

Indoor Distribution Test Report

Spectrum Lighting Inc.

994 Jefferson Street
Fall River, MA 02721
+1.508.678.2303

Spectrum Lighting Photometric Lab

Luminaire

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

Test Number

SP-01453_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	1067
Efficacy	80.85 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.91
Two luminaires, plane 90°	0.91
Four luminaires	0.94

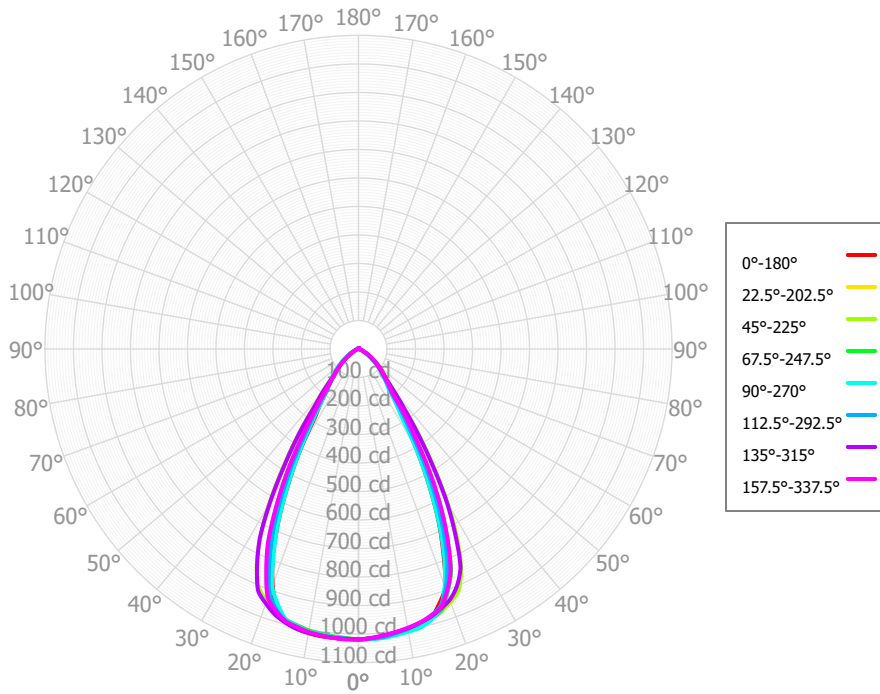
Full Beam Angle

0° - 180°	56°
90° - 270°	56°

IES File Header Contents

Keyword	Value
TEST	SP-01453_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 NL xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Square Cylinder, Xtra Wide Beam
OTHER	No lens, Matte White finish
OTHER	56 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°	97.95	9.18%	90.00° - 100.00°	2.23	0.21%
10.00° - 20.00°	274.28	25.70%	100.00° - 110.00°	2.12	0.20%
20.00° - 30.00°	329.98	30.92%	100.00° - 120.00°	4.12	0.39%
30.00° - 40.00°	182.76	17.13%	120.00° - 130.00°	1.87	0.17%
40.00° - 50.00°	90.99	8.53%	130.00° - 140.00°	1.62	0.15%
50.00° - 60.00°	48.93	4.58%	140.00° - 150.00°	1.43	0.13%
60.00° - 70.00°	19.10	1.79%	150.00° - 160.00°	1.03	0.10%
70.00° - 80.00°	7.17	0.67%	160.00° - 170.00°	0.63	0.06%
80.00° - 90.00°	2.91	0.27%	170.00° - 180.00°	0.22	0.02%
0.00° - 90.00°	1054.07	98.77%	0.00° - 180.00°	1067.20	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°	1018.85	1018.85	1018.85	1018.85	1018.85	1018.85	1018.85	1018.85	1018.85	1018.85	1018.85	1018.85	1018.85	1018.85	1018.85	1018.85	1018.85
2.50°	1017.39	1016.00	1018.45	1016.29	1019.07	1017.73	1018.03	1020.08	1018.24	1016.02	1018.66	1015.09	1017.05	1017.09	1014.66	1015.70	1017.39
5.00°	1013.84	1013.00	1016.08	1014.02	1017.48	1016.60	1016.70	1017.70	1017.03	1014.73	1016.44	1011.86	1014.46	1014.00	1008.50	1009.76	1013.84
7.50°	1008.72	1006.83	1010.31	1009.90	1012.48	1013.11	1014.78	1013.04	1016.14	1011.08	1010.72	1007.47	1010.65	1005.89	1001.94	1001.93	1008.72
10.00°	1003.29	999.82	1003.55	1003.24	1007.13	1009.19	1011.20	1007.96	1011.99	1006.76	1004.80	1002.65	1006.67	996.82	995.30	993.52	1003.29
12.50°	991.42	992.06	992.55	994.70	1001.32	999.67	1005.57	998.74	1004.07	994.87	998.18	993.07	995.89	985.99	984.81	984.41	991.42
15.00°	978.15	977.66	980.20	980.45	984.20	987.25	993.61	988.55	983.94	981.95	987.05	982.51	982.37	970.54	973.77	970.83	978.15
17.50°	939.31	959.27	964.52	963.44	956.54	958.71	976.48	963.29	954.54	953.48	966.22	956.43	940.37	949.50	956.58	953.72	939.31
20.00°	890.41	899.54	944.30	911.01	884.68	913.58	950.35	929.53	880.99	919.30	941.27	927.42	886.02	895.19	936.58	906.72	890.41
22.50°	778.90	824.18	916.99	848.40	785.65	819.17	919.35	845.90	785.48	823.09	910.52	839.79	777.84	814.12	901.57	844.37	778.90
25.00°	662.85	711.43	852.34	740.93	663.65	713.39	842.62	752.00	662.95	720.96	845.12	747.52	663.18	706.65	847.10	741.10	662.85
27.50°	532.45	590.89	749.11	627.27	532.65	586.82	750.45	626.88	532.21	592.21	747.46	624.43	532.58	585.33	737.16	625.08	532.45
30.00°	409.77	463.90	626.86	501.45	405.91	461.14	619.57	500.85	407.45	465.92	626.58	501.71	410.22	460.75	618.00	501.04	409.77
32.50°	302.14	337.79	491.42	377.46	280.10	336.50	481.96	373.14	283.57	345.82	491.47	380.21	300.88	335.10	482.36	375.72	302.14
35.00°	225.69	259.08	374.61	277.85	222.34	247.56	364.23	271.43	229.55	250.95	373.23	277.08	225.58	255.69	362.98	282.93	225.69
37.50°	188.76	187.24	266.05	190.48	170.98	187.31	250.28	201.75	179.67	196.73	261.60	210.93	185.78	183.99	262.66	195.38	188.76
40.00°	161.59	161.22	199.94	158.38	149.37	151.08	188.67	155.94	156.74	157.51	195.87	162.76	157.94	156.17	193.14	165.35	161.59
42.50°	142.64	137.26	144.81	129.98	128.34	127.43	133.14	129.67	134.68	134.24	140.18	138.32	138.36	130.85	147.59	137.49	142.64
45.00°	125.61	120.23	120.30	111.09	111.37	108.03	111.49	109.41	116.80	114.07	117.27	117.02	120.89	115.70	119.41	120.69	125.61
47.50°	109.64	103.44	99.44	93.76	94.56	89.99	91.44	92.38	99.21	96.08	97.22	98.44	104.37	100.57	100.11	104.34	109.64
50.00°	92.29	87.14	83.90	78.94	78.26	74.65	76.07	76.42	82.35	80.41	81.76	82.90	88.09	85.51	84.25	89.22	92.29
52.50°	74.46	71.49	68.65	64.76	62.99	59.76	61.45	60.81	66.27	65.80	66.70	69.10	71.88	70.73	69.46	74.43	74.46
55.00°	60.33	56.70	55.85	51.27	49.84	47.81	48.19	48.26	51.51	51.95	54.51	55.39	57.97	56.73	57.28	60.20	60.33
57.50°	46.87	44.34	43.54	40.50	38.60	36.23	36.82	36.23	39.48	38.29	42.82	41.70	44.34	43.90	45.51	47.39	46.87
60.00°	36.86	34.13	33.28	31.68	29.94	28.45	27.70	28.17	30.48	30.24	32.82	32.79	34.90	33.14	35.59	36.20	36.86
62.50°	27.22	25.94	24.40	23.98	23.13	21.19	20.78	20.46	24.11	22.87	24.13	24.81	25.85	24.49	25.98	27.37	27.22
65.00°	20.95	18.93	18.79	16.79	17.99	16.70	15.61	15.76	19.69	17.83	18.14	18.53	20.22	18.30	19.70	20.34	20.95
67.50°	15.10	14.34	14.17	12.79	14.05	12.65	12.10	11.47	15.33	13.08	13.56	12.49	15.04	13.65	13.89	15.12	15.10
70.00°	11.71	10.61	11.02	9.65	10.83	9.86	9.46	9.43	11.00	11.01	10.89	10.01	11.69	10.18	10.43	10.79	11.71
72.50°	8.65	8.31	8.75	8.08	9.02	7.50	7.30	7.61	8.57	8.96	8.76	7.63	8.79	7.82	7.58	8.15	8.65
75.00°	6.63	6.28	7.36	6.70	7.75	5.91	5.30	6.42	6.68	7.01	7.11	5.95	6.99	6.04	6.44	6.00	6.63
77.50°	5.07	5.08	5.76	5.33	6.08	4.86	4.41	5.31	5.42	5.37	5.50	4.50	5.38	4.65	5.17	5.13	5.07
80.00°	4.33	3.95	4.01	4.01	4.34	4.45	3.70	4.37	4.23	4.48	3.93	3.79	4.06	3.37	3.67	4.45	4.33
82.50°	3.51	2.92	3.05	3.19	3.12	3.51	2.89	3.39	3.32	3.62	3.04	3.13	3.10	2.59	2.73	3.29	3.51
85.00°	2.58	2.06	2.43	2.48	1.98	2.17	2.13	2.40	2.44	2.81	2.40	2.61	2.51	1.88	2.41	2.20	2.58
87.50°	2.07	2.20	2.34	2.26	1.94	1.63	2.13	2.04	2.02	2.27	2.39	2.22	2.29	2.05	2.21	2.09	2.07
90.00°	1.91	2.25	2.38	2.07	1.92	1.50	2.11	2.18	1.72	2.03	2.50	2.01	2.32	2.21	2.08	2.01	1.91
92.50°	1.93	2.05	2.24	1.94	2.01	1.83	2.00	2.25	1.97	1.93	2.24	1.88	2.31	2.02	1.98	2.05	1.93
95.00°	2.04	1.91	2.09	1.95	2.10	2.30	1.98	2.28	2.15	1.92	1.96	1.82	2.29	1.87	1.88	2.07	2.04
97.50°	1.98	1.92	1.97	2.16	2.22	2.24	2.18	2.14	2.11	1.95	2.07	1.95	2.01	1.92	1.99	2.04	1.98
100.00°	1.85	1.88	1.87	2.16	2.24	2.11	2.28	1.95	2.04	2.01	2.15	2.17	1.67	1.95	2.17	1.97	1.85

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	1267	1267	1267	1267	1236	1236	1236	1236	1178	1178	1178	1126	1126	1126	1077	1077	1054
	1	1201	1169	1140	1114	1173	1144	1118	1095	1098	1078	1058	1056	1040	1024	1018	1005	993
	2	1135	1078	1031	991	1109	1058	1015	979	1021	986	955	987	958	933	955	932	911
	3	1072	997	939	893	1049	981	928	885	950	906	869	922	885	853	896	865	839
	4	1012	925	861	812	991	912	852	807	886	836	795	863	820	785	841	804	774
	5	957	861	794	744	938	850	787	740	829	774	732	809	762	724	791	750	717
	6	906	804	735	686	888	794	730	683	777	720	677	760	710	672	744	700	666
	7	858	753	684	636	842	745	680	634	729	672	630	715	664	625	702	656	621
	8	814	707	639	592	800	700	635	591	687	629	587	674	622	584	663	616	581
	9	774	665	599	554	761	659	596	552	648	590	550	637	585	547	627	579	544
	10	736	628	563	519	725	623	560	518	613	555	516	603	551	514	594	546	512

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	33.7 fc	5.8 ft
6.5 ft	24.1 fc	6.9 ft
7.5 ft	18.1 fc	8.0 ft
8.0 ft	15.9 fc	8.5 ft
10.0 ft	10.2 fc	10.6 ft
12.0 ft	7.1 fc	12.7 ft
14.0 ft	5.2 fc	14.9 ft
16.0 ft	4.0 fc	17.0 ft
20.0 ft	2.5 fc	21.2 ft
24.0 ft	1.8 fc	25.5 ft
28.0 ft	1.3 fc	29.7 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	274171	274171	274171
45.00°	47802	45781	42384
55.00°	28303	26201	23382
65.00°	13341	11966	11455
75.00°	6898	7649	8056
85.00°	7955	7497	6101

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	18.9	20.0	19.3	20.4	20.7	17.9	19.0	18.3	19.3	19.7
	3H	19.3	20.3	19.7	20.6	21.0	18.3	19.3	18.7	19.6	20.0
	4H	19.4	20.3	19.8	20.6	21.1	18.4	19.3	18.9	19.7	20.1
	6H	19.4	20.2	19.8	20.6	21.0	18.5	19.4	19.0	19.8	20.2
	8H	19.4	20.2	19.9	20.6	21.0	18.6	19.3	19.0	19.8	20.2
	12H	19.4	20.2	19.9	20.6	21.0	18.6	19.3	19.0	19.7	20.2
4H	2H	19.0	19.9	19.4	20.2	20.7	17.9	18.8	18.4	19.2	19.6
	3H	19.4	20.1	19.9	20.6	21.0	18.5	19.2	18.9	19.6	20.1
	4H	19.5	20.2	20.0	20.6	21.1	18.6	19.3	19.1	19.7	20.2
	6H	19.6	20.2	20.1	20.7	21.2	18.8	19.4	19.3	19.8	20.3
	8H	19.7	20.2	20.2	20.7	21.2	18.9	19.4	19.4	19.9	20.4
	12H	19.7	20.2	20.2	20.7	21.2	18.9	19.4	19.5	19.9	20.4
8H	4H	19.5	20.0	20.0	20.5	21.0	18.6	19.1	19.1	19.6	20.1
	6H	19.7	20.1	20.2	20.6	21.1	18.9	19.3	19.4	19.8	20.3
	8H	19.7	20.1	20.3	20.7	21.2	19.0	19.4	19.5	19.9	20.4
	12H	19.8	20.2	20.4	20.7	21.3	19.1	19.4	19.7	20.0	20.6
12H	4H	19.4	19.9	20.0	20.4	20.9	18.6	19.0	19.1	19.6	20.1
	6H	19.6	20.0	20.2	20.5	21.1	18.9	19.2	19.4	19.7	20.3
	8H	19.7	20.1	20.3	20.6	21.2	19.0	19.3	19.6	19.9	20.5

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0