

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

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

Test Number

SP-01447_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	977
Efficacy	74.02 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.53
Two luminaires, plane 90°	0.51
Four luminaires	0.58

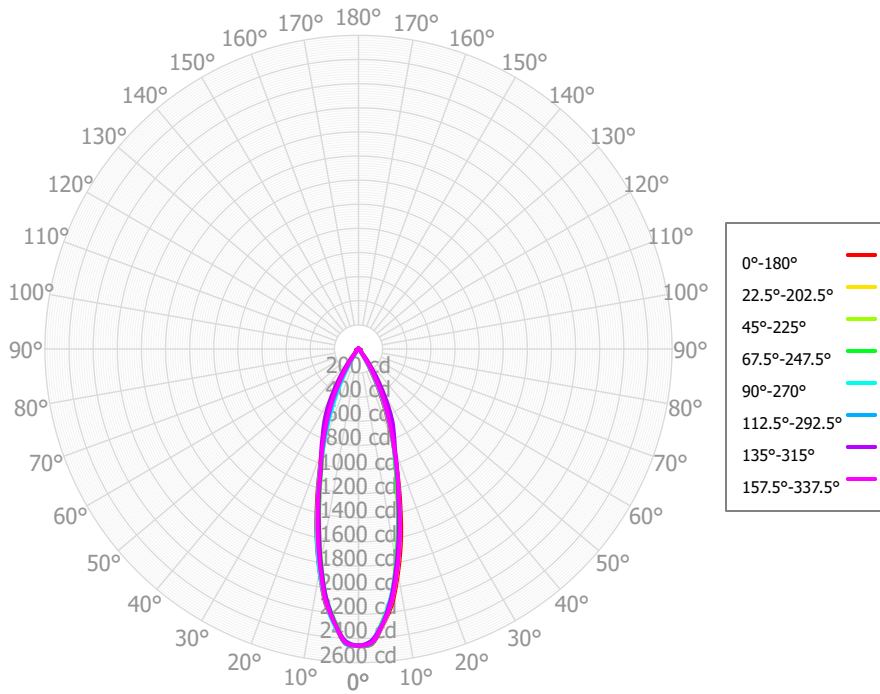
Full Beam Angle

0° - 180°	32°
90° - 270°	32°

IES File Header Contents

Keyword	Value
TEST	SP-01447_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 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	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°	205.79	21.06%	90.00° - 100.00°	2.23	0.23%
10.00° - 20.00°	353.75	36.21%	100.00° - 110.00°	2.19	0.22%
20.00° - 30.00°	253.84	25.98%	100.00° - 120.00°	4.29	0.44%
30.00° - 40.00°	80.98	8.29%	120.00° - 130.00°	1.91	0.20%
40.00° - 50.00°	20.20	2.07%	130.00° - 140.00°	1.68	0.17%
50.00° - 60.00°	17.35	1.78%	140.00° - 150.00°	1.40	0.14%
60.00° - 70.00°	20.91	2.14%	150.00° - 160.00°	1.08	0.11%
70.00° - 80.00°	7.77	0.80%	160.00° - 170.00°	0.65	0.07%
80.00° - 90.00°	3.01	0.31%	170.00° - 180.00°	0.22	0.02%
0.00° - 90.00°	963.62	98.62%	0.00° - 180.00°	977.08	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°	2459.49	2459.49	2459.49	2459.49	2459.49	2459.49	2459.49	2459.49	2459.49	2459.49	2459.49	2459.49	2459.49	2459.49	2459.49	2459.49	2459.49
2.50°	2452.37	2434.99	2435.88	2449.39	2423.30	2446.65	2427.74	2438.64	2446.52	2426.77	2443.28	2438.41	2426.12	2444.58	2424.37	2440.37	2452.37
5.00°	2302.32	2299.05	2269.42	2269.70	2276.25	2275.81	2278.59	2283.55	2289.34	2281.07	2263.58	2267.37	2299.40	2292.34	2287.79	2294.80	2302.32
7.50°	2134.16	2108.09	2076.13	2078.52	2067.11	2086.46	2074.50	2102.57	2120.17	2093.25	2070.97	2074.18	2108.30	2106.60	2082.28	2109.03	2134.16
10.00°	1886.87	1858.05	1792.85	1793.16	1815.22	1813.10	1803.70	1835.76	1865.19	1827.00	1782.05	1797.76	1869.37	1846.48	1814.98	1854.07	1886.87
12.50°	1628.19	1582.54	1514.01	1511.90	1547.93	1541.64	1514.25	1563.82	1606.42	1544.30	1499.10	1522.08	1596.92	1576.71	1546.31	1585.14	1628.19
15.00°	1340.82	1288.60	1244.00	1247.33	1299.46	1287.64	1272.36	1296.85	1334.86	1283.27	1243.18	1248.00	1308.62	1293.38	1276.83	1300.63	1340.82
17.50°	1074.53	1049.49	1026.67	1013.14	1054.74	1047.73	1036.53	1044.59	1084.21	1026.93	1019.95	1018.61	1067.69	1052.23	1069.10	1061.31	1074.53
20.00°	841.22	835.50	878.24	849.11	857.04	863.47	904.15	879.08	876.78	870.33	879.60	850.72	839.80	850.94	884.10	855.93	841.22
22.50°	637.42	665.10	754.47	693.94	663.71	691.05	775.65	720.26	684.94	715.61	760.89	699.22	652.39	680.06	768.50	686.53	637.42
25.00°	463.70	506.21	651.83	552.02	501.28	545.31	670.52	581.51	513.65	572.93	676.27	562.91	470.38	527.86	666.51	534.33	463.70
27.50°	316.46	372.58	530.05	419.01	344.40	406.67	560.75	445.49	361.85	433.50	569.08	428.90	329.30	390.44	531.07	399.68	316.46
30.00°	187.36	242.10	397.68	294.71	221.04	278.15	431.93	314.59	226.87	304.36	438.04	296.27	194.48	258.84	394.22	269.93	187.36
32.50°	110.98	151.62	285.54	190.13	117.26	172.74	309.82	202.24	136.34	191.13	318.87	191.04	120.69	164.92	279.88	172.09	110.98
35.00°	57.34	68.47	180.44	98.09	72.99	89.45	203.79	112.21	71.35	108.93	207.90	96.14	58.25	79.10	172.28	78.59	57.34
37.50°	39.92	49.50	113.56	56.44	40.58	47.71	118.61	60.74	46.12	55.76	128.56	60.75	43.71	52.15	104.38	54.08	39.92
40.00°	31.33	33.34	53.58	35.43	30.58	31.83	64.79	39.66	34.83	38.88	62.96	37.72	32.22	30.25	49.38	32.16	31.33
42.50°	28.31	28.60	38.74	27.44	23.97	25.34	33.44	29.15	29.50	29.13	39.06	31.24	27.95	26.20	34.49	27.27	28.31
45.00°	25.90	24.72	26.96	22.42	21.46	22.61	24.77	24.15	25.26	25.22	25.89	26.05	24.49	22.49	23.46	22.74	25.90
47.50°	23.28	22.80	24.09	19.85	18.46	19.42	20.79	21.76	22.75	22.90	23.07	23.99	22.28	20.94	19.68	19.77	23.28
50.00°	20.79	21.56	21.67	17.54	15.05	16.14	19.89	20.18	20.34	21.43	21.40	22.04	20.10	19.48	17.53	17.55	20.79
52.50°	19.47	21.30	21.75	17.70	13.72	15.61	19.45	19.46	17.88	19.95	21.25	20.73	17.95	18.30	17.35	17.09	19.47
55.00°	18.34	21.31	22.63	18.04	13.47	15.36	19.22	18.86	16.08	18.46	21.45	20.09	17.55	17.71	17.87	17.06	18.34
57.50°	17.91	21.58	25.91	19.57	15.05	17.52	20.38	20.80	18.02	19.86	24.64	21.52	18.29	18.28	18.96	17.69	17.91
60.00°	18.43	23.21	27.46	21.35	17.22	19.62	21.88	22.70	20.17	21.77	26.84	22.83	21.25	19.61	20.74	19.03	18.43
62.50°	21.02	25.70	25.94	23.98	20.09	21.25	22.12	23.00	22.92	24.88	25.31	23.87	25.15	21.92	22.88	21.10	21.02
65.00°	21.90	23.53	23.20	24.11	23.08	21.82	22.16	22.66	23.99	27.46	22.81	23.00	24.08	21.87	22.25	21.09	21.90
67.50°	20.38	19.45	19.05	19.08	19.92	18.96	18.15	19.21	22.04	21.43	18.14	19.75	21.85	19.86	20.74	19.70	20.38
70.00°	16.56	14.25	14.17	14.03	16.37	15.18	14.10	14.96	17.65	15.52	13.74	14.82	15.83	15.48	15.00	15.01	16.56
72.50°	10.62	8.79	8.73	8.98	10.63	9.55	9.69	8.61	10.37	10.17	9.71	8.53	9.51	9.81	8.58	8.91	10.62
75.00°	7.19	6.25	5.62	5.82	5.81	5.93	5.95	4.44	6.72	6.03	6.79	5.55	7.06	6.49	5.76	6.17	7.19
77.50°	5.27	4.00	3.66	4.35	5.52	4.90	4.54	3.83	5.91	5.18	4.91	4.37	4.80	3.97	3.24	4.24	5.27
80.00°	3.92	4.04	3.00	3.57	4.86	3.91	3.39	3.20	5.00	4.45	3.89	3.85	4.01	3.31	3.14	3.85	3.92
82.50°	2.78	3.94	2.73	3.20	3.22	2.96	2.77	2.55	4.03	3.93	3.39	3.55	3.18	2.99	2.94	3.60	2.78
85.00°	2.41	2.94	2.49	2.86	2.24	2.56	2.26	2.16	3.15	3.35	2.79	3.13	2.24	2.63	2.24	2.73	2.41
87.50°	2.20	2.17	2.25	2.52	2.35	2.47	1.88	1.94	2.30	2.71	2.15	2.68	1.66	2.29	1.78	1.97	2.20
90.00°	2.13	2.20	2.03	2.34	2.14	2.10	1.88	1.85	2.04	2.44	1.99	2.29	1.88	2.28	1.96	2.11	2.13
92.50°	2.07	2.21	1.85	2.18	1.59	1.63	2.23	1.82	1.86	2.44	1.92	1.91	2.08	2.22	2.10	2.16	2.07
95.00°	2.22	2.20	2.11	2.17	1.58	1.54	2.24	1.85	1.83	2.34	2.01	1.92	2.27	1.97	2.17	1.92	2.22
97.50°	2.33	2.17	2.28	2.18	1.96	1.52	2.07	1.90	1.81	2.20	2.10	1.95	2.20	1.84	2.13	1.86	2.33
100.00°	2.25	2.14	2.09	2.53	1.97	1.94	2.10	1.94	2.04	2.16	1.98	2.10	1.91	2.05	1.98	2.21	2.25

CK0407SQPC 20L 35K MD xx NL xx MW

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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	1160	1160	1160	1160	1131	1131	1131	1131	1078	1078	1078	1029	1029	1029	985	985	964
	1	1108	1082	1059	1038	1083	1060	1039	1020	1018	1002	987	980	967	955	944	934	915
	2	1059	1014	978	947	1036	997	963	935	963	936	913	932	910	891	904	886	868
	3	1013	955	911	875	993	941	900	867	914	880	852	889	861	837	866	842	826
	4	970	903	855	817	952	892	847	812	869	831	801	849	817	790	830	803	787
	5	930	857	806	769	914	848	800	765	829	788	757	812	777	749	796	766	752
	6	893	816	765	727	879	808	760	725	793	750	719	778	741	713	765	733	720
	7	859	779	727	691	846	772	724	689	759	716	685	747	709	680	736	702	690
	8	826	745	694	659	815	739	691	657	728	685	654	718	679	651	708	673	663
	9	796	714	664	630	786	709	662	629	700	657	626	691	652	624	682	647	637
	10	768	686	637	604	759	682	635	603	674	631	601	666	627	599	658	623	613

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	81.3 fc	3.2 ft
6.5 ft	58.2 fc	3.7 ft
7.5 ft	43.7 fc	4.3 ft
8.0 ft	38.4 fc	4.6 ft
10.0 ft	24.6 fc	5.8 ft
12.0 ft	17.1 fc	6.9 ft
14.0 ft	12.5 fc	8.1 ft
16.0 ft	9.6 fc	9.2 ft
20.0 ft	6.1 fc	11.5 ft
24.0 ft	4.3 fc	13.8 ft
28.0 ft	3.1 fc	16.1 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	661843	661843	661843
45.00°	9857	10261	8167
55.00°	8605	10619	6319
65.00°	13945	14770	14693
75.00°	7477	5838	6037
85.00°	7439	7683	6904

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	13.5	14.5	13.9	14.9	15.2	13.4	14.4	13.8	14.8	15.1
	3H	16.7	17.6	17.1	17.9	18.3	16.7	17.6	17.1	17.9	18.3
	4H	17.1	17.9	17.5	18.2	18.7	17.0	17.8	17.4	18.2	18.6
	6H	17.2	18.0	17.7	18.4	18.8	17.2	17.9	17.6	18.3	18.7
	8H	17.3	18.0	17.7	18.4	18.8	17.3	17.9	17.7	18.4	18.8
	12H	17.3	18.0	17.8	18.4	18.9	17.3	18.0	17.8	18.4	18.9
4H	2H	15.0	15.8	15.4	16.1	16.6	14.9	15.7	15.3	16.1	16.5
	3H	17.6	18.3	18.0	18.7	19.1	17.6	18.3	18.0	18.7	19.1
	4H	17.9	18.5	18.4	19.0	19.5	17.9	18.5	18.3	18.9	19.4
	6H	18.1	18.6	18.6	19.1	19.6	18.1	18.6	18.6	19.1	19.6
	8H	18.2	18.7	18.7	19.2	19.7	18.2	18.7	18.7	19.2	19.7
	12H	18.3	18.7	18.9	19.3	19.8	18.3	18.7	18.8	19.2	19.7
8H	4H	17.9	18.4	18.4	18.9	19.4	17.9	18.4	18.4	18.9	19.4
	6H	18.2	18.6	18.8	19.1	19.6	18.2	18.6	18.8	19.1	19.7
	8H	18.4	18.7	19.0	19.3	19.8	18.4	18.8	19.0	19.3	19.8
	12H	18.7	18.9	19.2	19.5	20.1	18.6	18.9	19.2	19.5	20.1
12H	4H	17.9	18.3	18.4	18.8	19.3	17.9	18.3	18.4	18.8	19.3
	6H	18.2	18.5	18.8	19.0	19.6	18.2	18.6	18.8	19.1	19.6
	8H	18.5	18.7	19.0	19.3	19.9	18.5	18.8	19.0	19.3	19.9

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0