

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CF04XXPC 15L 35K ND XX CL XX
Nom 4" diam Gamma Cylinder, ND optic, clear glass lens

Test Number

SP-01069_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	1065
Efficacy	112.08 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.33
Two luminaires, plane 90°	0.33
Four luminaires	0.34

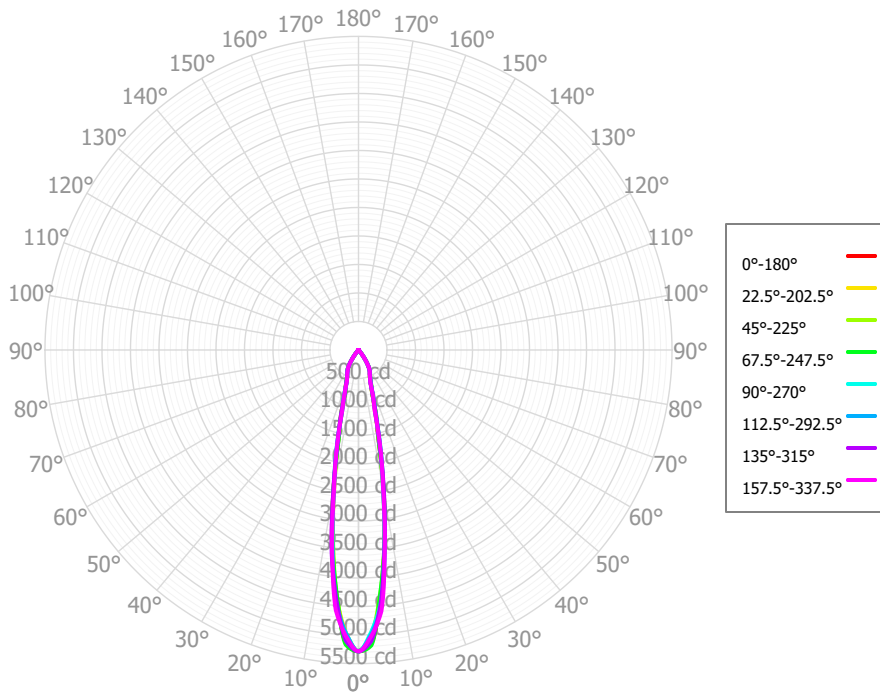
Full Beam Angle

0° - 180°	20°
90° - 270°	19°

IES File Header Contents

Keyword	Value
TEST	SP-01069_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 ND XX CL XX
LUMINAIRE	Nom 4" diam Gamma Cylinder, ND optic, clear glass lens
OTHER	Beam Angle: 19.6 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°	359.69	33.78%	90.00° - 100.00°	0.07	0.01%
10.00° - 20.00°	339.69	31.90%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	218.29	20.50%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	124.21	11.67%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	12.10	1.14%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	5.48	0.51%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	2.48	0.23%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	1.57	0.15%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.17	0.11%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1064.70	99.99%	0.00° - 180.00°	1064.77	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°	5285.90	5285.90	5285.90	5285.90	5285.90	5285.90	5285.90	5285.90	5285.90	5285.90	5285.90	5285.90	5285.90	5285.90	5285.90	5285.90	5285.90
2.50°	5156.76	5012.21	5045.23	5185.49	4966.60	4985.44	5104.00	5025.60	5144.15	4976.84	5026.34	5170.60	4980.13	5005.37	5112.53	5030.53	5156.76
5.00°	4408.23	4485.27	4323.87	4328.48	4465.47	4456.98	4422.05	4576.82	4371.45	4381.99	4366.43	4334.45	4524.37	4537.19	4465.01	4601.37	4408.23
7.50°	3471.21	3451.55	3501.51	3469.91	3499.72	3518.95	3600.78	3545.77	3550.70	3494.71	3413.82	3492.13	3497.49	3507.49	3488.49	3533.76	3471.21
10.00°	2556.28	2505.65	2500.25	2554.75	2469.96	2474.58	2562.23	2462.41	2545.73	2442.91	2523.23	2553.75	2501.65	2531.64	2584.78	2488.19	2556.28
12.50°	1647.85	1730.43	1677.18	1639.17	1778.91	1757.25	1717.60	1762.17	1650.17	1700.10	1670.84	1614.12	1782.80	1791.73	1731.87	1775.40	1647.85
15.00°	1159.57	1116.01	1177.43	1216.33	1138.60	1127.76	1182.53	1100.59	1188.70	1135.37	1140.83	1182.59	1107.41	1135.18	1172.98	1088.94	1159.57
17.50°	801.38	827.28	795.99	799.95	852.59	829.00	789.88	830.73	789.49	809.54	814.15	760.65	845.14	857.86	827.20	841.96	801.38
20.00°	634.02	606.97	638.08	657.77	622.29	624.02	630.04	603.05	646.06	624.76	627.76	634.77	600.12	614.91	624.42	603.97	634.02
22.50°	527.58	528.82	519.17	521.79	535.74	529.54	512.29	524.63	521.09	521.68	533.33	517.33	530.35	538.53	527.70	533.21	527.58
25.00°	472.39	463.98	475.78	478.75	472.86	467.41	466.11	463.30	476.63	468.76	472.48	475.15	462.82	467.81	465.35	463.72	472.39
27.50°	434.06	427.53	427.90	438.36	424.63	418.96	416.50	417.21	429.01	416.28	434.17	435.56	420.73	425.57	429.07	423.56	434.06
30.00°	367.59	376.47	371.11	370.05	378.98	374.64	360.92	372.97	367.11	364.07	369.80	364.47	375.12	375.95	367.99	381.59	367.59
32.50°	291.40	292.93	301.36	300.77	293.18	293.27	292.29	288.23	299.21	286.44	287.54	292.10	285.91	287.54	287.38	291.20	291.40
35.00°	203.80	208.35	204.79	207.26	199.93	200.12	200.39	198.10	203.06	192.44	200.89	199.53	197.48	200.04	201.64	201.16	203.80
37.50°	112.15	121.40	120.28	112.67	121.18	121.21	119.83	121.42	114.02	115.00	111.09	105.93	119.55	117.76	111.79	121.84	112.15
40.00°	59.11	52.68	61.38	63.39	45.21	46.97	60.29	46.62	60.70	48.62	54.71	59.43	45.14	44.55	54.29	43.83	59.11
42.50°	20.19	26.71	18.71	16.40	21.15	19.97	18.61	23.25	15.11	17.11	22.71	15.60	25.99	24.84	23.45	25.69	20.19
45.00°	8.18	7.85	11.37	9.66	7.79	8.91	10.90	7.73	9.96	9.48	7.99	9.91	7.81	7.79	8.26	7.81	8.18
47.50°	6.49	6.12	6.12	5.21	5.75	6.00	5.68	5.38	5.54	6.21	6.18	6.61	6.67	7.22	6.46	6.46	6.49
50.00°	6.46	5.20	5.62	5.48	6.14	5.99	5.30	5.13	5.08	6.01	5.78	6.53	5.60	6.90	5.90	5.15	6.46
52.50°	7.08	6.35	5.59	6.07	6.31	5.48	5.26	5.87	4.86	6.12	6.48	6.68	5.86	8.24	6.41	6.33	7.08
55.00°	7.16	6.81	6.68	7.28	6.41	4.80	5.90	6.77	6.02	6.45	6.73	6.76	6.08	9.06	6.63	7.51	7.16
57.50°	7.02	5.54	6.89	8.54	5.65	4.16	5.75	5.79	6.72	5.85	6.63	6.82	5.23	6.30	6.61	7.15	7.02
60.00°	5.84	4.19	4.96	5.69	4.68	3.53	3.94	4.48	4.63	4.55	5.46	5.05	4.38	3.73	5.56	6.79	5.84
62.50°	4.21	2.67	3.25	2.50	3.33	2.63	2.44	3.46	2.71	3.23	3.41	3.13	3.20	2.57	3.57	4.64	4.21
65.00°	3.09	1.57	2.06	1.79	1.89	1.63	1.57	2.49	1.77	1.88	2.13	2.08	2.07	1.59	2.57	2.49	3.09
67.50°	2.21	1.56	1.28	1.30	1.50	1.28	1.13	2.33	1.10	1.44	1.46	1.11	1.81	1.88	2.51	2.55	2.21
70.00°	1.57	1.45	1.28	1.57	1.28	1.10	1.23	2.20	1.23	1.56	1.56	1.34	1.64	2.07	2.34	2.62	1.57
72.50°	1.02	1.18	1.15	1.51	1.22	1.04	1.23	1.74	1.16	1.49	2.05	1.57	1.92	1.88	2.10	2.72	1.02
75.00°	1.25	1.00	0.95	0.83	1.27	1.23	1.20	1.38	0.92	1.30	1.85	1.72	2.09	1.70	1.85	2.72	1.25
77.50°	1.36	0.90	1.59	0.93	1.38	1.71	1.17	1.15	1.09	0.87	1.53	1.89	2.13	1.51	1.59	2.59	1.36
80.00°	1.28	0.99	1.81	1.02	1.14	1.03	1.01	1.22	1.12	0.91	1.16	1.98	2.08	1.61	1.29	1.70	1.28
82.50°	1.22	1.25	1.57	0.99	1.24	1.09	1.06	1.38	1.17	0.92	1.20	1.68	2.19	1.56	1.40	0.99	1.22
85.00°	1.28	0.70	1.21	0.92	0.92	0.56	1.33	0.93	0.77	1.17	0.55	1.27	1.72	1.40	1.21	0.81	1.28
87.50°	0.77	1.28	1.39	0.85	0.69	1.02	0.82	0.71	0.69	1.13	0.94	1.17	1.37	1.40	0.84	1.25	0.77
90.00°	1.08	0.78	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	1.16	1.10	0.71	0.80	1.08
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	1268	1268	1268	1268	1238	1238	1238	1238	1183	1183	1183	1133	1133	1133	1086	1086	1065
	1	1220	1196	1174	1154	1195	1173	1154	1136	1130	1115	1101	1091	1079	1068	1055	1046	1038
	2	1175	1133	1098	1069	1153	1115	1084	1057	1082	1056	1034	1051	1030	1013	1022	1006	992
	3	1132	1078	1036	1002	1113	1064	1025	994	1037	1005	979	1012	986	964	989	968	949
	4	1092	1029	983	947	1075	1017	975	942	996	960	931	976	945	921	957	932	911
	5	1054	985	937	901	1039	976	931	897	958	919	889	942	908	882	926	898	875
	6	1019	945	896	861	1005	938	892	858	923	883	853	910	874	847	897	866	842
	7	985	909	860	826	973	903	857	824	891	850	820	880	843	816	869	837	812
	8	954	877	828	794	943	871	825	793	861	819	790	851	814	787	842	809	784
	9	925	847	799	766	915	842	796	765	833	792	763	825	788	760	817	783	758
	10	898	819	772	741	889	815	770	740	808	766	738	801	763	736	794	759	735

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	174.7 fc	1.9 ft
6.5 ft	125.1 fc	2.2 ft
7.5 ft	94.0 fc	2.6 ft
8.0 ft	82.6 fc	2.7 ft
10.0 ft	52.9 fc	3.4 ft
12.0 ft	36.7 fc	4.1 ft
14.0 ft	27.0 fc	4.8 ft
16.0 ft	20.6 fc	5.5 ft
20.0 ft	13.2 fc	6.8 ft
24.0 ft	9.2 fc	8.2 ft
28.0 ft	6.7 fc	9.5 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	665230	665230	665230
45.00°	1457	2024	1386
55.00°	1571	1466	1407
65.00°	922	614	564
75.00°	607	461	615
85.00°	1846	1743	1334

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	3.4	3.8	1.1	2.0	1.5	2.3	2.7
	3H	2.6	3.4	3.0	3.7	4.1	1.3	2.1	1.7	2.4	2.8
	4H	2.8	3.6	3.2	3.9	4.3	1.8	2.5	2.2	2.8	3.2
	6H	3.2	3.9	3.7	4.3	4.7	2.7	3.3	3.1	3.7	4.1
	8H	3.5	4.1	3.9	4.5	4.9	3.3	3.9	3.7	4.3	4.7
	12H	3.9	4.5	4.3	4.9	5.3	3.9	4.5	4.3	4.9	5.3
4H	2H	2.1	2.9	2.5	3.2	3.6	1.0	1.7	1.4	2.1	2.5
	3H	2.8	3.4	3.2	3.8	4.2	1.4	2.0	1.8	2.4	2.8
	4H	3.3	3.8	3.7	4.2	4.7	2.0	2.6	2.5	3.0	3.4
	6H	4.0	4.4	4.4	4.9	5.3	3.3	3.8	3.8	4.2	4.7
	8H	4.3	4.7	4.8	5.2	5.7	4.1	4.6	4.6	5.0	5.5
	12H	4.8	5.2	5.3	5.7	6.1	4.9	5.3	5.4	5.8	6.3
8H	4H	3.4	3.8	3.9	4.3	4.8	2.2	2.7	2.7	3.1	3.6
	6H	4.3	4.7	4.9	5.2	5.7	3.8	4.1	4.3	4.6	5.1
	8H	4.8	5.1	5.4	5.7	6.2	4.8	5.0	5.3	5.6	6.1
	12H	5.5	5.7	6.0	6.2	6.8	5.7	6.0	6.2	6.5	7.1
12H	4H	3.4	3.8	3.9	4.3	4.8	2.2	2.6	2.7	3.1	3.6
	6H	4.5	4.8	5.0	5.2	5.8	3.8	4.1	4.4	4.6	5.2
	8H	5.1	5.3	5.6	5.8	6.4	4.9	5.2	5.4	5.7	6.2

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0