

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

994 Jefferson Street  
Fall River, MA 02721  
+1.508.678.2303

## **Spectrum Lighting Photometric Lab**

### **Luminaire**

CK0407SQPC 30L 35K MD xx NL xx MW  
Nom. 4.5" Diam x 7"H Square Cylinder, Medium Beam

### **Test Number**

SP-01447\_M-30L

### **Test Date**

10/26/2022

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

## Summary of Results

### Power

Input Watts	17.8 W
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### Lumen Output

Output Lumens	1386
Efficacy	77.88 lm/W

### Luminous Dimensions

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

### Spacing Criterion

Two luminaires, plane 0°	0.51
Two luminaires, plane 90°	0.51
Four luminaires	0.56

### Full Beam Angle

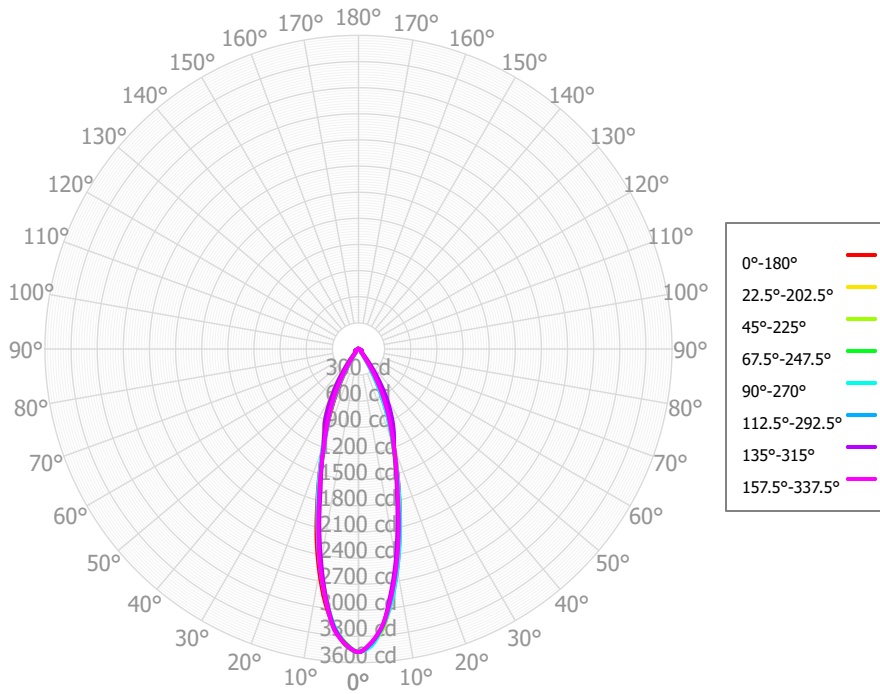
0° - 180°	31°
90° - 270°	31°

## IES File Header Contents

Keyword	Value
TEST	SP-01447_M-30L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	10/26/2022
ISSUEDATE	11/22/2022
LUMCAT	CK0407SQPC 30L 35K MD xx NL xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Square Cylinder, Medium Beam
OTHER	No lens, Matte White finish
OTHER	32 Degree Beam Angle
OTHER	Reference Project SL378
LAMP	N/A
LAMPCAT	N/A, Min. 80 CRI
OTHER	Total Luminaire Watts is approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	80
_CCTMULT	27K x 0.95, 30K x 0.97, 40K x 1.03
_LAMPMULT	10L x 0.34, 15L x 0.49, 20L x 0.67

CK0407SQPC 30L 35K MD xx NL xx MW

**Candela Polar Plot**



**Zonal Lumen Summary**

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	285.79	20.62%	90.00° - 100.00°	2.05	0.15%
10.00° - 20.00°	484.73	34.97%	100.00° - 110.00°	2.01	0.15%
20.00° - 30.00°	357.89	25.82%	100.00° - 120.00°	3.85	0.28%
30.00° - 40.00°	128.82	9.29%	120.00° - 130.00°	1.69	0.12%
40.00° - 50.00°	32.65	2.36%	130.00° - 140.00°	1.58	0.11%
50.00° - 60.00°	31.42	2.27%	140.00° - 150.00°	1.30	0.09%
60.00° - 70.00°	37.32	2.69%	150.00° - 160.00°	1.03	0.07%
70.00° - 80.00°	11.78	0.85%	160.00° - 170.00°	0.60	0.04%
80.00° - 90.00°	3.54	0.26%	170.00° - 180.00°	0.20	0.01%
0.00° - 90.00°	1373.94	99.11%	0.00° - 180.00°	1386.26	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°	3479.31	3479.31	3479.31	3479.31	3479.31	3479.31	3479.31	3479.31	3479.31	3479.31	3479.31	3479.31	3479.31	3479.31	3479.31	3479.31	3479.31
2.50°	3386.74	3403.80	3385.58	3384.09	3412.63	3392.65	3393.85	3396.67	3403.71	3385.20	3380.50	3382.31	3398.54	3382.79	3374.01	3376.89	3386.74
5.00°	3199.10	3221.81	3222.90	3202.17	3199.43	3223.48	3212.24	3232.15	3208.20	3201.33	3209.20	3206.99	3193.49	3193.42	3187.01	3182.36	3199.10
7.50°	2903.44	2916.64	2869.31	2900.74	2924.20	2892.18	2875.89	2897.81	2937.45	2873.98	2873.32	2876.00	2889.05	2874.53	2833.13	2872.09	2903.44
10.00°	2561.97	2542.31	2503.08	2538.65	2569.81	2532.35	2475.91	2539.69	2594.91	2521.00	2492.07	2519.82	2539.87	2498.01	2465.37	2516.94	2561.97
12.50°	2177.38	2154.64	2096.68	2150.21	2201.71	2115.81	2080.37	2127.70	2224.22	2127.30	2099.46	2119.52	2159.28	2113.81	2067.87	2134.47	2177.38
15.00°	1816.33	1759.70	1716.55	1748.77	1816.57	1731.32	1686.62	1744.65	1827.35	1759.62	1703.90	1749.39	1807.64	1726.29	1707.10	1741.75	1816.33
17.50°	1476.89	1457.75	1415.46	1429.42	1471.13	1408.70	1407.70	1424.12	1480.11	1432.16	1425.85	1430.69	1475.79	1435.98	1422.75	1443.23	1476.89
20.00°	1184.57	1204.34	1160.25	1148.70	1173.80	1128.68	1172.30	1144.13	1177.20	1154.24	1177.08	1163.50	1199.44	1185.62	1191.22	1178.94	1184.57
22.50°	934.35	997.01	1038.45	930.19	908.03	928.56	1025.73	949.13	916.13	949.72	1040.17	981.65	959.45	984.46	1064.63	967.65	934.35
25.00°	709.77	813.03	908.29	739.63	678.96	738.07	911.73	760.91	690.91	756.13	929.38	803.83	740.83	802.54	931.37	774.64	709.77
27.50°	507.18	634.55	755.04	562.70	477.34	564.86	756.96	586.26	493.59	578.31	778.71	632.37	535.62	628.39	785.23	597.30	507.18
30.00°	336.83	458.72	599.60	391.71	306.36	402.21	588.00	420.34	319.55	412.11	619.33	468.96	361.94	457.20	632.32	425.08	336.83
32.50°	193.01	309.12	438.29	255.42	182.63	257.70	432.01	271.40	194.73	261.99	467.26	317.80	207.54	308.10	466.95	283.43	193.01
35.00°	108.20	171.85	291.30	133.79	110.27	147.81	280.37	153.92	109.35	150.35	316.70	194.49	119.15	166.95	318.59	151.43	108.20
37.50°	70.72	102.16	180.65	79.99	65.27	95.71	178.55	94.98	63.77	89.78	208.27	112.40	69.98	98.83	200.25	93.37	70.72
40.00°	49.38	62.80	92.90	53.47	49.26	58.77	92.60	54.00	49.27	51.44	108.24	57.63	47.31	56.12	110.21	57.79	49.38
42.50°	40.64	45.73	61.45	42.58	39.85	46.43	60.77	45.52	40.58	41.82	70.55	42.22	39.70	41.71	68.75	45.31	40.64
45.00°	35.29	38.35	38.74	37.66	37.15	38.29	45.56	39.07	36.24	35.37	44.38	32.92	34.59	36.64	41.37	39.45	35.29
47.50°	32.47	33.94	36.53	34.77	34.33	36.67	40.79	36.15	32.78	32.93	37.51	32.04	30.84	34.14	37.49	35.70	32.47
50.00°	30.29	30.74	35.16	32.62	31.41	35.81	39.04	34.17	29.96	31.15	33.94	30.88	28.49	32.46	35.93	32.52	30.29
52.50°	28.55	30.67	35.69	33.53	30.61	36.07	39.29	33.78	28.94	30.16	34.65	29.33	26.87	32.35	38.08	32.32	28.55
55.00°	30.11	31.84	37.14	35.52	31.84	37.12	40.10	34.72	29.18	31.42	36.06	30.07	27.92	32.71	40.57	32.89	30.11
57.50°	33.98	35.33	40.59	37.43	35.13	39.34	42.53	37.77	32.61	35.28	39.14	33.77	30.33	36.49	43.57	36.86	33.98
60.00°	37.72	39.71	42.72	39.31	40.30	41.16	45.40	40.64	38.21	38.79	42.48	37.27	35.61	41.25	45.25	41.69	37.72
62.50°	41.39	41.36	42.13	40.58	43.28	42.44	42.79	43.19	42.35	41.92	41.87	40.52	42.31	42.44	44.95	42.41	41.39
65.00°	40.44	42.01	39.10	41.65	44.31	39.59	38.79	41.75	45.54	39.89	40.70	40.17	43.07	42.65	41.51	42.17	40.44
67.50°	36.47	34.88	31.16	34.06	38.35	31.15	30.77	34.32	39.42	32.19	31.37	35.47	41.04	34.90	33.50	33.09	36.47
70.00°	27.17	25.01	23.05	23.77	26.41	22.22	21.81	25.59	27.39	23.28	20.99	27.30	31.51	25.05	24.83	22.07	27.17
72.50°	14.54	16.12	14.64	15.70	17.12	12.66	14.30	14.94	17.45	13.09	13.79	15.10	18.58	16.31	15.24	14.57	14.54
75.00°	9.02	7.56	8.15	8.28	10.04	6.89	7.12	7.96	8.79	7.33	6.96	7.86	12.37	7.84	8.35	7.81	9.02
77.50°	7.83	5.39	5.22	6.39	7.33	5.91	4.85	6.10	6.51	6.08	4.89	6.24	9.07	6.50	5.07	6.66	7.83
80.00°	6.20	5.28	3.18	6.04	8.11	4.79	3.62	4.73	8.00	4.94	3.35	5.19	6.81	6.84	3.11	6.61	6.20
82.50°	4.32	3.89	2.70	4.52	6.68	3.49	3.17	4.00	6.45	3.92	2.83	4.77	4.98	4.94	2.87	4.84	4.32
85.00°	2.95	2.09	2.31	2.68	3.52	2.70	2.89	3.17	3.17	2.99	2.41	3.93	3.37	2.54	2.58	2.74	2.95
87.50°	1.87	1.59	2.06	2.35	2.14	2.52	2.56	2.20	1.89	2.14	2.14	2.66	1.86	2.35	2.24	2.08	1.87
90.00°	1.66	1.47	1.94	2.41	2.09	2.28	2.22	1.69	1.72	1.58	1.88	2.08	1.56	2.63	2.08	1.67	1.66
92.50°	1.92	1.43	2.02	2.10	2.13	1.98	2.26	1.77	1.60	1.31	1.80	2.19	1.73	2.32	2.15	1.52	1.92
95.00°	1.87	1.41	2.01	1.70	2.23	1.94	2.36	1.89	1.50	1.26	1.73	2.26	1.84	1.90	2.11	1.41	1.87
97.50°	1.65	1.66	1.85	1.86	2.05	2.20	2.22	2.06	1.60	1.40	1.76	2.29	1.92	1.99	1.94	1.49	1.65
100.00°	1.67	1.98	1.85	2.14	1.67	2.35	2.04	2.10	1.80	1.53	1.79	2.19	1.87	2.17	1.80	1.60	1.67

### 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%	20%	0%
	<b>pcc</b>	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	<b>0</b>	1647	1647	1647	1647	1608	1608	1608	1608	1533	1533	1533	1466	1466	1466	1403	1403	1403	1374
	<b>1</b>	1573	1535	1502	1471	1537	1504	1474	1447	1446	1422	1400	1392	1374	1356	1343	1329	1315	1301
	<b>2</b>	1500	1436	1382	1338	1469	1411	1363	1322	1365	1325	1291	1322	1290	1262	1282	1256	1234	1231
	<b>3</b>	1433	1349	1285	1233	1405	1329	1270	1222	1292	1242	1201	1257	1216	1181	1225	1191	1162	1167
	<b>4</b>	1371	1274	1203	1149	1346	1258	1192	1141	1227	1171	1127	1198	1151	1112	1172	1132	1099	1110
	<b>5</b>	1313	1207	1133	1079	1290	1194	1125	1073	1168	1109	1063	1144	1093	1053	1122	1078	1043	1058
	<b>6</b>	1259	1147	1073	1019	1239	1136	1066	1015	1115	1053	1007	1095	1041	1000	1077	1029	992	1011
	<b>7</b>	1209	1094	1019	967	1191	1084	1014	964	1067	1004	958	1050	994	952	1034	985	947	968
	<b>8</b>	1163	1045	971	921	1147	1037	967	918	1022	959	914	1008	951	910	994	943	905	928
	<b>9</b>	1120	1001	929	879	1105	994	925	878	981	918	874	969	912	871	957	905	868	892
	<b>10</b>	1079	961	890	842	1066	955	887	841	943	881	838	932	876	836	922	870	833	858

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	115.0 fc	3.1 ft
6.5 ft	82.4 fc	3.6 ft
7.5 ft	61.9 fc	4.2 ft
8.0 ft	54.4 fc	4.5 ft
10.0 ft	34.8 fc	5.6 ft
12.0 ft	24.2 fc	6.7 ft
14.0 ft	17.8 fc	7.8 ft
16.0 ft	13.6 fc	8.9 ft
20.0 ft	8.7 fc	11.2 ft
24.0 ft	6.0 fc	13.4 ft
28.0 ft	4.4 fc	15.6 ft

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

	0.00°	45.00°	90.00°
<b>0.00°</b>	936276	936276	936276
<b>45.00°</b>	13430	14743	14136
<b>55.00°</b>	14127	17425	14939
<b>65.00°</b>	25748	24896	28212
<b>75.00°</b>	9374	8470	10434
<b>85.00°</b>	9114	7123	10859

### UGR CIE 190:2010

<b>Ceiling reflectance</b>		<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>	<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>
<b>Wall reflectance</b>		<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>
<b>Plane reflectance</b>		<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>
<b>Room dimensions</b>		<b>Viewed crosswise</b>					<b>Viewed endwise</b>				
<b>2H</b>	<b>2H</b>	16.6	17.6	17.0	17.9	18.3	16.6	17.6	17.0	18.0	18.3
	<b>3H</b>	19.5	20.3	19.9	20.7	21.1	19.7	20.5	20.1	20.9	21.3
	<b>4H</b>	19.6	20.4	20.0	20.8	21.2	19.9	20.7	20.3	21.1	21.5
	<b>6H</b>	19.7	20.5	20.2	20.9	21.3	20.0	20.7	20.4	21.1	21.6
	<b>8H</b>	19.8	20.5	20.2	20.9	21.3	20.1	20.8	20.5	21.2	21.6
	<b>12H</b>	19.8	20.4	20.2	20.8	21.3	20.1	20.8	20.5	21.2	21.6
<b>4H</b>	<b>2H</b>	17.9	18.7	18.3	19.1	19.5	17.9	18.7	18.3	19.1	19.5
	<b>3H</b>	20.3	21.0	20.7	21.4	21.8	20.4	21.1	20.8	21.5	21.9
	<b>4H</b>	20.4	21.0	20.9	21.5	22.0	20.6	21.2	21.0	21.6	22.1
	<b>6H</b>	20.6	21.1	21.1	21.6	22.1	20.7	21.3	21.2	21.7	22.2
	<b>8H</b>	20.6	21.1	21.1	21.6	22.1	20.8	21.3	21.3	21.8	22.3
	<b>12H</b>	20.7	21.1	21.2	21.6	22.1	20.9	21.3	21.4	21.8	22.3
<b>8H</b>	<b>4H</b>	20.4	20.9	20.9	21.4	21.9	20.5	21.0	21.0	21.5	22.0
	<b>6H</b>	20.6	21.0	21.1	21.5	22.0	20.7	21.1	21.2	21.6	22.1
	<b>8H</b>	20.7	21.0	21.3	21.6	22.1	20.9	21.2	21.4	21.7	22.2
	<b>12H</b>	20.8	21.1	21.3	21.6	22.2	21.0	21.3	21.5	21.8	22.4
<b>12H</b>	<b>4H</b>	20.4	20.8	20.9	21.3	21.8	20.5	20.9	21.0	21.4	21.9
	<b>6H</b>	20.6	20.9	21.1	21.4	22.0	20.7	21.0	21.2	21.5	22.1
	<b>8H</b>	20.7	21.0	21.2	21.5	22.1	20.8	21.1	21.4	21.6	22.2

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0