

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

CK0407SQPC 20L 35K XW xx SO xx MW  
Nom. 4.5" Diam x 7"H Square Cylinder, Xtra Wide Beam

### **Test Number**

SP-01454\_M-20L

### **Test Date**

11/28/2022

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

### Summary of Results

#### Power

Input Watts	13.2 W
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#### Lumen Output

Output Lumens	968
Efficacy	73.33 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.87
Two luminaires, plane 90°	0.86
Four luminaires	0.89

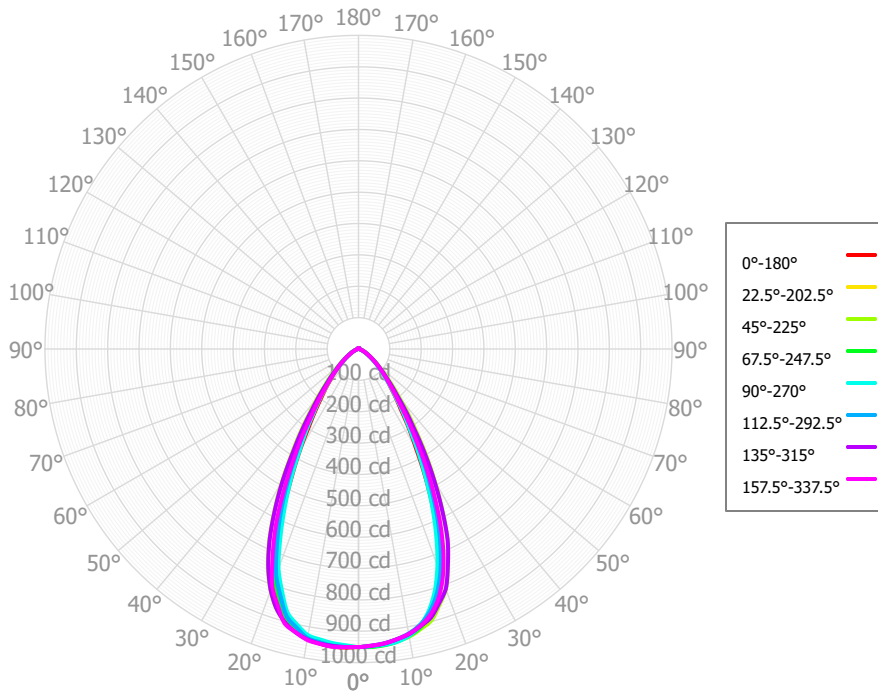
#### Full Beam Angle

0° - 180°	54°
90° - 270°	54°

### IES File Header Contents

Keyword	Value
TEST	SP-01454_M-20L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/28/2022
ISSUEDATE	11/28/2022
LUMCAT	CK0407SQPC 20L 35K XW xx SO xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Square Cylinder, Xtra Wide Beam
OTHER	Solite lens, Matte White finish
OTHER	54 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°	91.22	9.42%	90.00° - 100.00°	2.12	0.22%
10.00° - 20.00°	245.07	25.32%	100.00° - 110.00°	2.13	0.22%
20.00° - 30.00°	275.52	28.47%	100.00° - 120.00°	4.13	0.43%
30.00° - 40.00°	175.08	18.09%	120.00° - 130.00°	1.80	0.19%
40.00° - 50.00°	92.02	9.51%	130.00° - 140.00°	1.58	0.16%
50.00° - 60.00°	45.61	4.71%	140.00° - 150.00°	1.31	0.13%
60.00° - 70.00°	20.17	2.08%	150.00° - 160.00°	0.99	0.10%
70.00° - 80.00°	7.82	0.81%	160.00° - 170.00°	0.59	0.06%
80.00° - 90.00°	2.66	0.27%	170.00° - 180.00°	0.21	0.02%
0.00° - 90.00°	955.16	98.68%	0.00° - 180.00°	967.89	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°	950.69	950.69	950.69	950.69	950.69	950.69	950.69	950.69	950.69	950.69	950.69	950.69	950.69	950.69	950.69	950.69	950.69
2.50°	948.48	949.60	948.03	951.32	948.77	951.11	951.59	951.86	953.14	951.02	950.71	948.51	945.83	947.30	947.83	947.06	948.48
5.00°	944.11	945.35	945.50	948.58	947.01	949.99	950.72	953.50	952.58	950.13	949.36	944.59	941.65	942.15	943.13	942.54	944.11
7.50°	935.17	938.35	939.12	941.93	942.15	943.48	947.47	948.61	947.90	945.29	943.99	938.21	934.66	933.73	934.00	934.14	935.17
10.00°	925.46	927.31	931.77	929.28	929.02	935.97	940.34	942.44	938.36	938.01	935.91	930.77	926.85	921.43	924.08	922.72	925.46
12.50°	903.39	913.40	915.01	910.64	904.87	910.66	926.07	925.52	919.43	919.30	923.77	910.99	901.15	902.16	906.52	906.10	903.39
15.00°	880.33	883.16	896.81	878.44	865.19	883.60	903.34	907.42	886.91	895.33	902.14	887.51	872.09	871.41	888.27	879.77	880.33
17.50°	821.00	844.17	856.95	835.96	809.74	826.75	868.94	857.08	834.76	845.72	869.61	836.81	810.67	825.13	852.20	840.81	821.00
20.00°	759.15	777.38	815.50	772.24	736.25	767.88	818.85	804.43	762.29	787.64	819.90	780.72	746.03	762.73	814.17	783.51	759.15
22.50°	662.05	699.72	744.41	696.37	648.66	680.58	752.13	715.60	667.32	700.29	755.11	697.51	651.37	683.69	745.22	708.01	662.05
25.00°	564.45	604.59	671.75	609.07	557.75	592.79	670.28	625.26	567.28	606.49	673.19	611.36	556.11	596.10	673.03	618.78	564.45
27.50°	463.40	504.70	578.48	516.91	464.89	501.06	576.20	521.58	462.97	506.64	579.87	519.31	465.08	501.77	576.72	519.16	463.40
30.00°	368.38	414.02	486.32	432.24	382.52	412.42	481.60	421.41	374.34	406.00	487.21	427.68	376.79	415.54	481.37	426.00	368.38
32.50°	297.96	324.95	401.03	349.81	304.74	337.94	386.70	338.48	295.76	329.76	394.87	353.73	311.44	334.11	390.31	336.56	297.96
35.00°	235.22	263.93	320.44	286.22	248.15	269.32	310.26	263.30	239.17	255.32	320.81	282.32	249.89	271.25	306.16	268.14	235.22
37.50°	194.14	205.38	258.25	226.31	198.22	218.64	242.21	213.13	193.06	209.87	253.32	233.33	206.23	216.64	242.66	208.65	194.14
40.00°	158.85	170.78	202.27	184.39	162.74	173.68	192.87	168.84	160.29	165.96	204.47	186.98	166.52	176.73	187.53	170.16	158.85
42.50°	135.39	137.20	163.00	144.44	130.24	141.22	149.59	137.98	132.09	138.18	160.19	153.54	139.14	141.46	150.33	137.95	135.39
45.00°	113.78	115.07	128.52	119.19	108.29	112.75	120.33	111.49	110.53	111.65	130.68	122.66	113.98	116.28	119.32	114.71	113.78
47.50°	94.99	93.67	103.39	94.70	87.57	90.75	94.08	92.39	90.51	91.92	103.36	99.95	93.75	93.20	98.25	93.25	94.99
50.00°	78.21	77.63	81.74	78.00	72.28	72.22	77.01	75.51	74.79	73.71	83.48	79.26	75.99	76.28	79.67	77.61	78.21
52.50°	63.76	62.50	65.25	61.87	57.36	57.96	61.07	61.46	59.66	60.78	64.14	63.14	62.31	60.10	64.12	62.60	63.76
55.00°	51.36	51.32	51.52	50.58	47.22	46.61	49.27	48.93	48.84	48.94	52.34	49.66	49.88	49.39	51.08	50.84	51.36
57.50°	40.76	41.14	40.89	39.99	37.35	38.00	37.76	37.91	38.32	39.73	40.82	40.63	39.00	38.99	40.37	39.38	40.76
60.00°	32.37	33.90	32.49	32.83	29.92	31.13	30.71	29.60	31.10	31.48	32.88	32.66	30.47	31.35	32.08	32.71	32.37
62.50°	25.47	26.91	25.99	26.11	22.84	25.51	23.84	23.31	24.11	24.98	25.43	26.06	24.18	23.97	25.50	26.20	25.47
65.00°	20.39	20.45	21.01	20.76	17.59	20.02	18.87	18.37	19.84	19.12	21.10	20.29	19.13	19.11	19.71	21.09	20.39
67.50°	16.24	15.33	17.00	16.16	13.00	14.59	14.35	14.19	15.65	14.12	16.90	15.33	14.99	14.56	14.35	16.29	16.24
70.00°	12.87	12.33	13.61	13.26	10.58	11.33	12.19	11.39	11.91	10.45	13.21	11.77	11.41	11.52	11.94	12.98	12.87
72.50°	9.79	9.68	10.52	10.39	8.15	8.93	9.93	9.17	8.60	8.18	10.00	9.24	8.14	8.72	10.67	9.94	9.79
75.00°	7.16	7.44	8.17	7.56	5.66	6.98	7.36	6.91	6.87	6.32	8.08	7.13	6.12	6.70	8.56	7.76	7.16
77.50°	4.64	5.52	6.09	5.41	3.92	5.15	5.25	4.65	5.21	4.78	6.20	5.24	4.60	4.87	6.23	5.75	4.64
80.00°	3.49	3.90	4.42	4.11	3.44	3.84	4.30	3.55	3.69	3.56	4.39	3.91	3.32	3.49	4.56	4.15	3.49
82.50°	2.55	2.84	2.86	3.01	2.79	2.63	3.41	2.68	2.54	2.53	3.00	2.81	2.10	2.51	3.00	2.94	2.55
85.00°	2.18	2.17	2.37	2.09	1.90	2.19	2.62	2.22	2.08	2.01	2.21	2.27	1.89	2.23	2.58	2.36	2.18
87.50°	1.85	1.85	2.03	1.76	1.57	1.83	2.19	1.80	1.79	1.73	1.80	1.90	1.86	2.07	2.26	2.04	1.85
90.00°	2.01	1.71	2.02	1.85	1.80	1.85	2.25	1.86	1.74	1.85	1.82	1.84	1.73	2.08	2.04	2.03	2.01
92.50°	2.15	1.80	2.02	1.83	1.87	1.88	2.30	1.93	1.76	2.11	1.92	1.84	1.59	2.03	1.83	2.05	2.15
95.00°	2.03	1.97	2.07	1.74	1.80	1.88	2.32	1.85	1.86	2.10	2.08	1.93	1.68	1.89	1.81	2.10	2.03
97.50°	1.92	1.95	2.11	1.78	1.75	1.90	2.38	1.78	1.80	2.03	2.19	2.03	1.76	1.89	1.81	2.06	1.92
100.00°	1.91	1.87	2.04	1.87	1.70	2.11	2.46	1.88	1.60	1.88	2.28	2.17	1.78	1.98	1.96	1.95	1.91

### 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>	1149	1149	1149	1149	1121	1121	1121	1121	1068	1068	1068	1020	1020	1020	976	976	976	955
	<b>1</b>	1088	1058	1032	1008	1063	1036	1012	990	994	975	957	956	941	927	921	909	898	889
	<b>2</b>	1027	975	931	895	1004	957	917	884	923	890	862	892	865	842	863	841	822	823
	<b>3</b>	969	900	847	804	948	885	836	797	857	816	782	832	797	768	808	779	755	763
	<b>4</b>	914	834	775	730	895	822	767	725	799	752	715	777	737	705	757	723	695	709
	<b>5</b>	863	775	714	668	846	765	707	664	746	696	657	728	684	650	711	673	643	660
	<b>6</b>	817	723	660	615	801	714	655	612	698	646	607	683	637	602	669	628	597	617
	<b>7</b>	773	676	614	570	759	669	610	568	655	602	564	642	595	560	630	588	556	577
	<b>8</b>	733	635	573	530	720	628	569	528	616	563	525	605	557	522	595	551	519	542
	<b>9</b>	697	597	536	495	685	592	534	494	581	528	491	572	523	489	562	519	487	510
	<b>10</b>	663	563	504	464	652	559	502	463	550	497	461	541	493	459	533	489	457	481

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	31.4 fc	5.6 ft
6.5 ft	22.5 fc	6.7 ft
7.5 ft	16.9 fc	7.7 ft
8.0 ft	14.9 fc	8.2 ft
10.0 ft	9.5 fc	10.3 ft
12.0 ft	6.6 fc	12.3 ft
14.0 ft	4.9 fc	14.4 ft
16.0 ft	3.7 fc	16.4 ft
20.0 ft	2.4 fc	20.5 ft
24.0 ft	1.7 fc	24.6 ft
28.0 ft	1.2 fc	28.7 ft

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

	0.00°	45.00°	90.00°
<b>0.00°</b>	255830	255830	255830
<b>45.00°</b>	43301	48908	41213
<b>55.00°</b>	24095	24172	22155
<b>65.00°</b>	12983	13375	11203
<b>75.00°</b>	7441	8496	5886
<b>85.00°</b>	6735	7314	5879

### 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>	18.4	19.5	18.8	19.8	20.2	18.1	19.3	18.5	19.6	19.9
	<b>3H</b>	19.0	20.0	19.4	20.3	20.7	18.7	19.6	19.1	20.0	20.4
	<b>4H</b>	19.1	20.0	19.6	20.4	20.9	18.8	19.7	19.2	20.1	20.5
	<b>6H</b>	19.2	20.0	19.6	20.4	20.8	18.8	19.6	19.2	20.0	20.5
	<b>8H</b>	19.2	20.0	19.6	20.4	20.8	18.8	19.6	19.3	20.0	20.5
	<b>12H</b>	19.2	19.9	19.6	20.3	20.8	18.8	19.6	19.3	20.0	20.4
<b>4H</b>	<b>2H</b>	18.5	19.4	18.9	19.8	20.2	18.3	19.2	18.7	19.6	20.0
	<b>3H</b>	19.3	20.0	19.7	20.5	20.9	19.0	19.7	19.4	20.1	20.6
	<b>4H</b>	19.5	20.2	20.0	20.6	21.1	19.2	19.8	19.6	20.3	20.7
	<b>6H</b>	19.6	20.2	20.1	20.7	21.2	19.3	19.8	19.8	20.3	20.8
	<b>8H</b>	19.6	20.2	20.1	20.6	21.1	19.3	19.8	19.8	20.3	20.8
	<b>12H</b>	19.7	20.1	20.2	20.6	21.1	19.3	19.8	19.8	20.3	20.8
<b>8H</b>	<b>4H</b>	19.5	20.1	20.0	20.5	21.0	19.2	19.7	19.7	20.2	20.7
	<b>6H</b>	19.7	20.1	20.2	20.7	21.2	19.3	19.8	19.9	20.3	20.8
	<b>8H</b>	19.8	20.1	20.3	20.7	21.2	19.4	19.8	20.0	20.3	20.9
	<b>12H</b>	19.9	20.2	20.4	20.7	21.3	19.5	19.8	20.0	20.3	20.9
<b>12H</b>	<b>4H</b>	19.5	20.0	20.0	20.5	21.0	19.1	19.6	19.6	20.1	20.6
	<b>6H</b>	19.7	20.1	20.2	20.6	21.1	19.3	19.7	19.9	20.2	20.8
	<b>8H</b>	19.8	20.1	20.3	20.6	21.2	19.4	19.8	20.0	20.3	20.9

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0