

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CK0407PC 15L 35K MD xx NL xx MW
Nom. 4.5" Diam x 7"H Round Cylinder, Medium Beam

Test Number

SP-01439_M-15L

Test Date

11/23/2022

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

Summary of Results

Power

Input Watts	9.5 W
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Lumen Output

Output Lumens	1038
Efficacy	109.29 lm/W

Luminous Dimensions

0° - 180° Size	-0.38
90° - 270° Size	-0.38
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.47
Two luminaires, plane 90°	0.48
Four luminaires	0.49

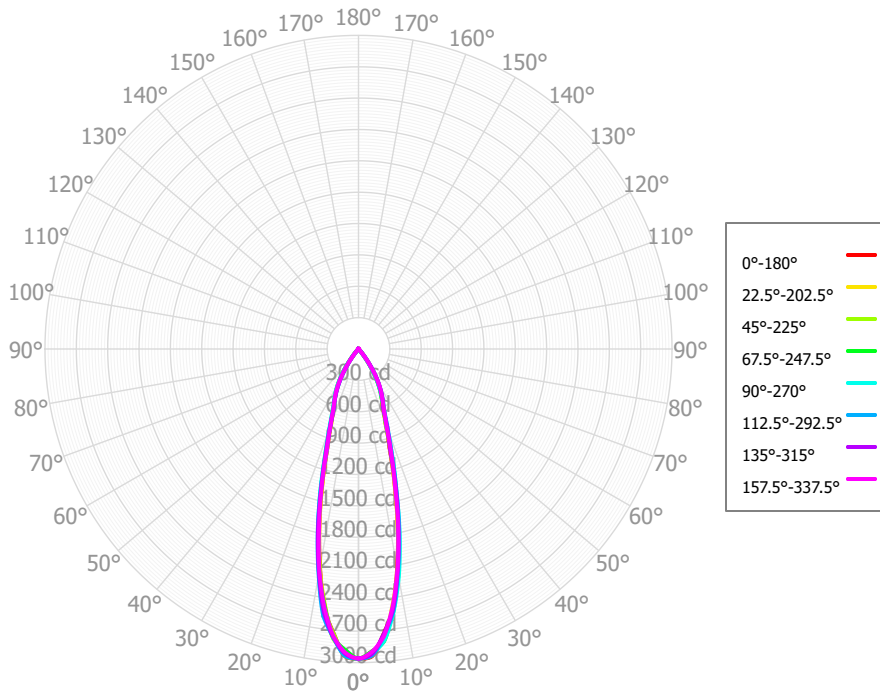
Full Beam Angle

0° - 180°	28°
90° - 270°	29°

IES File Header Contents

Keyword	Value
TEST	SP-01439_M-15L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/23/2022
ISSUEDATE	11/23/2022
LUMCAT	CK0407PC 15L 35K MD xx NL xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Round Cylinder, Medium Beam
OTHER	No 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 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°	246.90	23.78%	90.00° - 100.00°	2.05	0.20%
10.00° - 20.00°	374.62	36.08%	100.00° - 110.00°	1.98	0.19%
20.00° - 30.00°	250.67	24.14%	100.00° - 120.00°	3.91	0.38%
30.00° - 40.00°	123.59	11.90%	120.00° - 130.00°	1.75	0.17%
40.00° - 50.00°	13.68	1.32%	130.00° - 140.00°	1.56	0.15%
50.00° - 60.00°	5.40	0.52%	140.00° - 150.00°	1.35	0.13%
60.00° - 70.00°	5.40	0.52%	150.00° - 160.00°	1.00	0.10%
70.00° - 80.00°	3.32	0.32%	160.00° - 170.00°	0.60	0.06%
80.00° - 90.00°	2.25	0.22%	170.00° - 180.00°	0.20	0.02%
0.00° - 90.00°	1025.83	98.80%	0.00° - 180.00°	1038.25	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°	2961.39	2961.39	2961.39	2961.39	2961.39	2961.39	2961.39	2961.39	2961.39	2961.39	2961.39	2961.39	2961.39	2961.39	2961.39	2961.39	2961.39
2.50°	2943.92	2900.16	2935.60	2896.96	2918.12	2940.05	2919.32	2908.33	2943.52	2894.81	2940.78	2883.72	2918.36	2936.70	2922.82	2901.79	2943.92
5.00°	2740.68	2796.03	2753.58	2807.59	2804.86	2768.48	2766.34	2758.40	2733.39	2782.88	2734.57	2775.06	2771.95	2758.17	2744.07	2763.51	2740.68
7.50°	2520.03	2481.04	2542.92	2507.20	2548.22	2577.15	2539.92	2497.28	2509.88	2466.15	2517.29	2480.30	2509.34	2538.01	2518.55	2492.03	2520.03
10.00°	2130.34	2155.19	2153.14	2196.59	2217.79	2195.44	2176.80	2156.01	2122.31	2137.91	2133.67	2170.11	2179.26	2172.05	2157.50	2146.60	2130.34
12.50°	1739.39	1731.72	1761.07	1777.10	1820.17	1801.47	1792.03	1742.45	1734.37	1725.54	1749.85	1766.32	1784.00	1797.44	1766.57	1754.63	1739.39
15.00°	1341.45	1326.02	1359.59	1370.72	1395.32	1399.57	1374.91	1362.71	1344.00	1331.73	1364.11	1377.92	1411.28	1400.64	1384.10	1342.20	1341.45
17.50°	983.59	1014.53	1004.29	1046.71	1073.50	1008.94	1036.01	1007.00	988.44	1022.99	1004.07	1053.85	1055.75	1057.96	1002.80	1039.56	983.59
20.00°	782.54	745.85	789.01	762.02	782.38	805.38	789.07	782.92	785.70	758.23	800.41	778.66	818.33	820.57	805.23	772.91	782.54
22.50°	614.68	631.28	615.81	638.56	644.91	615.36	625.46	634.16	614.47	640.31	622.23	648.76	653.69	642.42	620.08	643.10	614.68
25.00°	540.16	528.36	537.70	526.23	539.12	536.75	539.32	539.35	540.75	537.02	546.07	538.73	553.37	556.56	547.72	545.01	540.16
27.50°	463.07	457.11	455.84	446.43	451.97	455.67	454.53	468.25	463.91	469.70	468.91	472.84	483.68	473.38	475.96	468.19	463.07
30.00°	380.35	377.71	367.25	361.59	367.35	362.29	370.76	378.76	379.77	392.21	388.74	397.44	399.86	393.49	388.76	394.74	380.35
32.50°	293.06	281.55	276.15	265.33	270.10	269.31	280.04	283.26	291.70	295.65	304.61	305.30	310.97	306.72	301.01	297.99	293.06
35.00°	198.07	190.71	181.54	175.27	172.04	177.70	185.22	192.14	196.50	203.26	211.67	215.19	219.45	213.30	208.16	199.26	198.07
37.50°	118.67	108.31	105.48	96.00	102.05	98.56	111.41	102.08	115.77	117.15	128.88	127.87	127.23	131.86	121.03	121.48	118.67
40.00°	59.86	51.42	49.89	41.63	35.09	51.94	47.49	56.87	55.62	56.50	63.48	65.95	71.60	59.86	64.57	46.01	59.86
42.50°	24.36	27.30	19.39	21.15	21.19	18.64	22.74	18.76	20.03	25.99	21.73	31.60	22.61	24.46	18.76	27.64	24.36
45.00°	13.85	13.25	11.39	9.72	8.77	11.66	11.84	12.02	12.74	10.40	12.63	13.02	12.71	11.65	11.62	10.69	13.85
47.50°	8.16	9.41	7.96	8.31	8.59	7.20	9.01	7.92	8.40	8.78	7.29	8.36	6.91	6.89	6.20	8.09	8.16
50.00°	6.57	7.83	7.75	7.43	8.17	6.76	8.22	7.16	6.77	7.32	6.05	5.94	5.81	5.98	5.47	5.86	6.57
52.50°	6.03	8.11	7.17	7.03	6.58	6.39	7.31	6.50	6.12	5.97	5.56	5.09	4.93	5.44	4.94	5.83	6.03
55.00°	6.20	7.41	6.38	6.64	5.33	6.11	6.39	5.93	6.17	5.76	5.71	5.05	4.78	5.04	4.81	5.88	6.20
57.50°	6.15	6.09	5.83	6.25	5.28	6.05	6.33	5.42	6.23	6.22	5.89	5.49	4.66	5.15	4.81	6.30	6.15
60.00°	5.99	6.05	5.38	6.11	5.46	6.20	6.36	5.47	6.29	6.43	6.09	5.76	5.05	5.40	4.99	6.47	5.99
62.50°	5.92	6.66	5.22	6.11	6.23	6.11	6.19	5.49	6.19	6.51	5.94	5.96	5.39	5.40	5.12	5.95	5.92
65.00°	5.89	5.97	5.15	5.83	6.47	5.84	6.01	5.28	6.01	5.82	5.61	5.73	5.36	5.36	5.18	5.49	5.89
67.50°	5.15	4.75	4.70	5.43	5.63	5.14	5.22	4.93	5.25	4.84	5.03	5.36	5.21	5.24	4.81	5.17	5.15
70.00°	4.20	4.08	4.15	4.34	4.62	4.18	4.43	4.07	4.30	4.17	4.35	4.87	4.52	5.13	4.02	4.65	4.20
72.50°	3.53	3.57	3.45	3.02	3.34	3.32	3.64	3.27	3.42	3.57	3.78	4.36	3.81	3.89	3.50	3.79	3.53
75.00°	2.92	3.01	2.72	2.69	2.62	2.51	2.92	2.64	2.55	3.11	3.26	3.59	3.04	2.61	3.21	3.19	2.92
77.50°	2.86	2.43	2.64	2.60	2.61	2.41	2.70	2.21	2.58	2.67	2.82	2.78	2.52	2.51	2.95	2.93	2.86
80.00°	2.86	2.25	2.62	2.33	2.49	2.59	2.48	2.25	2.76	2.65	2.41	2.55	2.56	2.41	2.72	2.59	2.86
82.50°	2.28	2.11	2.22	2.04	2.26	2.24	2.24	2.24	2.42	2.67	2.04	2.37	2.44	2.17	2.41	2.17	2.28
85.00°	1.66	2.04	1.83	1.78	2.01	1.75	2.00	2.16	2.03	2.32	1.68	2.06	2.02	1.94	2.05	1.98	1.66
87.50°	1.78	1.97	1.90	1.52	1.74	1.81	1.76	2.08	1.79	1.95	1.80	1.77	1.83	1.78	1.86	2.01	1.78
90.00°	1.90	2.01	1.98	1.70	1.63	1.98	1.57	1.99	1.57	2.03	1.96	1.84	2.00	1.68	1.73	1.93	1.90
92.50°	1.94	2.04	2.14	1.88	1.63	1.98	1.49	1.93	1.59	2.09	1.93	1.91	2.11	1.80	1.81	1.77	1.94
95.00°	1.94	1.88	2.22	2.01	1.68	1.97	1.54	1.90	1.61	2.01	1.89	1.96	2.15	1.94	1.95	1.86	1.94
97.50°	1.70	1.75	1.85	2.11	1.77	1.73	1.82	1.90	1.75	1.92	1.83	2.00	2.12	2.10	1.94	2.08	1.70
100.00°	1.55	1.86	1.58	1.85	1.75	1.48	1.96	1.94	1.85	1.82	1.81	1.99	2.02	2.22	1.89	1.96	1.55

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	1233	1233	1233	1233	1203	1203	1203	1203	1147	1147	1147	1095	1095	1095	1048	1048	1026
	1	1183	1157	1134	1113	1156	1133	1113	1094	1089	1073	1058	1049	1036	1025	1012	1002	993
	2	1134	1090	1054	1023	1111	1071	1039	1011	1037	1010	987	1004	983	964	975	957	942
	3	1088	1031	987	952	1068	1016	976	943	988	954	927	962	934	911	938	915	897
	4	1045	979	930	893	1027	967	922	887	944	905	875	922	890	864	902	875	853
	5	1005	932	881	843	988	922	874	839	903	862	830	885	850	822	868	838	814
	6	966	889	837	800	952	881	832	796	865	822	790	850	813	784	836	804	778
	7	930	850	798	761	917	843	794	759	830	786	754	817	779	750	805	771	745
	8	897	815	763	727	885	809	760	725	797	753	722	787	747	718	776	741	715
	9	865	782	731	696	854	777	728	695	767	723	692	758	718	690	749	713	687
	10	836	752	702	669	826	748	700	667	739	695	665	731	691	663	723	687	661

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	97.9 fc	2.8 ft
6.5 ft	70.1 fc	3.3 ft
7.5 ft	52.6 fc	3.8 ft
8.0 ft	46.3 fc	4.0 ft
10.0 ft	29.6 fc	5.0 ft
12.0 ft	20.6 fc	6.0 ft
14.0 ft	15.1 fc	7.0 ft
16.0 ft	11.6 fc	8.1 ft
20.0 ft	7.4 fc	10.1 ft
24.0 ft	5.1 fc	12.1 ft
28.0 ft	3.8 fc	14.1 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	281066	281066	281066
45.00°	1858	1529	1178
55.00°	1025	1056	882
65.00°	1322	1157	1452
75.00°	1072	999	961
85.00°	1809	1998	2186

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	1.0	1.9	1.4	2.2	2.6	0.3	1.3	0.7	1.6	1.9
	3H	3.4	4.2	3.8	4.5	4.9	3.3	4.1	3.7	4.5	4.9
	4H	4.1	4.9	4.6	5.2	5.7	4.1	4.8	4.5	5.2	5.6
	6H	5.0	5.7	5.5	6.1	6.5	4.9	5.5	5.3	5.9	6.4
	8H	5.5	6.1	6.0	6.6	7.0	5.3	6.0	5.8	6.4	6.8
	12H	5.9	6.5	6.4	6.9	7.4	5.9	6.5	6.3	6.9	7.4
4H	2H	1.6	2.4	2.1	2.8	3.2	1.4	2.2	1.9	2.6	3.0
	3H	4.2	4.8	4.6	5.2	5.7	4.3	4.9	4.7	5.3	5.8
	4H	5.1	5.6	5.5	6.1	6.5	5.2	5.7	5.6	6.1	6.6
	6H	6.1	6.6	6.6	7.1	7.6	6.1	6.5	6.6	7.0	7.5
	8H	6.7	7.1	7.2	7.6	8.1	6.7	7.1	7.2	7.6	8.1
	12H	7.2	7.6	7.7	8.1	8.6	7.3	7.7	7.8	8.2	8.7
8H	4H	5.4	5.8	5.9	6.3	6.8	5.5	5.9	6.0	6.4	6.9
	6H	6.7	7.0	7.2	7.5	8.1	6.6	7.0	7.2	7.5	8.0
	8H	7.4	7.7	7.9	8.2	8.8	7.4	7.7	8.0	8.2	8.8
	12H	8.1	8.4	8.7	8.9	9.5	8.2	8.5	8.8	9.0	9.6
12H	4H	5.4	5.8	5.9	6.3	6.8	5.5	5.9	6.0	6.4	6.9
	6H	6.8	7.1	7.4	7.6	8.2	6.8	7.1	7.3	7.6	8.1
	8H	7.6	7.9	8.2	8.4	9.0	7.6	7.9	8.2	8.4	9.0

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0