1.25
<b>95</b>	58.64	52.54	45.80	38.75	31.20	23.44	15.68	7.17	1.16
<b>100</b>	54.62	49.15	43.33	36.63	29.28	21.19	12.81	5.68	0.00
<b>105</b>	53.90	49.08	43.35	35.97	27.67	18.69	9.97	5.30	0.00
<b>110</b>	53.12	47.68	40.80	32.54	23.56	15.06	8.99	5.09	0.00
<b>115</b>	49.82	43.41	35.72	27.34	19.13	12.45	8.57	5.00	0.00
<b>120</b>	44.01	37.40	29.73	21.87	15.89	11.49	8.17	4.93	0.00
<b>125</b>	37.25	30.73	24.00	17.52	14.07	10.90	7.82	4.88	0.00
<b>130</b>	30.05	23.80	19.49	15.77	13.04	10.25	7.46	4.83	0.00
<b>135</b>	23.53	19.24	16.98	14.56	12.11	9.61	7.09	4.79	0.00
<b>140</b>	19.29	17.41	15.41	13.31	11.13	8.90	6.71	4.78	0.00
<b>145</b>	17.20	15.57	13.86	12.05	10.17	8.26	6.32	4.75	0.00
<b>150</b>	15.12	13.75	12.29	10.76	9.16	7.57	5.95	4.71	0.00
<b>155</b>	13.04	11.91	10.72	9.45	8.19	6.89	5.70	0.00	0.00
<b>160</b>	11.01	10.11	9.16	8.22	7.23	6.20	5.41	0.00	0.00
<b>165</b>	9.03	8.39	7.72	7.02	6.28	5.72	5.15	0.00	0.00
<b>170</b>	7.15	6.73	6.29	5.95	5.60	5.24	4.88	0.00	0.00
<b>175</b>	5.54	5.38	5.21	5.04	4.85	4.66	4.47	0.00	0.00
<b>180</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L111705102.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	311.69	N.A.	13.00
0-30	637.17	N.A.	26.50
0-40	999.96	N.A.	41.60
0-60	1655.22	N.A.	68.90
0-80	2059.95	N.A.	85.80
0-90	2162.3	N.A.	90.00
10-90	2079.73	N.A.	86.60
20-40	688.27	N.A.	28.70
20-50	1038.98	N.A.	43.30
40-70	893.26	N.A.	37.20
60-80	404.73	N.A.	16.90
70-80	166.72	N.A.	6.90
80-90	102.36	N.A.	4.30
90-110	116.71	N.A.	4.90
90-120	162.26	N.A.	6.80
90-130	196.89	N.A.	8.20
90-150	230.50	N.A.	9.60
90-180	239.47	N.A.	10.00
110-180	122.76	N.A.	5.10
0-180	2401.78	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	82.58
10-20	229.11
20-30	325.48
30-40	362.79
40-50	350.70
50-60	304.55
60-70	238.00
70-80	166.72
80-90	102.36
90-100	63.07
100-110	53.64
110-120	45.54
120-130	34.63
130-140	21.91
140-150	11.71
150-160	5.95
160-170	2.53
170-180	0.49



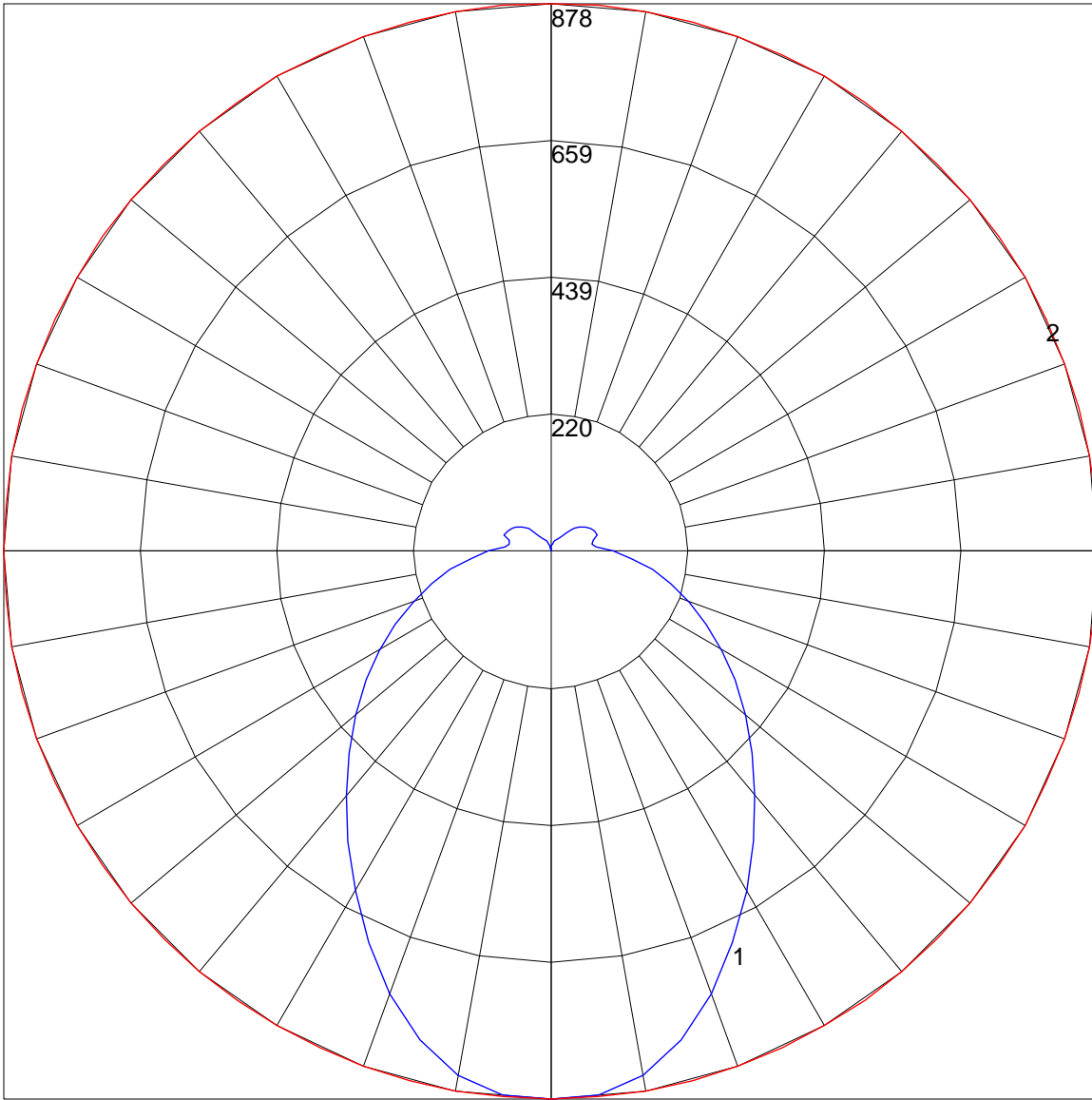
**IES INDOOR REPORT**  
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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	117	117	117	117	117	113	113	113	113	106	106	106	99	99	99	93	93	93	90
1	106	101	96	92	92	97	93	89	91	88	85	86	83	80	80	78	76	74	74
2	96	88	81	75	92	85	79	73	80	74	70	75	71	67	71	67	64	61	61
3	88	77	69	62	84	75	67	61	70	64	59	66	61	57	63	58	54	52	52
4	80	69	60	53	77	67	59	52	63	56	51	59	54	49	56	51	47	45	45
5	74	61	53	46	71	60	52	45	57	49	44	54	47	43	51	45	41	39	39
6	69	56	47	40	66	54	46	40	51	44	39	49	42	38	46	41	37	34	34
7	64	50	42	36	61	49	41	35	47	40	34	44	38	34	42	37	33	31	31
8	59	46	38	32	57	45	37	32	43	36	31	41	35	30	39	34	29	27	27
9	56	42	34	29	54	41	34	29	40	33	28	38	32	27	36	31	27	25	25
10	52	39	32	26	50	38	31	26	37	30	26	35	29	25	34	28	24	23	23

POLAR GRAPH



Maximum Candela = 878.03 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)