

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

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

Test Number

SP-01441_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	1041
Efficacy	109.59 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.39
Two luminaires, plane 90°	0.39
Four luminaires	0.42

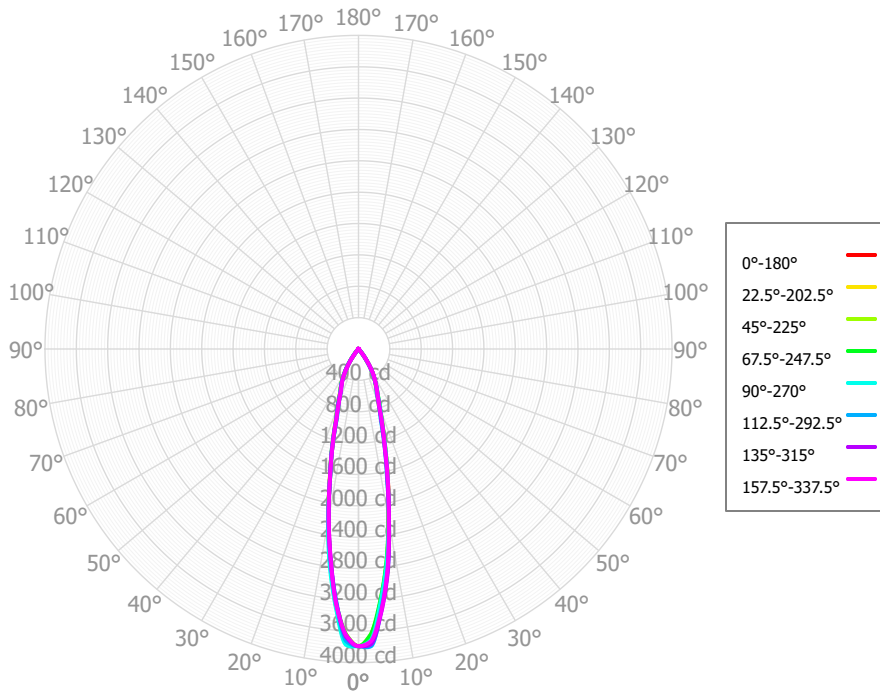
Full Beam Angle

0° - 180°	23°
90° - 270°	23°

IES File Header Contents

Keyword	Value
TEST	SP-01441_M-15L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/23/2022
ISSUEDATE	12/1/2022
LUMCAT	CK0407PC 15L 35K ND xx NL xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Round Cylinder, Narrow Beam
OTHER	No lens, Matte White finish
OTHER	23 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°	280.02	26.90%	90.00° - 100.00°	2.17	0.21%
10.00° - 20.00°	361.44	34.72%	100.00° - 110.00°	1.98	0.19%
20.00° - 30.00°	244.46	23.48%	100.00° - 120.00°	3.93	0.38%
30.00° - 40.00°	115.02	11.05%	120.00° - 130.00°	1.73	0.17%
40.00° - 50.00°	10.35	0.99%	130.00° - 140.00°	1.56	0.15%
50.00° - 60.00°	5.86	0.56%	140.00° - 150.00°	1.33	0.13%
60.00° - 70.00°	5.77	0.55%	150.00° - 160.00°	1.02	0.10%
70.00° - 80.00°	3.19	0.31%	160.00° - 170.00°	0.60	0.06%
80.00° - 90.00°	2.43	0.23%	170.00° - 180.00°	0.20	0.02%
0.00° - 90.00°	1028.54	98.80%	0.00° - 180.00°	1041.08	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°	3791.99	3791.99	3791.99	3791.99	3791.99	3791.99	3791.99	3791.99	3791.99	3791.99	3791.99	3791.99	3791.99	3791.99	3791.99	3791.99	3791.99
2.50°	3716.79	3647.04	3693.54	3642.09	3713.76	3724.24	3675.12	3654.46	3679.84	3645.17	3719.49	3648.46	3773.42	3792.29	3767.92	3729.16	3716.79
5.00°	3301.99	3270.08	3226.90	3215.42	3242.82	3240.16	3255.56	3273.20	3278.30	3298.09	3260.29	3266.46	3311.24	3332.82	3361.96	3351.41	3301.99
7.50°	2813.89	2769.55	2746.57	2736.47	2757.56	2729.02	2712.52	2717.48	2737.21	2733.75	2757.44	2730.02	2799.36	2848.60	2864.37	2836.63	2813.89
10.00°	2234.14	2200.80	2210.64	2198.75	2218.05	2199.97	2188.67	2189.39	2207.45	2199.32	2215.34	2201.66	2234.74	2241.13	2237.60	2222.03	2234.14
12.50°	1736.49	1731.15	1711.23	1728.07	1718.13	1678.22	1671.45	1681.32	1682.14	1692.74	1674.56	1676.90	1668.40	1680.13	1710.00	1727.26	1736.49
15.00°	1322.30	1304.80	1321.85	1318.65	1330.62	1308.34	1283.48	1280.57	1297.03	1292.71	1302.38	1281.97	1280.41	1284.95	1294.16	1301.74	1322.30
17.50°	1007.08	1005.65	989.54	1019.74	1001.66	957.72	928.06	941.47	953.93	973.24	944.42	931.96	905.76	946.50	985.26	1005.35	1007.08
20.00°	773.65	748.64	787.64	801.60	801.72	777.26	745.08	737.94	766.43	766.13	771.48	745.54	739.54	758.24	772.96	768.23	773.65
22.50°	627.29	621.65	626.03	655.13	640.85	612.35	592.44	596.23	612.02	626.52	610.24	600.50	584.65	606.25	633.02	635.66	627.29
25.00°	538.29	525.89	537.31	550.88	547.26	533.25	514.17	508.88	526.48	530.03	532.39	520.35	516.75	529.31	546.13	539.70	538.29
27.50°	455.72	448.29	450.08	456.49	454.59	451.21	443.98	440.42	450.35	454.17	452.46	451.36	446.49	450.48	461.49	458.03	455.72
30.00°	376.49	373.71	365.01	366.66	363.17	357.98	354.05	352.55	359.25	364.31	362.88	363.33	364.46	368.57	378.17	380.11	376.49
32.50°	284.39	278.55	276.24	273.49	270.82	265.57	263.27	259.63	267.06	269.32	272.97	273.31	280.34	280.40	285.60	286.88	284.39
35.00°	187.04	181.35	183.16	179.13	177.43	175.50	174.56	171.77	176.63	178.72	181.92	185.08	188.74	184.02	188.76	190.89	187.04
37.50°	112.25	106.89	107.21	106.38	103.16	98.47	88.97	84.79	88.16	89.35	102.46	97.46	107.51	105.64	111.84	114.42	112.25
40.00°	44.55	34.47	4719	39.33	46.11	49.74	48.69	46.40	47.98	47.08	52.09	53.94	53.80	46.17	41.94	40.06	44.55
42.50°	21.45	21.00	16.88	19.20	17.69	16.39	12.69	13.37	11.29	13.89	16.43	13.03	15.67	15.21	18.67	22.02	21.45
45.00°	8.37	8.35	8.67	7.80	9.90	9.16	8.32	8.18	8.42	7.74	9.28	8.54	9.33	8.26	7.74	6.75	8.37
47.50°	5.37	6.25	5.38	5.58	6.20	5.00	4.70	4.32	5.80	4.93	5.08	4.61	5.31	5.25	5.08	6.22	5.37
50.00°	3.85	4.50	5.02	4.39	4.83	5.03	4.77	4.76	4.74	5.03	5.49	4.84	5.03	4.93	3.94	5.69	3.85
52.50°	4.93	5.25	5.66	5.78	5.21	5.74	5.22	5.31	4.35	5.29	6.00	5.23	4.99	5.24	4.55	5.35	4.93
55.00°	6.21	6.15	6.79	7.29	6.38	7.20	6.98	7.50	6.69	6.78	6.65	6.40	5.24	5.90	5.36	5.23	6.21
57.50°	7.62	7.74	7.46	8.40	7.79	8.26	8.26	9.40	8.44	8.21	7.07	7.30	5.99	7.30	6.98	6.78	7.62
60.00°	8.92	8.53	7.96	9.37	9.28	8.95	8.28	9.04	8.46	8.28	7.26	7.25	7.25	9.02	8.62	7.97	8.92
62.50°	7.04	6.70	6.86	8.06	7.41	8.02	7.71	8.32	7.86	8.10	6.70	6.77	6.77	7.86	7.53	7.35	7.04
65.00°	5.22	5.13	5.32	6.70	4.66	5.94	5.95	5.80	5.87	5.65	5.55	5.19	4.81	5.78	6.40	6.64	5.22
67.50°	4.06	4.20	4.56	4.96	3.90	4.46	4.44	3.72	4.29	3.54	4.64	3.93	3.84	4.84	4.53	5.59	4.06
70.00°	3.04	3.35	3.96	3.50	3.51	3.33	3.37	3.10	3.45	3.21	3.90	3.31	3.54	4.17	2.91	4.64	3.04
72.50°	2.96	2.67	3.39	3.42	3.47	2.75	2.71	2.62	2.91	2.97	3.48	2.87	3.50	3.62	3.21	3.93	2.96
75.00°	2.88	2.39	2.83	3.24	3.47	2.41	2.56	2.53	2.82	3.08	3.25	2.71	3.60	3.09	3.38	3.38	2.88
77.50°	2.79	2.73	3.17	2.70	3.07	2.33	2.30	2.41	2.71	3.04	3.09	2.76	3.33	3.00	2.90	3.14	2.79
80.00°	2.72	2.84	3.56	2.31	2.64	2.35	1.93	2.19	2.60	2.62	2.96	3.05	2.90	2.95	2.46	2.96	2.72
82.50°	2.72	2.64	2.81	2.28	2.39	2.05	1.81	2.08	2.50	2.25	2.58	2.85	2.35	2.50	2.19	2.86	2.72
85.00°	2.56	2.28	2.12	2.18	2.16	1.68	1.92	2.13	2.42	1.99	2.11	2.14	1.76	2.04	1.91	2.64	2.56
87.50°	2.06	1.76	2.41	1.93	2.18	1.52	1.99	2.02	2.33	1.92	1.98	1.84	2.07	2.16	1.60	2.26	2.06
90.00°	1.82	1.90	2.63	1.89	2.17	1.41	2.04	1.73	2.22	2.17	1.93	1.90	2.58	2.26	1.47	2.04	1.82
92.50°	2.07	2.55	2.24	2.21	2.01	2.00	2.01	1.58	2.15	2.31	1.91	1.84	2.18	2.00	1.70	1.98	2.07
95.00°	2.11	2.52	1.92	2.23	1.95	2.68	1.94	1.57	2.10	2.28	1.90	1.70	1.64	1.77	1.86	2.00	2.11
97.50°	1.84	2.03	1.99	1.86	2.42	2.30	1.87	1.65	1.85	2.14	1.87	1.75	1.81	1.67	1.91	2.07	1.84
100.00°	1.70	1.88	2.07	1.64	2.66	1.88	1.81	1.80	1.52	1.87	1.83	1.89	2.05	1.58	1.86	2.06	1.70

CK0407PC 15L 35K ND 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	1236	1236	1236	1236	1206	1206	1206	1206	1150	1150	1150	1098	1098	1098	1051	1051	1029
	1	1187	1161	1139	1118	1160	1138	1118	1099	1094	1078	1063	1053	1041	1030	1016	1007	998
	2	1140	1096	1060	1030	1116	1077	1045	1018	1042	1016	994	1010	989	971	980	964	949
	3	1095	1039	995	960	1074	1024	984	952	996	963	936	970	942	920	945	923	904
	4	1053	988	940	903	1035	976	932	897	953	915	886	931	900	875	912	885	864
	5	1013	942	892	855	997	932	886	851	913	873	842	896	861	834	879	850	826
	6	976	901	850	813	962	892	845	810	877	835	804	862	826	798	848	817	792
	7	942	863	812	776	929	856	808	774	843	800	769	830	793	765	819	786	760
	8	909	829	778	744	897	823	775	742	812	769	738	801	763	735	791	757	731
	9	879	797	748	714	868	792	745	713	783	740	710	773	735	707	765	730	704
	10	850	768	720	687	840	764	717	686	756	713	684	748	709	682	740	705	679

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	125.4 fc	2.3 ft
6.5 ft	89.8 fc	2.7 ft
7.5 ft	67.4 fc	3.1 ft
8.0 ft	59.2 fc	3.3 ft
10.0 ft	37.9 fc	4.1 ft
12.0 ft	26.3 fc	4.9 ft
14.0 ft	19.3 fc	5.7 ft
16.0 ft	14.8 fc	6.6 ft
20.0 ft	9.5 fc	8.2 ft
24.0 ft	6.6 fc	9.8 ft
28.0 ft	4.8 fc	11.5 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	359898	359898	359898
45.00°	1123	1164	1329
55.00°	1028	1123	1056
65.00°	1172	1194	1046
75.00°	1056	1039	1273
85.00°	2793	2306	2357

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	2.2	3.1	2.6	3.5	3.8	2.5	3.4	2.9	3.7	4.1
	3H	3.6	4.4	4.0	4.8	5.2	3.6	4.4	4.0	4.7	5.1
	4H	4.2	4.9	4.6	5.3	5.8	4.3	5.0	4.7	5.4	5.8
	6H	5.1	5.8	5.5	6.2	6.6	5.2	5.9	5.7	6.3	6.7
	8H	5.7	6.3	6.2	6.8	7.2	5.7	6.3	6.2	6.8	7.2
	12H	6.4	7.0	6.9	7.5	7.9	6.2	6.8	6.7	7.2	7.7
4H	2H	2.8	3.6	3.3	4.0	4.4	3.0	3.7	3.4	4.1	4.5
	3H	4.4	5.0	4.8	5.4	5.8	4.2	4.8	4.7	5.3	5.7
	4H	5.1	5.7	5.6	6.1	6.6	5.0	5.6	5.5	6.0	6.5
	6H	6.2	6.7	6.7	7.2	7.7	6.2	6.6	6.7	7.1	7.6
	8H	7.0	7.4	7.5	7.9	8.4	6.8	7.2	7.3	7.7	8.2
	12H	7.9	8.2	8.4	8.7	9.2	7.4	7.8	7.9	8.3	8.8
8H	4H	5.5	5.9	6.0	6.4	6.9	5.3	5.7	5.8	6.2	6.7
	6H	6.9	7.3	7.5	7.8	8.3	6.7	7.0	7.2	7.6	8.1
	8H	7.9	8.2	8.4	8.7	9.2	7.5	7.8	8.1	8.4	8.9
	12H	9.0	9.2	9.5	9.8	10.4	8.3	8.6	8.9	9.1	9.7
12H	4H	5.5	5.9	6.1	6.4	6.9	5.3	5.7	5.8	6.2	6.7
	6H	7.1	7.4	7.7	7.9	8.5	6.8	7.1	7.4	7.6	8.2
	8H	8.1	8.4	8.7	8.9	9.5	7.8	8.0	8.3	8.5	9.1

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0