

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

CK0407SQPC 15L 35K WD xx NL xx MW  
Nom. 4.5" Diam x 7"H Square Cylinder, Wide Beam

### **Test Number**

SP-01451\_M-15L

### **Test Date**

11/29/2022

The results contained in this report pertain only to this IES file.

### Summary of Results

#### Power

Input Watts	9.5 W
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#### Lumen Output

Output Lumens	719
Efficacy	75.7 lm/W

#### Luminous Dimensions

0° - 180° Size	0.2
90° - 270° Size	0.2
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	0.65
Two luminaires, plane 90°	0.66
Four luminaires	0.71

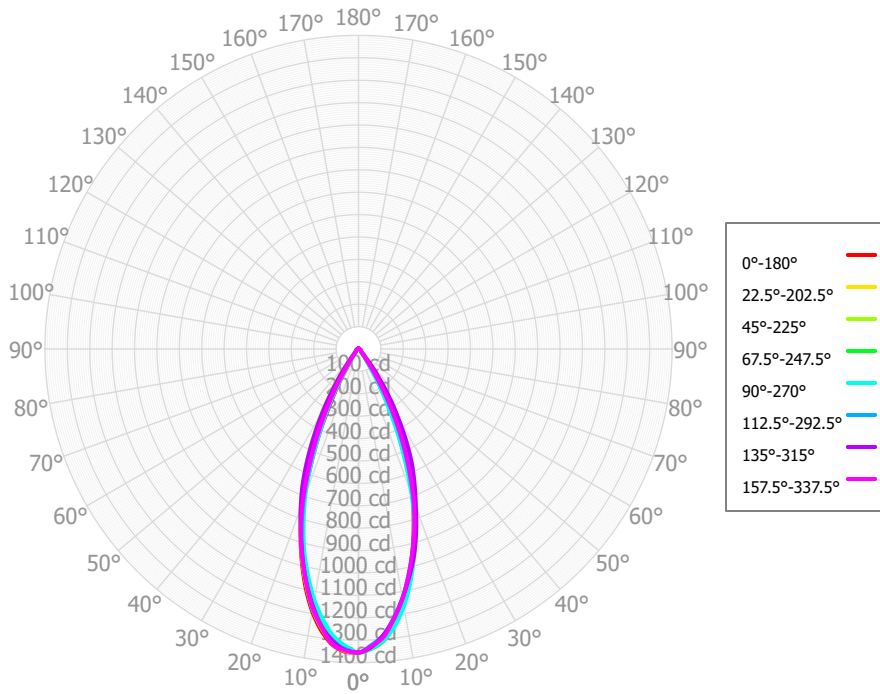
#### Full Beam Angle

0° - 180°	41°
90° - 270°	41°

### IES File Header Contents

Keyword	Value
TEST	SP-01451_M-15L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/29/2022
ISSUEDATE	12/1/2022
LUMCAT	CK0407SQPC 15L 35K WD xx NL xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Square Cylinder, Wide Beam
OTHER	No lens, Matte White finish
OTHER	41 Degree Beam Angle
OTHER	Reference Project SL378
LAMP	N/A
LAMPCAT	N/A, Min. 80 CRI
OTHER	Total Luminaire Watts is approximate
OTHER	CCT Output Multipliers: 27K x 0.95, 30K x 0.97, 40K x 1.03
OTHER	This report prepared by Spectrum Lighting

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	120.87	16.81%	90.00° - 100.00°	2.16	0.30%
10.00° - 20.00°	261.30	36.34%	100.00° - 110.00°	2.05	0.29%
20.00° - 30.00°	212.08	29.49%	100.00° - 120.00°	3.98	0.55%
30.00° - 40.00°	66.07	9.19%	120.00° - 130.00°	1.74	0.24%
40.00° - 50.00°	16.38	2.28%	130.00° - 140.00°	1.60	0.22%
50.00° - 60.00°	11.27	1.57%	140.00° - 150.00°	1.29	0.18%
60.00° - 70.00°	9.88	1.37%	150.00° - 160.00°	0.97	0.13%
70.00° - 80.00°	6.00	0.83%	160.00° - 170.00°	0.59	0.08%
80.00° - 90.00°	2.75	0.38%	170.00° - 180.00°	0.20	0.03%
0.00° - 90.00°	706.59	98.26%	0.00° - 180.00°	719.12	100.00%

### Candela Distribution

	0.00°	22.50°	45.00°	67.50°	90.00°	112.50°	135.00°	157.50°	180.00°	202.50°	225.00°	247.50°	270.00°	292.50°	315.00°	337.50°	360.00°
0.00°	1355.02	1355.02	1355.02	1355.02	1355.02	1355.02	1355.02	1355.02	1355.02	1355.02	1355.02	1355.02	1355.02	1355.02	1355.02	1355.02	1355.02
2.50°	1329.63	1333.43	1337.60	1340.01	1337.23	1341.36	1346.63	1348.00	1353.25	1350.36	1344.03	1337.55	1327.35	1323.47	1332.20	1327.65	1329.63
5.00°	1287.22	1289.17	1293.45	1306.76	1304.45	1319.23	1308.73	1324.54	1326.72	1322.62	1304.31	1305.79	1286.78	1281.90	1281.64	1290.90	1287.22
7.50°	1217.61	1221.87	1228.34	1238.25	1246.94	1251.43	1253.28	1254.95	1269.42	1258.56	1245.41	1233.53	1217.95	1209.88	1213.93	1213.02	1217.61
10.00°	1138.30	1140.09	1146.66	1157.88	1167.04	1179.60	1167.94	1175.54	1190.22	1180.35	1162.19	1155.99	1137.12	1129.46	1130.58	1132.39	1138.30
12.50°	1037.29	1045.89	1055.87	1057.56	1068.70	1072.26	1071.80	1074.02	1090.85	1079.19	1068.51	1052.96	1038.76	1032.55	1044.49	1033.45	1037.29
15.00°	931.70	942.83	960.12	951.26	956.41	963.77	966.05	968.23	979.20	972.58	965.80	948.53	935.74	932.50	956.61	933.95	931.70
17.50°	819.64	834.32	854.30	837.96	836.16	843.68	858.24	855.95	859.43	850.19	860.56	835.47	815.90	828.24	855.34	830.26	819.64
20.00°	706.91	718.54	744.86	717.90	695.21	719.78	754.14	729.33	710.96	725.83	753.25	719.71	693.75	714.32	748.13	722.71	706.91
22.50°	565.20	599.77	651.06	592.13	546.39	577.28	650.41	587.45	549.59	580.80	645.63	587.69	550.29	591.31	653.74	599.74	565.20
25.00°	425.01	477.80	560.79	468.52	408.92	440.82	532.55	454.61	403.47	437.08	536.22	459.78	407.15	470.93	562.96	479.09	425.01
27.50°	303.43	355.01	452.70	346.17	274.17	321.70	415.43	328.73	261.70	318.92	426.83	346.21	288.21	352.33	458.74	364.13	303.43
30.00°	189.69	249.98	342.72	241.13	178.17	214.46	307.99	224.40	167.90	206.39	320.58	240.61	176.06	247.14	352.36	256.87	189.69
32.50°	115.86	147.45	248.92	142.86	86.75	129.64	206.32	131.51	81.98	126.66	218.63	152.62	107.01	148.16	258.91	162.35	115.86
35.00°	56.71	91.90	157.91	87.49	58.46	70.60	134.59	79.24	55.35	61.04	146.50	85.89	49.94	89.32	167.15	92.74	56.71
37.50°	41.06	40.13	99.04	42.85	32.65	46.05	74.00	41.38	32.68	41.44	82.94	51.08	35.98	42.34	106.91	52.60	41.06
40.00°	28.46	31.48	47.10	30.11	26.73	30.92	46.92	29.81	28.03	27.05	52.19	29.65	25.07	29.43	51.78	30.29	28.46
42.50°	21.77	23.53	31.11	21.38	21.45	24.62	26.96	23.90	23.53	23.58	28.43	22.68	21.11	22.38	34.43	22.79	21.77
45.00°	17.62	20.13	18.63	19.08	19.68	20.19	20.96	20.54	20.18	20.51	21.31	18.48	17.90	19.21	20.18	18.56	17.62
47.50°	16.97	17.08	17.15	16.92	17.68	16.97	16.84	17.43	17.25	18.06	16.47	16.39	15.89	16.33	17.79	16.20	16.97
50.00°	15.51	15.26	15.82	14.64	14.95	15.16	15.31	16.03	15.98	15.80	15.31	14.14	14.11	15.29	15.59	14.30	15.51
52.50°	13.28	13.69	14.77	12.58	12.69	14.01	14.07	14.61	14.61	13.75	13.71	11.79	12.58	14.22	13.86	12.57	13.28
55.00°	11.87	12.70	13.84	11.78	11.43	12.91	13.10	12.86	12.97	12.53	11.60	11.49	11.42	12.91	12.60	11.53	11.87
57.50°	11.04	11.67	13.09	11.15	10.41	11.83	11.92	11.40	11.59	11.90	10.88	11.93	10.56	11.74	12.12	10.67	11.04
60.00°	10.45	10.60	12.16	11.08	9.74	11.33	10.60	11.42	10.63	11.49	11.26	10.88	10.27	11.14	11.30	10.71	10.45
62.50°	9.98	10.07	11.06	10.75	9.90	10.93	10.50	11.12	10.02	11.18	11.33	9.53	10.29	10.55	10.07	10.86	9.98
65.00°	9.13	10.11	10.06	9.87	10.93	10.54	10.99	9.82	9.82	10.56	11.22	9.76	9.97	9.97	9.74	9.94	9.13
67.50°	8.15	9.31	9.13	9.17	10.55	10.11	9.73	8.66	9.47	9.84	10.42	10.14	9.52	9.18	10.17	8.97	8.15
70.00°	7.62	7.86	8.30	8.75	9.17	8.54	7.93	7.74	9.01	8.32	9.36	8.93	8.27	8.04	9.26	7.76	7.62
72.50°	7.18	6.46	7.52	7.50	7.48	6.95	6.06	6.55	7.63	6.65	7.68	7.63	6.83	6.96	7.58	6.58	7.18
75.00°	5.69	5.10	5.85	5.36	5.65	5.26	4.19	5.01	5.72	5.31	5.86	5.53	5.69	5.97	6.33	5.57	5.69
77.50°	4.16	4.24	3.89	4.09	4.41	3.77	3.34	3.86	4.67	4.02	4.20	3.71	4.59	5.04	5.24	4.67	4.16
80.00°	3.70	3.54	3.12	3.46	3.36	3.14	2.58	3.09	3.95	3.20	2.56	3.31	3.90	4.16	4.55	4.11	3.70
82.50°	3.22	2.99	2.56	2.74	2.86	2.59	2.34	2.55	3.14	2.46	2.33	2.84	3.23	3.26	3.95	3.40	3.22
85.00°	2.49	2.47	2.23	1.97	2.47	2.25	2.12	2.17	2.32	2.52	2.15	2.17	2.70	2.36	2.97	2.38	2.49
87.50°	1.91	1.96	1.93	1.79	2.32	2.06	2.05	2.17	2.23	2.50	2.30	1.76	2.23	2.20	1.94	1.77	1.91
90.00°	1.93	1.45	1.82	1.81	2.19	2.12	1.99	2.33	2.23	2.06	2.39	1.83	2.01	2.35	2.13	1.80	1.93
92.50°	1.97	1.43	1.73	1.85	2.48	2.24	1.99	2.08	2.10	1.78	2.12	1.86	1.88	2.36	2.31	1.75	1.97
95.00°	2.06	1.45	1.85	1.89	2.71	2.43	1.96	1.69	1.98	1.93	1.94	1.81	2.03	2.33	1.87	1.63	2.06
97.50°	2.08	1.87	1.92	1.80	2.41	2.35	1.84	1.67	2.05	1.98	2.03	1.86	2.14	2.38	1.52	1.67	2.08
100.00°	1.97	2.22	1.81	1.71	2.17	2.06	1.71	1.73	2.08	1.86	2.03	2.00	2.15	2.44	1.66	1.82	1.97

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

<b>RCR</b>	<b>pfc</b>	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	<b>pcc</b>	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	<b>0</b>	853	853	853	853	832	832	832	832	792	792	792	756	756	756	722	722	707
	<b>1</b>	814	795	777	762	795	778	763	748	747	734	723	718	708	699	691	684	669
	<b>2</b>	777	744	716	693	760	730	705	684	705	685	667	682	666	651	661	648	634
	<b>3</b>	742	699	666	639	727	688	658	633	668	642	621	649	628	610	632	614	599
	<b>4</b>	710	660	623	595	696	651	617	591	634	605	582	618	594	574	604	584	572
	<b>5</b>	679	624	586	558	667	617	581	555	603	572	549	590	564	543	578	555	545
	<b>6</b>	651	592	553	525	640	586	550	523	575	543	519	564	536	514	554	529	520
	<b>7</b>	624	564	525	497	614	558	522	495	549	516	492	539	510	489	531	505	496
	<b>8</b>	599	537	499	472	590	533	496	471	524	492	468	516	487	465	509	483	475
	<b>9</b>	575	513	475	449	567	509	473	448	502	469	446	495	466	444	489	462	455
	<b>10</b>	554	491	454	429	546	488	452	428	481	449	426	475	446	425	470	443	436

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	44.8 fc	4.1 ft
6.5 ft	32.1 fc	4.9 ft
7.5 ft	24.1 fc	5.6 ft
8.0 ft	21.2 fc	6.0 ft
10.0 ft	13.6 fc	7.5 ft
12.0 ft	9.4 fc	9.0 ft
14.0 ft	6.9 fc	10.5 ft
16.0 ft	5.3 fc	12.0 ft
20.0 ft	3.4 fc	15.0 ft
24.0 ft	2.4 fc	18.0 ft
28.0 ft	1.7 fc	21.0 ft

### Average Luminaire Luminance [cd/m<sup>2</sup>]

	0.00°	45.00°	90.00°
<b>0.00°</b>	364632	364632	364632
<b>45.00°</b>	6705	7091	7490
<b>55.00°</b>	5568	6495	5362
<b>65.00°</b>	5810	6406	6958
<b>75.00°</b>	5918	6082	5877
<b>85.00°</b>	7682	6889	7628

### UGR CIE 190:2010

Ceiling reflectance		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall reflectance		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Plane reflectance		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
2H	2H	10.7	11.6	11.1	12.0	12.4	11.0	11.9	11.4	12.3	12.6
	3H	13.0	13.8	13.4	14.2	14.6	13.6	14.5	14.1	14.9	15.3
	4H	13.8	14.6	14.3	15.0	15.5	14.4	15.2	14.8	15.6	16.0
	6H	14.4	15.1	14.9	15.6	16.0	14.9	15.6	15.3	16.0	16.4
	8H	14.7	15.4	15.2	15.8	16.3	15.1	15.8	15.5	16.2	16.6
	12H	15.0	15.7	15.5	16.1	16.6	15.3	16.0	15.8	16.4	16.9
4H	2H	11.5	12.3	11.9	12.7	13.1	11.9	12.7	12.3	13.1	13.5
	3H	14.0	14.6	14.4	15.1	15.5	14.6	15.2	15.0	15.7	16.1
	4H	14.9	15.5	15.3	15.9	16.4	15.3	15.9	15.8	16.4	16.9
	6H	15.6	16.1	16.1	16.6	17.1	15.9	16.4	16.4	16.9	17.4
	8H	16.0	16.4	16.5	16.9	17.4	16.2	16.6	16.7	17.1	17.6
	12H	16.3	16.7	16.8	17.2	17.8	16.5	16.9	17.0	17.4	17.9
8H	4H	15.2	15.7	15.7	16.2	16.7	15.5	16.0	16.0	16.5	17.0
	6H	16.1	16.5	16.7	17.0	17.5	16.2	16.5	16.7	17.1	17.6
	8H	16.6	16.9	17.2	17.5	18.0	16.6	16.9	17.1	17.4	18.0
	12H	17.1	17.4	17.7	17.9	18.6	17.0	17.3	17.6	17.8	18.5
12H	4H	15.2	15.6	15.8	16.2	16.7	15.5	15.9	16.0	16.4	16.9
	6H	16.2	16.5	16.8	17.0	17.6	16.2	16.5	16.8	17.0	17.6
	8H	16.8	17.1	17.3	17.6	18.2	16.6	16.9	17.2	17.4	18.1

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0