

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

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

Test Number

SP-01448_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	929
Efficacy	70.37 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.54
Two luminaires, plane 90°	0.55
Four luminaires	0.6

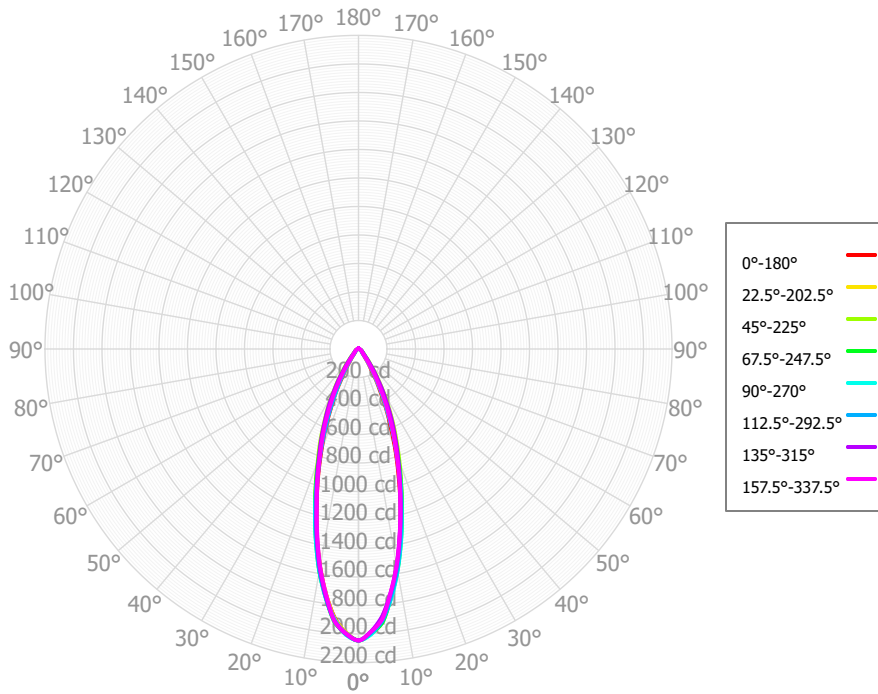
Full Beam Angle

0° - 180°	33°
90° - 270°	34°

IES File Header Contents

Keyword	Value
TEST	SP-01448_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 MD xx SO xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Square Cylinder, Medium Beam
OTHER	Solite lens, Matte White finish
OTHER	33 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°	172.25	18.54%	90.00° - 100.00°	2.11	0.23%
10.00° - 20.00°	316.97	34.12%	100.00° - 110.00°	2.10	0.23%
20.00° - 30.00°	233.92	25.18%	100.00° - 120.00°	4.08	0.44%
30.00° - 40.00°	100.37	10.80%	120.00° - 130.00°	1.70	0.18%
40.00° - 50.00°	38.70	4.17%	130.00° - 140.00°	1.59	0.17%
50.00° - 60.00°	24.88	2.68%	140.00° - 150.00°	1.34	0.14%
60.00° - 70.00°	17.41	1.87%	150.00° - 160.00°	0.98	0.11%
70.00° - 80.00°	8.91	0.96%	160.00° - 170.00°	0.61	0.07%
80.00° - 90.00°	2.89	0.31%	170.00° - 180.00°	0.20	0.02%
0.00° - 90.00°	916.29	98.64%	0.00° - 180.00°	928.90	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°	2044.81	2044.81	2044.81	2044.81	2044.81	2044.81	2044.81	2044.81	2044.81	2044.81	2044.81	2044.81	2044.81	2044.81	2044.81	2044.81	2044.81
2.50°	1994.11	1990.66	1997.43	2000.04	2005.41	1998.39	2002.44	1998.41	1997.81	1992.21	2002.32	2000.72	2008.06	1994.35	1985.68	1987.56	1994.11
5.00°	1893.05	1902.42	1904.53	1927.29	1906.19	1919.45	1915.55	1919.98	1897.62	1902.58	1912.26	1924.35	1906.79	1916.42	1886.72	1904.85	1893.05
7.50°	1734.07	1739.09	1748.16	1753.71	1763.94	1756.42	1754.34	1740.24	1741.10	1739.17	1752.98	1758.59	1762.58	1749.88	1727.35	1724.74	1734.07
10.00°	1548.29	1553.87	1568.23	1577.11	1578.30	1576.64	1561.96	1552.98	1551.69	1557.73	1565.32	1584.05	1580.01	1569.76	1543.91	1542.59	1548.29
12.50°	1342.12	1353.55	1364.47	1375.80	1380.09	1364.19	1353.53	1337.62	1346.41	1352.58	1367.99	1378.61	1381.66	1360.58	1336.57	1335.40	1342.12
15.00°	1138.66	1150.30	1174.25	1176.49	1172.36	1157.89	1140.46	1132.21	1134.41	1155.22	1167.94	1178.49	1178.33	1149.55	1144.09	1131.84	1138.66
17.50°	936.74	968.91	994.31	991.80	977.95	960.44	969.74	952.14	945.76	965.56	997.19	991.23	973.53	964.80	963.02	952.44	936.74
20.00°	759.26	789.69	837.71	813.20	791.03	781.58	807.11	787.08	763.94	796.50	831.85	816.45	793.21	782.93	809.19	779.74	759.26
22.50°	591.76	642.58	694.69	660.33	625.51	623.35	680.08	649.48	609.15	643.15	698.21	664.19	617.42	637.39	670.89	634.82	591.76
25.00°	453.85	497.47	568.82	517.03	468.98	486.01	556.53	520.75	459.60	506.83	567.51	527.86	480.78	496.76	549.20	497.10	453.85
27.50°	324.56	381.83	450.17	400.63	353.82	366.09	450.96	404.36	345.04	380.16	461.19	412.85	348.13	386.92	434.36	379.33	324.56
30.00°	235.86	271.22	351.91	297.93	250.63	273.72	346.67	302.86	233.99	282.30	356.56	314.55	261.27	284.99	337.78	275.06	235.86
32.50°	154.59	199.16	259.82	223.50	183.32	198.48	262.44	216.94	169.27	196.24	277.30	233.54	177.37	213.03	246.58	197.40	154.59
35.00°	113.75	134.18	196.45	161.94	122.51	145.20	182.45	152.09	107.19	140.85	201.64	171.34	130.92	149.67	183.01	135.41	113.75
37.50°	76.60	100.02	138.62	119.88	92.61	102.23	134.40	103.80	81.75	94.45	151.98	123.74	87.40	108.43	124.57	96.84	76.60
40.00°	60.17	70.69	105.71	87.82	65.74	76.70	91.27	74.27	58.00	71.98	107.00	91.05	66.76	74.99	92.87	69.32	60.17
42.50°	44.68	55.78	75.27	67.42	52.54	56.94	69.29	56.06	47.20	53.92	82.48	66.98	48.20	56.40	63.90	54.16	44.68
45.00°	38.78	43.76	61.28	53.64	39.99	45.92	50.94	45.57	37.68	44.89	61.31	51.82	38.76	42.81	53.27	44.35	38.78
47.50°	33.32	37.80	48.07	45.65	35.91	36.89	43.35	38.47	33.78	36.69	49.85	40.51	31.35	36.30	43.26	39.03	33.32
50.00°	30.96	33.48	41.88	39.17	32.05	32.54	36.58	33.39	30.30	32.90	40.01	34.57	29.81	31.88	37.30	34.64	30.96
52.50°	28.55	31.74	35.88	33.69	29.88	28.80	31.52	28.97	28.12	29.22	33.48	30.24	27.62	29.66	31.71	30.84	28.55
55.00°	25.98	29.42	31.25	30.25	27.34	26.82	27.90	26.38	26.14	25.84	28.58	27.26	24.06	26.90	28.96	28.00	25.98
57.50°	23.48	26.40	26.91	27.83	23.17	24.88	26.49	24.16	24.58	22.62	26.20	24.52	21.42	23.70	26.07	25.62	23.48
60.00°	21.17	23.55	23.86	24.90	19.66	21.51	24.34	22.93	22.84	20.57	23.57	22.31	20.23	21.13	22.58	23.50	21.17
62.50°	18.94	20.84	20.87	21.79	18.10	18.26	21.31	21.81	20.83	18.74	20.66	20.15	18.62	18.96	19.25	21.46	18.94
65.00°	16.90	18.51	18.04	18.23	16.14	16.27	18.76	19.08	18.73	17.84	18.16	17.94	16.51	17.13	16.37	17.54	16.90
67.50°	14.58	16.44	15.18	14.56	13.35	14.25	16.65	16.31	16.52	16.65	16.02	15.71	13.95	15.46	13.95	13.18	14.58
70.00°	11.84	13.60	12.28	12.59	10.70	12.09	14.27	13.73	14.22	14.62	14.17	13.27	11.00	13.01	12.52	11.58	11.84
72.50°	9.39	10.38	10.02	10.87	8.26	9.91	11.70	11.22	11.84	12.21	12.51	10.86	8.83	10.30	10.73	10.34	9.39
75.00°	7.28	7.85	8.77	8.22	6.55	7.69	9.42	9.24	9.10	8.98	10.07	8.72	7.18	7.90	8.39	8.27	7.28
77.50°	5.44	5.59	7.09	5.53	5.70	5.76	7.29	7.26	6.11	6.43	7.24	6.64	5.58	5.56	6.22	6.16	5.44
80.00°	3.84	4.03	4.89	4.41	4.54	4.48	5.22	5.27	4.33	4.90	5.05	4.83	4.00	4.02	4.25	4.25	3.84
82.50°	2.85	2.64	3.33	3.33	3.12	3.30	3.18	3.50	3.16	3.52	3.08	3.33	2.83	2.57	2.93	2.50	2.85
85.00°	2.27	2.36	2.38	2.61	2.37	2.31	2.45	2.41	2.47	2.32	2.44	2.78	1.81	2.24	2.21	2.26	2.27
87.50°	2.03	2.25	2.08	1.99	2.08	1.78	2.04	1.71	1.96	1.76	2.13	2.35	1.65	1.96	1.91	2.02	2.03
90.00°	1.96	1.89	2.22	1.93	1.88	1.83	1.89	1.88	1.69	1.76	2.12	2.18	1.70	2.00	1.89	1.85	1.96
92.50°	2.04	1.52	2.15	1.94	1.74	1.91	1.79	2.02	1.49	1.69	2.14	2.18	1.74	2.03	1.85	1.71	2.04
95.00°	2.18	1.78	1.98	2.21	1.73	2.02	1.85	2.11	1.85	1.57	2.06	2.47	1.78	1.96	1.79	1.70	2.18
97.50°	2.08	2.02	2.08	2.37	1.77	1.94	1.93	2.11	2.28	1.68	1.97	2.54	1.63	1.94	1.74	1.74	2.08
100.00°	1.92	1.94	2.29	2.26	1.86	1.70	1.82	2.00	2.11	1.91	2.26	2.33	1.47	2.09	1.70	1.89	1.92

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%	0%
	pcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	0	1103	1103	1103	1103	1076	1076	1076	1076	1025	1025	1025	979	979	979	936	936	916
	1	1051	1026	1003	982	1027	1004	984	965	964	948	933	928	915	903	894	884	865
	2	1001	957	921	890	980	940	907	879	908	881	858	879	857	837	851	834	817
	3	955	897	853	817	935	883	843	810	858	823	795	834	805	781	811	788	772
	4	911	845	796	759	894	833	788	753	812	774	743	792	760	733	774	746	732
	5	871	798	747	709	855	789	741	706	771	730	698	755	719	691	739	709	695
	6	834	756	705	667	820	749	700	665	734	691	659	720	682	654	707	674	662
	7	799	719	667	631	786	712	664	629	700	656	625	688	649	621	677	643	632
	8	766	685	634	599	755	679	631	597	669	625	594	659	620	591	649	614	604
	9	736	654	604	570	726	649	602	569	640	597	566	631	592	564	623	588	578
	10	708	626	577	544	699	622	575	543	614	571	541	606	567	539	599	563	555

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	67.6 fc	3.3 ft
6.5 ft	48.4 fc	3.8 ft
7.5 ft	36.4 fc	4.4 ft
8.0 ft	32.0 fc	4.7 ft
10.0 ft	20.4 fc	5.9 ft
12.0 ft	14.2 fc	7.1 ft
14.0 ft	10.4 fc	8.3 ft
16.0 ft	8.0 fc	9.5 ft
20.0 ft	5.1 fc	11.8 ft
24.0 ft	3.6 fc	14.2 ft
28.0 ft	2.6 fc	16.5 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	550253	550253	550253
45.00°	14759	23322	15220
55.00°	12190	14662	12825
65.00°	10760	11484	10275
75.00°	7568	9121	6811
85.00°	7018	7350	7323

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	15.5	16.5	15.9	16.8	17.2	15.1	16.1	15.5	16.5	16.8
	3H	16.8	17.7	17.2	18.1	18.5	16.5	17.4	16.9	17.8	18.2
	4H	17.2	18.1	17.7	18.4	18.9	16.9	17.8	17.4	18.1	18.6
	6H	17.4	18.2	17.9	18.6	19.0	17.2	18.0	17.6	18.4	18.8
	8H	17.5	18.2	17.9	18.6	19.1	17.3	18.0	17.7	18.4	18.9
	12H	17.5	18.2	18.0	18.6	19.1	17.3	18.0	17.8	18.4	18.9
4H	2H	15.9	16.7	16.3	17.1	17.5	15.7	16.5	16.1	16.9	17.3
	3H	17.4	18.1	17.9	18.6	19.0	17.3	18.0	17.8	18.4	18.9
	4H	17.9	18.6	18.4	19.0	19.5	17.8	18.4	18.3	18.9	19.4
	6H	18.2	18.8	18.7	19.2	19.7	18.2	18.7	18.7	19.2	19.7
	8H	18.3	18.8	18.8	19.3	19.8	18.3	18.8	18.8	19.3	19.8
	12H	18.4	18.8	18.9	19.3	19.8	18.4	18.8	18.9	19.3	19.8
8H	4H	18.1	18.6	18.6	19.1	19.6	18.1	18.6	18.6	19.0	19.6
	6H	18.5	18.9	19.0	19.4	19.9	18.6	18.9	19.1	19.5	20.0
	8H	18.6	19.0	19.2	19.5	20.0	18.7	19.1	19.3	19.6	20.2
	12H	18.8	19.1	19.3	19.6	20.2	18.9	19.2	19.5	19.7	20.3
12H	4H	18.1	18.5	18.6	19.0	19.5	18.1	18.5	18.6	19.0	19.5
	6H	18.5	18.8	19.1	19.3	19.9	18.6	18.9	19.1	19.4	20.0
	8H	18.7	19.0	19.2	19.5	20.1	18.8	19.1	19.3	19.6	20.2

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0