

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CF04XXPC 15L 35K MD XX CL XX

Nom 4" diam Gamma Cylinder (damp location), MD optic, clear glass lens

Test Number

SP-01068_M-15L

Test Date

1/31/2020

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	1089
Efficacy	114.59 lm/W

Luminous Dimensions

0° - 180° Size	-0.33
90° - 270° Size	-0.33
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.43
Two luminaires, plane 90°	0.43
Four luminaires	0.46

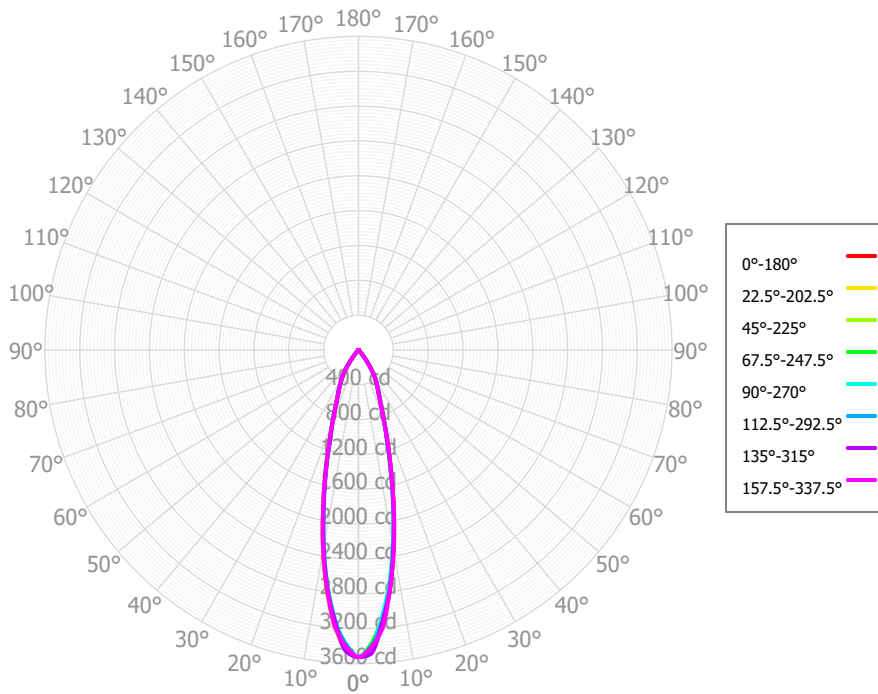
Full Beam Angle

0° - 180°	26°
90° - 270°	26°

IES File Header Contents

Keyword	Value
TEST	SP-01068_M-15L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/31/2020
ISSUEDATE	3/19/2020
LUMCAT	CF04XXPC 15L 35K MD XX CL XX
LUMINAIRE	Nom 4" diam Gamma Cylinder (damp location), MD optic, clear glass lens
OTHER	Beam Angle: 26.4 deg
LAMPCAT	N/A
LAMP	N/A
OTHER	CCT Output Multipliers: 27K x 0.972, 30K x 0.981, 40K x 1.04, 27HK x 0.89, 30HK x 0.83
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	274.44	25.21%	90.00° - 100.00°	0.07	0.01%
10.00° - 20.00°	398.51	36.61%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	259.50	23.84%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	131.93	12.12%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	14.41	1.32%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	4.19	0.39%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	2.56	0.24%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	1.74	0.16%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.22	0.11%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1088.50	99.99%	0.00° - 180.00°	1088.58	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°	3524.79	3524.79	3524.79	3524.79	3524.79	3524.79	3524.79	3524.79	3524.79	3524.79	3524.79	3524.79	3524.79	3524.79	3524.79	3524.79	3524.79
2.50°	3454.62	3409.15	3416.39	3376.42	3430.30	3378.10	3456.47	3403.36	3441.78	3406.93	3413.14	3374.18	3450.91	3404.82	3484.58	3416.83	3454.62
5.00°	3142.49	3179.10	3106.99	3093.85	3078.02	3133.39	3119.36	3177.75	3165.18	3184.45	3140.82	3130.19	3097.37	3135.35	3136.05	3200.61	3142.49
7.50°	2768.55	2755.82	2734.89	2713.33	2720.10	2732.80	2758.73	2756.99	2779.30	2760.52	2751.46	2727.36	2740.11	2742.12	2772.00	2767.57	2768.55
10.00°	2311.19	2320.35	2284.40	2275.09	2272.80	2311.13	2307.49	2332.48	2341.30	2331.53	2316.51	2301.43	2282.64	2291.71	2307.98	2330.87	2311.19
12.50°	1869.43	1873.49	1849.45	1844.32	1830.99	1859.27	1852.55	1877.73	1877.16	1874.85	1857.09	1848.64	1830.15	1855.92	1854.66	1877.53	1869.43
15.00°	1446.06	1426.74	1431.50	1417.37	1443.06	1456.53	1463.58	1442.42	1477.58	1443.27	1464.62	1451.99	1445.32	1426.00	1454.60	1431.08	1446.06
17.50°	1104.62	1125.80	1098.84	1101.99	1075.59	1116.15	1079.28	1126.73	1105.81	1123.08	1103.64	1112.56	1076.79	1109.50	1087.68	1124.52	1104.62
20.00°	849.17	830.31	848.07	836.38	855.84	852.77	865.53	838.09	862.42	836.88	860.96	857.28	858.19	831.58	853.18	830.18	849.17
22.50°	667.80	681.93	669.85	670.85	654.53	675.01	657.79	679.00	666.07	673.40	665.89	677.16	655.67	669.18	649.91	676.61	667.80
25.00°	554.60	538.78	553.55	543.40	554.12	548.46	558.62	538.02	554.94	533.74	555.19	555.03	559.86	539.54	551.55	532.90	554.60
27.50°	467.47	470.66	466.74	464.91	459.52	471.81	461.51	468.55	470.56	465.60	473.21	478.92	466.87	463.19	458.86	466.73	467.47
30.00°	401.37	399.93	401.95	402.12	390.74	391.98	386.51	394.57	390.17	391.61	391.07	394.89	388.68	399.46	382.09	396.61	401.37
32.50°	314.10	305.10	315.16	312.41	315.51	309.40	309.09	305.91	310.83	302.51	308.88	305.35	306.53	304.78	300.26	302.71	314.10
35.00°	211.70	211.62	213.82	215.39	216.98	221.17	213.03	216.66	217.87	213.67	214.62	212.50	207.85	204.25	206.31	210.26	211.70
37.50°	128.13	127.04	131.23	133.05	128.13	128.67	122.92	125.82	122.06	125.37	117.51	117.66	118.32	123.07	123.18	124.73	128.13
40.00°	56.30	52.28	59.42	53.94	68.94	68.75	67.13	54.26	67.38	57.81	64.99	60.63	60.74	44.66	62.52	52.01	56.30
42.50°	23.08	28.98	25.98	29.11	23.80	30.40	20.26	28.31	19.59	29.62	21.12	23.71	16.40	23.88	20.71	29.17	23.08
45.00°	10.76	9.78	11.96	13.68	14.94	13.92	13.88	10.39	11.64	11.01	11.81	10.21	10.64	9.25	12.74	11.12	10.76
47.50°	6.29	7.68	7.19	9.78	8.31	10.22	8.57	8.79	8.65	8.43	7.64	7.44	6.44	7.91	7.38	8.46	6.29
50.00°	5.55	5.91	6.44	7.42	6.60	7.87	7.28	7.32	7.19	6.49	6.25	6.01	6.09	7.47	6.15	6.26	5.55
52.50°	4.83	5.23	5.41	5.74	5.16	6.20	6.26	6.09	5.86	5.49	5.16	5.10	5.61	6.09	5.04	5.29	4.83
55.00°	4.12	4.48	4.27	4.12	4.23	5.45	6.09	5.18	4.34	4.43	3.91	4.42	4.82	4.68	4.12	4.40	4.12
57.50°	3.42	3.55	3.70	3.53	3.41	5.12	5.81	4.78	2.81	3.29	2.65	3.82	3.98	3.99	3.39	3.64	3.42
60.00°	2.72	2.78	3.31	3.00	2.76	4.40	5.26	4.61	2.53	2.56	2.55	3.15	3.04	3.31	2.92	3.09	2.72
62.50°	2.32	2.45	2.59	2.74	2.47	3.54	4.65	4.75	2.27	2.29	2.48	2.47	2.37	2.67	2.69	2.95	2.32
65.00°	1.99	2.09	1.78	2.48	2.72	3.32	3.90	4.55	2.19	1.98	2.24	2.16	2.13	2.06	2.73	2.71	1.99
67.50°	1.72	1.67	1.89	2.01	2.65	3.32	3.39	3.95	2.09	1.62	2.00	1.95	1.87	1.86	2.44	2.30	1.72
70.00°	1.46	1.45	2.07	1.62	2.25	2.63	3.30	3.90	1.85	1.39	1.70	1.49	1.61	1.68	1.89	2.16	1.46
72.50°	1.27	1.37	1.55	1.50	2.17	1.88	3.04	4.32	1.71	1.25	1.48	1.06	1.21	1.52	1.82	2.21	1.27
75.00°	0.97	1.36	1.48	1.48	2.19	1.86	2.64	3.58	1.86	1.26	1.51	1.06	0.76	1.38	1.75	1.37	0.97
77.50°	0.69	1.27	1.75	1.48	2.02	1.82	1.73	2.49	1.42	1.25	1.75	0.91	0.97	1.27	1.31	1.14	0.69
80.00°	1.18	1.15	1.11	1.31	1.98	1.76	1.29	1.27	0.88	1.02	1.93	0.68	1.05	1.23	1.40	1.39	1.18
82.50°	0.98	1.08	1.10	1.25	1.63	1.74	1.33	1.13	1.17	1.26	1.58	0.85	0.95	1.12	1.39	1.32	0.98
85.00°	1.07	1.31	0.95	1.10	1.22	1.38	1.20	1.16	1.12	1.33	1.20	1.27	0.83	0.88	1.31	1.33	1.07
87.50°	0.85	1.23	0.89	1.64	1.13	1.15	1.07	1.31	0.93	1.34	1.24	1.03	1.22	1.04	1.04	1.30	0.85
90.00°	0.00	0.00	0.00	0.00	0.00	1.18	1.12	0.99	1.00	1.10	1.01	1.00	1.06	0.00	0.00	0.00	0.00
92.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	1296	1296	1296	1296	1266	1266	1266	1266	1209	1209	1209	1158	1158	1158	1111	1111	1089
	1	1245	1219	1196	1175	1219	1196	1175	1156	1152	1136	1121	1112	1099	1087	1075	1065	1044
	2	1196	1151	1114	1083	1173	1133	1099	1071	1098	1071	1048	1067	1045	1025	1037	1020	1000
	3	1149	1091	1046	1010	1129	1076	1035	1002	1049	1014	986	1023	995	971	1000	976	958
	4	1105	1037	987	949	1087	1025	979	944	1003	964	933	982	949	923	963	935	918
	5	1063	989	937	898	1047	979	930	894	961	919	886	944	907	879	928	897	881
	6	1024	945	891	853	1010	937	887	850	922	878	845	907	869	840	894	861	846
	7	987	905	851	814	974	898	847	812	885	840	808	873	833	804	862	827	813
	8	952	868	815	778	941	862	812	777	851	806	774	841	801	771	832	795	783
	9	919	834	782	746	909	829	779	745	820	775	743	811	770	741	803	766	755
	10	889	803	751	717	879	799	750	716	791	746	715	783	742	713	776	738	728

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	116.5 fc	2.5 ft
6.5 ft	83.4 fc	3.0 ft
7.5 ft	62.7 fc	3.5 ft
8.0 ft	55.1 fc	3.7 ft
10.0 ft	35.2 fc	4.6 ft
12.0 ft	24.5 fc	5.6 ft
14.0 ft	18.0 fc	6.5 ft
16.0 ft	13.8 fc	7.4 ft
20.0 ft	8.8 fc	9.3 ft
24.0 ft	6.1 fc	11.1 ft
28.0 ft	4.5 fc	13.0 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	443594	443594	443594
45.00°	1915	2128	2659
55.00°	904	936	929
65.00°	593	532	809
75.00°	472	721	1065
85.00°	1538	1366	1764

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	-2.1	-1.1	-1.7	-0.8	-0.5	-0.6	0.3	-0.3	0.6	0.9
	3H	-0.9	-0.1	-0.5	0.2	0.6	0.7	1.5	1.1	1.8	2.2
	4H	-0.4	0.3	0.0	0.7	1.1	1.2	1.9	1.6	2.3	2.7
	6H	0.1	0.8	0.6	1.2	1.6	2.0	2.7	2.4	3.1	3.5
	8H	0.6	1.3	1.1	1.7	2.1	2.5	3.1	3.0	3.5	4.0
	12H	1.3	1.9	1.8	2.3	2.8	3.0	3.6	3.4	4.0	4.4
4H	2H	-1.7	-1.0	-1.3	-0.6	-0.2	-0.2	0.6	0.3	0.9	1.3
	3H	-0.2	0.4	0.2	0.8	1.2	1.4	2.0	1.8	2.4	2.8
	4H	0.5	1.0	0.9	1.5	1.9	2.0	2.6	2.5	3.0	3.4
	6H	1.3	1.8	1.8	2.2	2.7	3.0	3.5	3.5	3.9	4.4
	8H	2.0	2.4	2.4	2.8	3.3	3.6	4.1	4.1	4.5	5.0
	12H	2.8	3.2	3.3	3.7	4.2	4.3	4.6	4.8	5.1	5.6
8H	4H	0.9	1.3	1.4	1.8	2.3	2.5	3.0	3.0	3.4	3.9
	6H	2.1	2.4	2.6	2.9	3.4	3.7	4.0	4.2	4.5	5.0
	8H	2.9	3.2	3.5	3.8	4.3	4.5	4.8	5.0	5.3	5.8
	12H	4.1	4.4	4.7	4.9	5.5	5.4	5.6	5.9	6.1	6.7
12H	4H	1.0	1.4	1.5	1.8	2.3	2.6	2.9	3.1	3.4	3.9
	6H	2.3	2.6	2.8	3.1	3.6	3.9	4.2	4.4	4.6	5.2
	8H	3.3	3.6	3.8	4.1	4.6	4.8	5.0	5.3	5.5	6.1

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0