

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

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

Test Number

SP-01450_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	930
Efficacy	70.47 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.46
Two luminaires, plane 90°	0.48
Four luminaires	0.53

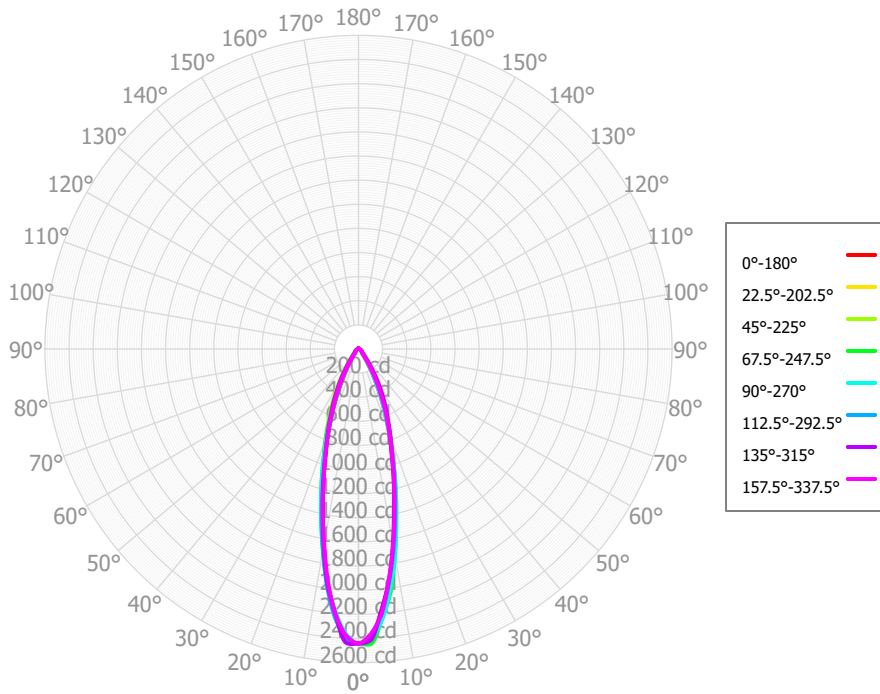
Full Beam Angle

0° - 180°	28°
90° - 270°	29°

IES File Header Contents

Keyword	Value
TEST	SP-01450_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 ND xx SO xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Square Cylinder, Narrow Beam
OTHER	Solite lens, Matte White finish
OTHER	28 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°	195.62	21.03%	90.00° - 100.00°	2.22	0.24%
10.00° - 20.00°	318.09	34.20%	100.00° - 110.00°	2.23	0.24%
20.00° - 30.00°	216.98	23.33%	100.00° - 120.00°	4.33	0.47%
30.00° - 40.00°	88.41	9.50%	120.00° - 130.00°	1.87	0.20%
40.00° - 50.00°	36.54	3.93%	130.00° - 140.00°	1.72	0.18%
50.00° - 60.00°	27.92	3.00%	140.00° - 150.00°	1.40	0.15%
60.00° - 70.00°	19.65	2.11%	150.00° - 160.00°	1.07	0.11%
70.00° - 80.00°	10.28	1.10%	160.00° - 170.00°	0.65	0.07%
80.00° - 90.00°	3.21	0.35%	170.00° - 180.00°	0.21	0.02%
0.00° - 90.00°	916.71	98.55%	0.00° - 180.00°	930.18	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°	2441.94	2441.94	2441.94	2441.94	2441.94	2441.94	2441.94	2441.94	2441.94	2441.94	2441.94	2441.94	2441.94	2441.94	2441.94	2441.94	2441.94
2.50°	2406.36	2397.56	2400.37	2446.24	2401.46	2398.43	2436.35	2379.28	2426.18	2411.13	2386.83	2406.99	2367.88	2368.64	2413.79	2365.51	2406.36
5.00°	2180.04	2199.74	2225.61	2244.58	2254.13	2236.20	2204.28	2208.52	2204.77	2207.38	2217.46	2195.78	2189.12	2203.60	2175.87	2204.83	2180.04
7.50°	1945.05	1956.89	1990.32	2034.60	2010.47	1989.31	1967.90	1942.86	1964.87	1976.44	1967.31	1977.39	1960.75	1944.55	1935.46	1928.78	1945.05
10.00°	1659.96	1681.21	1693.37	1737.02	1739.11	1689.28	1662.04	1640.35	1676.67	1681.00	1696.43	1698.57	1691.08	1677.79	1642.84	1653.23	1659.96
12.50°	1384.28	1397.88	1418.06	1440.92	1446.16	1408.15	1362.49	1370.95	1386.47	1403.02	1412.42	1426.11	1433.07	1403.10	1355.74	1378.50	1384.28
15.00°	1149.79	1166.87	1161.67	1188.88	1185.52	1137.07	1124.43	1112.09	1149.11	1160.89	1175.24	1191.23	1183.63	1159.20	1129.04	1133.41	1149.79
17.50°	927.40	945.12	952.50	942.25	946.38	916.88	897.79	912.76	913.91	942.53	963.22	967.44	966.05	943.23	912.87	929.55	927.40
20.00°	746.88	773.70	779.73	766.57	747.88	720.23	746.60	729.29	734.32	765.38	798.27	793.20	768.41	762.98	772.37	753.52	746.88
22.50°	576.83	609.11	637.46	596.34	573.12	566.42	601.70	585.07	557.49	603.55	655.29	627.85	602.41	610.47	637.13	610.62	576.83
25.00°	437.32	476.42	515.28	470.65	433.03	429.09	489.18	449.01	423.62	464.32	532.58	495.13	453.20	481.36	530.98	482.23	437.32
27.50°	311.99	346.56	410.81	351.00	310.04	326.11	381.22	342.02	294.79	343.48	417.75	373.08	337.25	367.78	427.07	368.65	311.99
30.00°	220.75	257.98	316.24	268.45	224.17	233.96	291.41	239.52	211.93	246.51	323.92	282.64	236.63	276.15	332.55	271.94	220.75
32.50°	145.11	171.24	240.33	192.03	153.62	170.02	209.09	172.45	135.27	170.44	237.06	202.68	170.82	197.31	244.29	190.44	145.11
35.00°	100.87	126.64	173.51	143.81	109.41	113.52	150.56	109.43	97.63	117.61	177.70	149.19	118.37	142.50	176.97	131.56	100.87
37.50°	66.99	83.24	128.87	100.92	74.51	82.84	100.80	79.90	63.97	81.13	125.69	104.91	86.40	99.50	119.07	90.14	66.99
40.00°	51.27	65.71	93.25	78.21	57.14	57.46	74.75	52.66	50.07	60.68	95.40	80.06	60.86	73.69	87.87	64.99	51.27
42.50°	40.74	49.04	72.90	58.76	44.80	47.26	54.15	44.46	38.54	47.81	69.65	61.03	50.08	54.94	62.64	50.57	40.74
45.00°	37.93	44.68	57.85	49.22	39.19	39.36	45.77	36.87	36.13	41.31	58.45	52.37	43.16	45.32	51.40	42.79	37.93
47.50°	35.92	40.39	48.96	40.99	35.09	35.76	39.27	35.94	34.18	37.43	49.65	45.28	38.83	38.93	42.89	38.87	35.92
50.00°	34.98	36.86	41.82	36.03	32.34	32.65	36.30	34.98	33.59	35.43	43.10	40.64	35.02	35.56	39.94	36.89	34.98
52.50°	33.61	33.43	37.61	31.93	29.82	30.53	33.65	33.44	32.98	33.42	36.80	36.07	32.26	33.05	36.73	35.87	33.61
55.00°	31.74	30.69	34.06	29.69	27.84	28.48	31.50	31.78	32.27	31.40	33.70	31.57	29.66	31.07	33.05	33.60	31.74
57.50°	29.58	28.06	30.09	27.41	25.92	25.80	28.63	28.60	30.22	28.89	30.83	28.15	27.02	29.21	29.40	30.82	29.58
60.00°	27.12	25.90	26.05	25.06	23.47	23.10	24.72	25.25	25.26	26.12	27.22	25.94	24.38	27.27	25.77	27.78	27.12
62.50°	24.81	23.47	23.03	22.42	20.99	20.60	21.33	20.65	21.33	22.92	23.58	23.19	22.01	25.32	22.63	24.65	24.81
65.00°	22.62	19.96	20.14	19.34	17.83	18.08	18.60	16.49	19.29	19.54	20.15	19.88	19.65	21.99	20.10	21.90	22.62
67.50°	19.33	16.96	17.93	16.75	14.63	15.25	16.08	14.80	16.80	17.18	16.78	16.98	17.01	18.49	17.76	19.26	19.33
70.00°	15.23	15.55	15.77	14.84	12.70	12.44	13.79	12.98	13.59	15.23	14.82	14.42	14.37	15.81	15.64	16.69	15.23
72.50°	12.46	13.66	13.56	12.31	10.75	9.87	11.31	10.53	10.70	12.35	12.86	11.93	11.61	13.20	13.62	14.14	12.46
75.00°	10.52	10.47	11.34	9.07	8.26	7.37	8.66	8.16	8.24	9.17	10.72	9.49	8.88	10.62	11.70	11.86	10.52
77.50°	8.07	7.62	8.49	6.71	5.82	5.33	6.17	6.09	6.05	6.88	8.52	7.37	6.85	8.04	9.23	9.63	8.07
80.00°	5.35	5.52	5.68	5.25	4.28	3.46	3.81	4.32	4.20	4.82	5.86	5.47	4.87	5.94	6.28	7.61	5.35
82.50°	3.58	3.78	3.97	3.95	2.84	2.60	2.60	3.38	3.01	3.46	3.47	3.89	3.53	3.87	4.30	5.63	3.58
85.00°	2.25	2.72	2.36	2.79	2.31	1.93	2.17	2.54	2.51	2.25	2.74	2.49	2.34	2.63	3.00	3.96	2.25
87.50°	1.92	2.09	2.02	2.27	1.85	2.13	1.89	1.91	2.24	1.99	2.13	2.06	2.22	1.49	2.22	2.32	1.92
90.00°	1.99	2.15	1.76	2.24	1.81	2.19	1.69	1.56	2.17	1.87	2.10	2.09	2.15	1.90	1.75	2.10	1.99
92.50°	2.21	2.17	2.21	2.22	1.77	1.77	1.70	1.76	2.17	1.93	2.05	2.05	2.30	2.23	1.65	1.95	2.21
95.00°	2.48	2.14	2.56	2.22	1.77	1.55	1.82	1.97	2.22	2.00	1.95	1.97	2.39	1.82	1.75	2.18	2.48
97.50°	2.45	2.10	2.21	2.04	1.78	1.91	1.83	2.17	2.37	2.17	1.89	2.01	2.16	1.51	1.96	2.41	2.45
100.00°	2.35	2.05	1.94	1.75	1.80	2.20	1.78	2.29	2.59	2.35	1.93	2.09	1.98	1.87	2.21	2.51	2.35

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

RCR	pfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	pcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	1104	1104	1104	1104	1077	1077	1077	1077	1026	1026	1026	980	980	980	937	937	937	917
	1	1053	1027	1004	983	1029	1006	985	967	966	949	934	929	916	904	895	885	876	866
	2	1003	959	923	892	982	942	909	881	910	883	860	880	859	839	853	836	820	818
	3	957	900	856	821	938	887	846	813	860	827	799	836	808	785	814	791	771	775
	4	915	849	801	764	898	838	793	758	816	778	748	796	764	738	778	751	728	736
	5	876	803	753	716	860	794	747	712	776	736	705	760	725	697	744	714	690	701
	6	839	763	712	675	825	755	707	673	740	698	667	727	690	662	714	681	656	669
	7	805	727	676	640	793	720	672	638	708	665	634	696	658	630	685	651	626	640
	8	774	694	644	609	763	689	641	608	678	635	605	668	629	601	658	624	598	614
	9	745	665	615	582	735	660	613	581	651	608	578	642	603	576	634	599	573	589
	10	718	638	589	557	709	633	587	556	625	583	554	618	579	552	611	576	550	567

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	80.7 fc	2.8 ft
6.5 ft	57.8 fc	3.3 ft
7.5 ft	43.4 fc	3.8 ft
8.0 ft	38.2 fc	4.1 ft
10.0 ft	24.4 fc	5.1 ft
12.0 ft	17.0 fc	6.1 ft
14.0 ft	12.5 fc	7.1 ft
16.0 ft	9.5 fc	8.1 ft
20.0 ft	6.1 fc	10.1 ft
24.0 ft	4.2 fc	12.2 ft
28.0 ft	3.1 fc	14.2 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	657121	657121	657121
45.00°	14433	22014	14913
55.00°	14891	15978	13059
65.00°	14405	12825	11351
75.00°	10935	11786	8587
85.00°	6935	7272	7146

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	16.5	17.5	16.9	17.8	18.2	15.8	16.9	16.2	17.2	17.6
	3H	18.1	19.0	18.5	19.3	19.7	17.3	18.2	17.7	18.5	18.9
	4H	18.6	19.5	19.1	19.8	20.3	17.7	18.6	18.2	18.9	19.4
	6H	19.0	19.7	19.4	20.1	20.6	18.0	18.7	18.4	19.1	19.6
	8H	19.0	19.7	19.5	20.2	20.6	18.0	18.8	18.5	19.2	19.6
	12H	19.1	19.8	19.5	20.2	20.6	18.1	18.8	18.5	19.2	19.6
4H	2H	16.9	17.7	17.3	18.1	18.5	16.3	17.2	16.8	17.5	18.0
	3H	18.7	19.4	19.2	19.9	20.3	17.9	18.6	18.4	19.1	19.5
	4H	19.4	20.0	19.9	20.5	21.0	18.5	19.1	18.9	19.5	20.0
	6H	19.9	20.4	20.4	20.9	21.4	18.8	19.3	19.3	19.8	20.3
	8H	20.0	20.5	20.5	21.0	21.5	18.9	19.4	19.4	19.9	20.4
	12H	20.1	20.5	20.6	21.0	21.5	19.0	19.4	19.5	19.9	20.4
8H	4H	19.6	20.1	20.1	20.6	21.1	18.7	19.2	19.2	19.6	20.1
	6H	20.2	20.6	20.7	21.1	21.7	19.1	19.5	19.6	20.0	20.5
	8H	20.4	20.8	21.0	21.3	21.8	19.2	19.6	19.8	20.1	20.7
	12H	20.6	20.9	21.1	21.4	22.0	19.4	19.7	19.9	20.2	20.8
12H	4H	19.6	20.0	20.1	20.5	21.1	18.6	19.1	19.2	19.6	20.1
	6H	20.2	20.6	20.8	21.1	21.7	19.1	19.4	19.7	19.9	20.5
	8H	20.5	20.8	21.0	21.3	21.9	19.3	19.6	19.8	20.1	20.7

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0