



8165 E Kaiser Blvd. Anaheim, CA 92808  
 p. 714.282.2270  
 f. 714.676.5558

Report No: L031505101

Date: 3/17/2015



NVLAP LAB CODE 200927-0

**Report No:** L031505101

**Report Prepared For:** Bartco Lighting  
 5761 Research Dr. Huntington Beach, CA 92648

**Model Number:** BSS215

**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 BSS215. Received in working and undamaged condition. No modifications were necessary.

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

**Sample Arrival Date:** 3/16/15

**Date of Tests:** 3/17/15 - 3/17/15

**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	11/10/15
Xitron Power Analysis System	2503AH	MT-EL01	10/20/15
BK Precision DC Power Supply	1747	PSDC-04	01/08/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/05/16
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>	Bartco Lighting
<b>Model Number:</b>	BSS215
<b>Driver Model Number:</b>	PHILIPS ADVANCE XI054C150V054DNT1
<b>Total Lumens:</b>	4189.05
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.35
<b>Input Power (W):</b>	40.96
<b>Input Power Factor:</b>	0.99
<b>Current ATHD @ 120V(%):</b>	14%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	102
<b>Color Rendering Index (CRI):</b>	84
<b>Correlated Color Temperature (K):</b>	3566
<b>Chromaticity Coordinate x:</b>	0.3999
<b>Chromaticity Coordinate y:</b>	0.3840
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:45
<b>Total Operating Time (Hours):</b>	2:20
<b>Off State Power(W):</b>	0.00

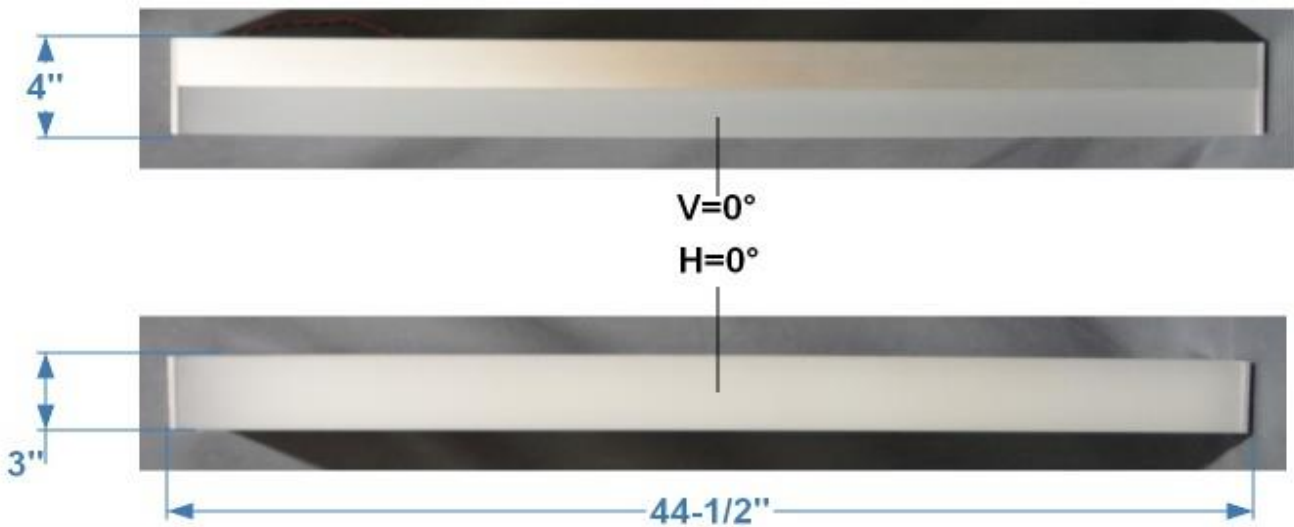
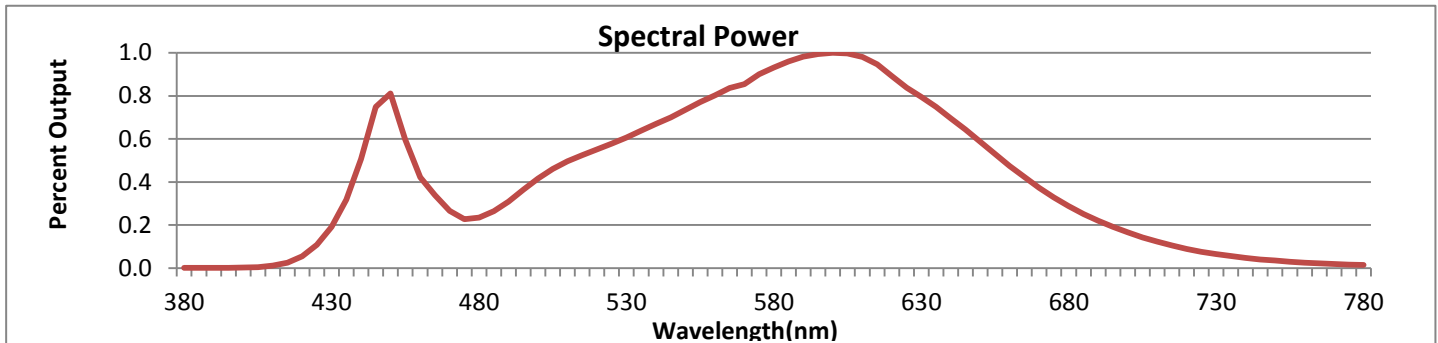


FIG. 1 LUMINAIRE

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



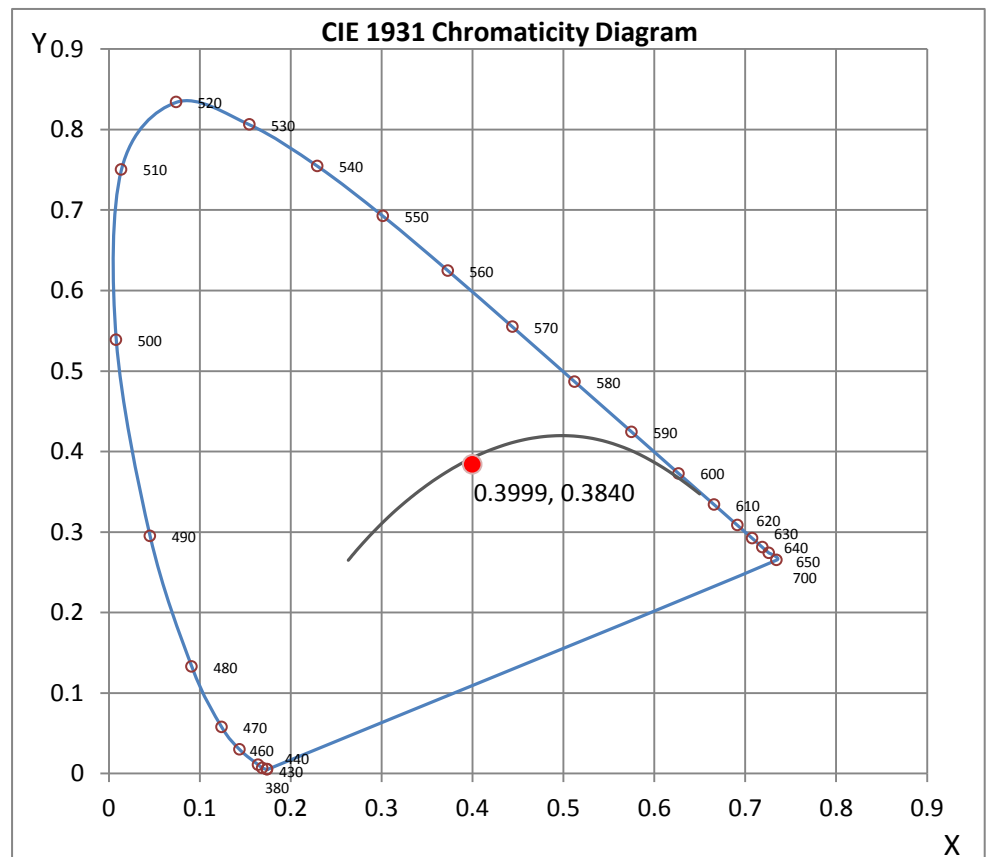
Wavelength	W/m <sup>2</sup> nm	440	0.5065	510	0.4964	580	0.9325	650	0.5866	720	0.0883
380	0.0011	450	0.8117	520	0.5512	590	0.9828	660	0.4745	730	0.0647
390	0.0013	460	0.4220	530	0.6069	600	1.0000	670	0.3728	740	0.0473
400	0.0025	470	0.2651	540	0.6697	610	0.9811	680	0.2882	750	0.0348
410	0.0109	480	0.2352	550	0.7359	620	0.8918	690	0.2194	760	0.0252
420	0.0548	490	0.3089	560	0.8028	630	0.7953	700	0.1655	770	0.0187
430	0.1920	500	0.4164	570	0.8540	640	0.6958	710	0.1232	780	0.0139

**CRI & CCT**

x	0.3999
y	0.3840
u'	0.2350
v'	0.5076
CRI	84.10
CCT	3566
Duv	-0.00177

**R Values**

R1	82.85
R2	89.97
R3	95.07
R4	83.41
R5	82.92
R6	86.24
R7	85.99
R8	66.36
R9	17.56
R10	76.20
R11	82.50
R12	70.07
R13	84.40
R14	97.06



\*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: 11*



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## Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L031505101.IES**

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L031505101  
[TESTLAB] LIGHT LABORATORY, INC.  
[ISSUEDATE] 3/17/2015  
[MANUFAC] BARTCO LIGHTING  
[LUMCAT] BSS215  
[LUMINAIRE] 3"L. X 44-1/2"W. X 4"H. LED LUMINAIRE  
[MORE] DIFFUSED LENS  
[BALLASTCAT] PHILIPS ADVANCE XI054C150V054DNT1  
[BALLAST] INPUT: 120-277VAC, 0.54-0.23A, 50/60Hz. OUTPUT: 0.7-1.5ADC, 27-54VDC  
[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, 40.96W  
[\_TEST PROCEDURE] IESNA:LM-79-08

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4189
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	102
Total Luminaire Watts	40.96
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.20
Spacing Criterion (90-270)	1.14
Spacing Criterion (Diagonal)	1.30
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.25 ft
Luminous Width (90-270)	3.67 ft
Luminous Height	0.17 ft

**IES INDOOR REPORT**  
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**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	8268	8148	10107
55	7671	7038	8337
65	6950	6097	6660
75	5914	5232	5019
85	4737	4463	3165

**IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L031505101.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>	1283	1283	1283	1283	1283	1283	1283	1283	1283	1283
<b>5</b>	1281	1281	1281	1281	1280	1280	1280	1280	1279	1278
<b>10</b>	1259	1259	1259	1259	1258	1258	1257	1257	1256	1256
<b>15</b>	1216	1216	1216	1216	1215	1215	1217	1216	1215	1215
<b>20</b>	1156	1156	1156	1155	1156	1156	1156	1154	1153	1152
<b>25</b>	1086	1086	1085	1085	1085	1085	1082	1081	1080	1078
<b>30</b>	1015	1014	1013	1013	1011	1007	1005	1002	1000	997
<b>35</b>	948	947	945	943	938	933	928	922	916	910
<b>40</b>	889	888	885	880	872	864	856	845	835	826
<b>45</b>	838	836	832	825	814	802	789	774	759	744
<b>50</b>	790	788	783	773	760	744	727	708	688	669
<b>55</b>	740	738	732	721	706	687	667	644	620	597
<b>60</b>	683	680	674	663	647	628	607	582	555	528
<b>65</b>	616	614	608	598	583	565	543	518	490	462
<b>70</b>	541	540	535	526	513	496	477	453	426	398
<b>75</b>	462	460	456	449	439	425	408	387	363	337
<b>80</b>	383	382	379	374	367	356	342	324	304	280
<b>85</b>	309	309	307	304	299	291	280	265	248	228
<b>90</b>	247	246	245	243	240	234	225	214	199	182
<b>95</b>	211	211	210	209	206	202	196	187	175	161
<b>100</b>	185	185	184	183	182	178	174	166	157	145
<b>105</b>	166	165	165	164	163	160	156	150	141	131
<b>110</b>	151	151	151	150	148	146	142	136	128	119
<b>115</b>	140	140	139	138	136	133	130	124	117	109
<b>120</b>	130	130	129	128	126	123	119	113	107	99
<b>125</b>	120	120	119	117	115	112	108	103	97	90
<b>130</b>	110	110	109	107	105	102	98	93	87	81
<b>135</b>	99	99	98	97	94	91	88	83	78	71
<b>140</b>	88	88	87	86	83	81	77	73	67	60
<b>145</b>	77	77	76	74	72	70	66	61	56	51
<b>150</b>	65	65	64	63	61	58	54	50	46	42
<b>155</b>	54	54	53	52	50	46	43	40	37	35
<b>160</b>	43	43	42	41	38	35	33	32	30	28
<b>165</b>	32	32	31	29	27	26	25	24	23	21
<b>170</b>	22	22	20	19	18	18	18	17	16	15
<b>175</b>	12	11	11	11	11	11	11	11	10	10
<b>180</b>	0	0	0	0	0	0	0	0	0	0

**Vert. 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>	1283	1283	1283	1283	1283	1283	1283	1283	1283
<b>5</b>	1277	1277	1276	1275	1275	1274	1273	1273	1273
<b>10</b>	1256	1255	1253	1251	1249	1248	1247	1246	1245
<b>15</b>	1212	1210	1208	1206	1204	1202	1199	1196	1195
<b>20</b>	1151	1150	1148	1145	1142	1140	1136	1133	1131
<b>25</b>	1077	1075	1073	1070	1066	1061	1057	1052	1049
<b>30</b>	993	990	986	982	977	972	966	960	956
<b>35</b>	904	899	893	887	881	874	867	859	854
<b>40</b>	816	807	798	789	780	771	762	753	746
<b>45</b>	730	717	704	692	680	669	657	647	638
<b>50</b>	649	631	614	598	583	569	556	543	534
<b>55</b>	573	551	529	510	492	476	460	446	435
<b>60</b>	501	476	452	429	409	389	372	356	345

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**CANDELA TABULATION - (Cont.)**

<b>65</b>	434	406	380	355	332	311	292	276	264
<b>70</b>	369	341	314	288	264	242	222	205	192
<b>75</b>	309	281	255	228	204	181	161	144	130
<b>80</b>	255	229	202	176	152	129	109	92	78
<b>85</b>	205	181	156	131	108	86	66	49	36
<b>90</b>	162	141	118	95	73	52	33	16	0
<b>95</b>	144	126	106	86	67	47	30	14	0
<b>100</b>	130	114	97	79	61	44	28	14	0
<b>105</b>	118	104	89	73	57	41	26	13	0
<b>110</b>	108	95	82	67	53	38	25	12	0
<b>115</b>	98	87	75	62	49	35	23	11	0
<b>120</b>	90	79	68	56	45	32	21	11	0
<b>125</b>	81	72	62	51	41	30	19	10	0
<b>130</b>	73	64	55	45	36	26	17	9	0
<b>135</b>	63	55	48	39	31	23	15	8	0
<b>140</b>	54	47	40	34	27	20	14	8	0
<b>145</b>	45	40	34	29	23	17	12	8	0
<b>150</b>	38	34	29	24	19	15	11	7	0
<b>155</b>	32	27	24	20	17	13	10	7	0
<b>160</b>	25	22	20	17	14	12	9	7	0
<b>165</b>	19	18	16	14	12	10	8	7	0
<b>170</b>	14	13	12	11	10	9	8	7	0
<b>175</b>	10	9	9	8	8	8	8	8	0
<b>180</b>	0	0	0	0	0	0	0	0	0



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L031505101.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	461.80	N.A.	11.00
0-30	956.71	N.A.	22.80
0-40	1525.78	N.A.	36.40
0-60	2636.72	N.A.	62.90
0-80	3429.77	N.A.	81.90
0-90	3655.38	N.A.	87.30
10-90	3534.19	N.A.	84.40
20-40	1063.98	N.A.	25.40
20-50	1640.35	N.A.	39.20
40-70	1563.15	N.A.	37.30
60-80	793.05	N.A.	18.90
70-80	340.84	N.A.	8.10
80-90	225.61	N.A.	5.40
90-110	270.05	N.A.	6.40
90-120	362.76	N.A.	8.70
90-130	432.98	N.A.	10.30
90-150	511.59	N.A.	12.20
90-180	533.67	N.A.	12.70
110-180	263.62	N.A.	6.30
0-180	4189.05	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	121.18
10-20	340.62
20-30	494.91
30-40	569.07
40-50	576.37
50-60	534.57
60-70	452.20
70-80	340.84
80-90	225.61
90-100	151.88
100-110	118.17
110-120	92.72
120-130	70.22
130-140	48.78
140-150	29.83
150-160	15.29
160-170	5.82
170-180	0.97

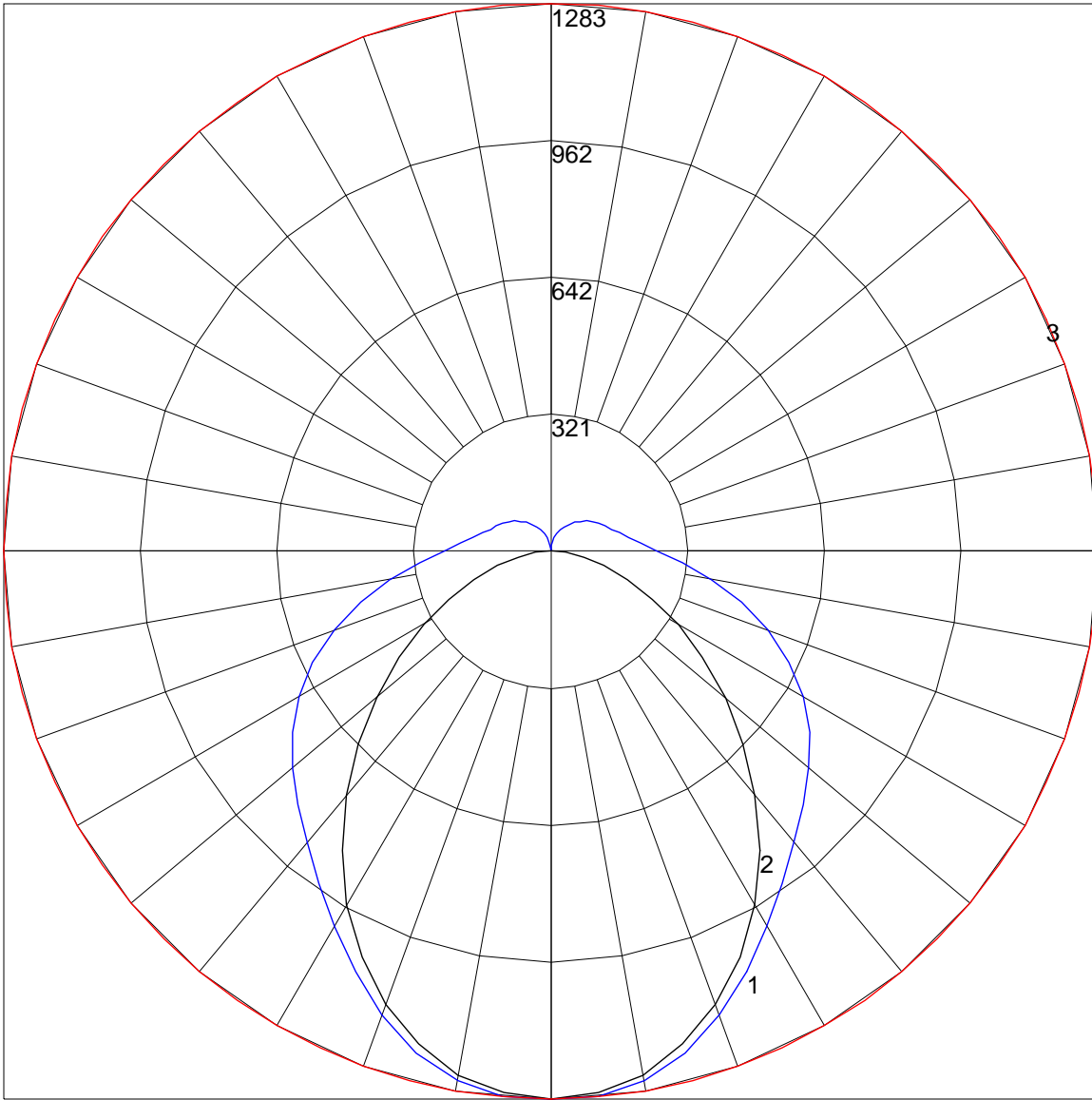
**IES INDOOR REPORT**  
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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	116	116	116	116	112	112	112	112	104	104	104	97	97	97	90	90	90	87
1	104	99	94	89	100	95	91	87	89	85	82	82	80	77	77	75	72	69
2	94	85	78	72	90	82	76	70	77	71	66	71	67	63	67	63	60	57
3	86	75	66	59	82	72	64	58	67	61	55	63	57	53	59	54	50	47
4	78	66	57	50	75	64	55	49	60	53	47	56	50	45	52	47	43	40
5	72	59	50	43	69	57	49	42	53	46	41	50	44	39	47	42	37	35
6	67	53	44	38	64	51	43	37	48	41	36	45	39	34	43	37	33	31
7	62	48	39	33	59	47	38	33	44	37	31	41	35	30	39	34	29	27
8	57	44	35	30	55	43	35	29	40	33	28	38	32	27	36	30	26	24
9	54	40	32	27	52	39	31	26	37	30	25	35	29	25	33	28	24	22
10	50	37	29	24	48	36	29	24	34	28	23	33	27	22	31	26	22	20

POLAR GRAPH



Maximum Candela = 1283 Located At Horizontal Angle = 0, Vertical Angle = 0

# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)

# 2 - Vertical Plane Through Horizontal Angles (90 - 270)

# 3 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)