

## Indoor Distribution Test Report

# Spectrum Lighting Inc.

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## Spectrum Lighting Photometric Lab

### Luminaire

CW04XXPC 15L 35K MD XX CL XX

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

### Test Number

SP-01047\_M-15L

### Test Date

1/30/2020

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	813
Efficacy	85.54 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.45
Two luminaires, plane 90°	0.44
Four luminaires	0.47

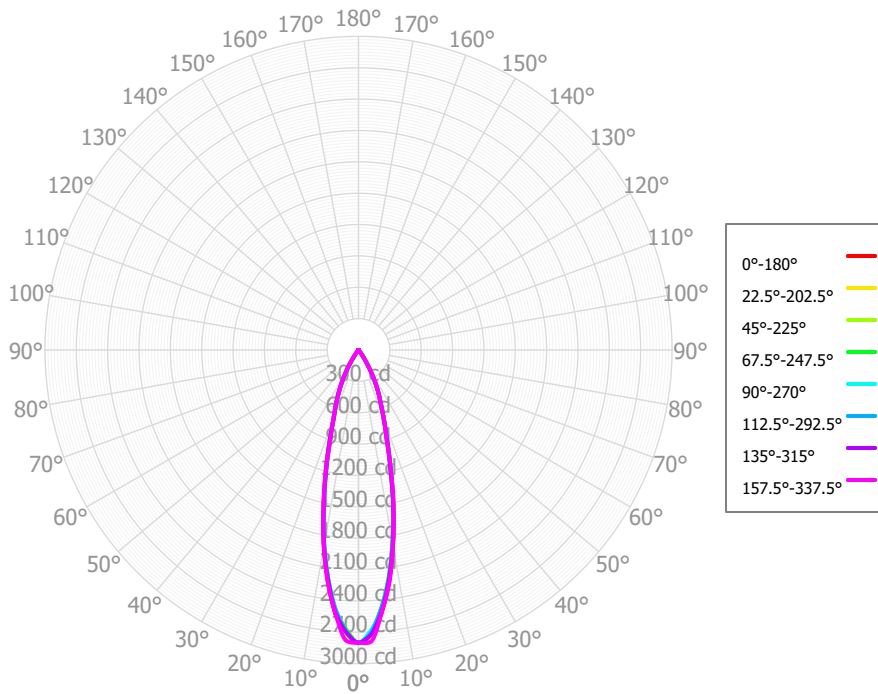
#### Full Beam Angle

0° - 180°	27°
90° - 270°	27°

### IES File Header Contents

Keyword	Value
TEST	SP-01047_M-15L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/30/2020
ISSUEDATE	3/24/2020
LUMCAT	CW04XXPC 15L 35K MD XX CL XX
LUMINAIRE	Nom 4" diam Gamma Cylinder (wet location), MD optic, clear glass lens
OTHER	Beam Angle: 27.2 deg
OTHER	Medium optic
LAMPCAT	N/A
LAMP	N/A
OTHER	CCT Output Multipliers: 27K x 0.97, 30K x 0.98, 40K x 1.04
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting, scaled from 20L

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	221.42	27.25%	90.00° - 100.00°	0.06	0.01%
10.00° - 20.00°	329.29	40.52%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	201.64	24.81%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	50.17	6.17%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	3.97	0.49%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	2.35	0.29%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	1.61	0.20%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	1.21	0.15%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	0.94	0.12%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	812.60	99.99%	0.00° - 180.00°	812.66	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°	2800.71	2800.71	2800.71	2800.71	2800.71	2800.71	2800.71	2800.71	2800.71	2800.71	2800.71	2800.71	2800.71	2800.71	2800.71	2800.71	2800.71
2.50°	2764.31	2764.58	2701.30	2700.95	2689.00	2697.60	2704.81	2782.11	2732.99	2740.76	2682.03	2680.90	2707.48	2713.22	2728.38	2792.69	2764.31
5.00°	2527.51	2507.30	2501.09	2483.55	2509.74	2502.93	2525.39	2530.15	2536.64	2511.00	2507.14	2503.00	2494.15	2487.66	2519.57	2528.21	2527.51
7.50°	2239.77	2233.68	2207.66	2201.31	2218.10	2221.55	2225.16	2247.10	2239.13	2232.19	2209.13	2215.74	2213.90	2217.24	2225.43	2255.14	2239.77
10.00°	1898.07	1886.21	1883.65	1870.18	1898.26	1894.22	1907.49	1900.95	1911.67	1894.56	1897.66	1898.52	1879.17	1871.40	1893.20	1898.66	1898.07
12.50°	1549.86	1540.20	1534.16	1529.66	1538.05	1534.89	1542.94	1545.31	1551.35	1540.47	1535.33	1534.87	1535.19	1527.65	1541.77	1543.99	1549.86
15.00°	1194.41	1201.41	1175.74	1181.67	1207.79	1209.05	1200.83	1213.96	1220.33	1213.67	1191.43	1201.06	1183.29	1187.60	1181.26	1209.85	1194.41
17.50°	911.53	888.49	917.85	912.82	922.68	907.78	923.05	886.67	923.09	895.07	922.69	915.96	909.62	901.36	918.53	887.11	911.53
20.00°	713.65	715.49	697.51	709.98	698.11	700.90	684.31	705.61	700.61	705.91	681.86	689.47	706.39	715.91	704.75	719.77	713.65
22.50°	557.40	552.12	558.70	557.92	569.73	566.85	565.08	551.54	568.83	558.41	564.39	563.94	551.42	555.63	558.99	555.68	557.40
25.00°	452.44	446.16	452.30	450.41	447.19	447.52	448.15	438.52	445.38	438.24	447.72	443.46	442.14	445.18	449.24	446.55	452.44
27.50°	344.53	340.08	341.83	340.16	334.46	340.15	338.75	333.80	332.56	327.48	334.88	332.15	332.39	334.49	337.56	337.54	344.53
30.00°	232.78	233.19	229.63	227.38	228.19	236.07	232.92	231.77	227.29	224.58	225.47	226.81	222.19	223.28	224.80	231.19	232.78
32.50°	138.19	131.77	139.98	135.04	133.38	134.80	139.66	130.33	132.13	124.56	134.14	132.91	131.94	127.09	136.06	126.36	138.19
35.00°	66.98	70.99	60.44	62.53	60.54	66.73	59.90	72.43	62.64	66.00	52.67	60.44	62.57	64.26	61.49	69.57	66.98
37.50°	20.90	16.06	25.04	20.75	28.72	28.45	31.34	24.96	29.41	23.64	28.41	31.53	21.43	17.97	24.46	13.75	20.90
40.00°	10.89	10.40	10.60	10.28	7.03	8.43	7.97	11.30	8.61	9.20	7.18	10.86	11.35	10.62	10.79	9.03	10.89
42.50°	4.77	5.21	5.18	4.62	5.30	5.63	5.86	6.39	6.33	6.36	5.38	7.93	5.87	5.20	5.25	4.34	4.77
45.00°	4.54	4.48	4.29	4.10	3.95	3.97	4.08	4.79	4.80	5.06	3.81	5.58	5.73	4.59	5.03	4.23	4.54
47.50°	4.12	3.77	3.56	3.75	3.39	3.45	3.74	4.12	4.43	4.43	3.85	4.56	5.24	4.05	4.49	4.12	4.12
50.00°	3.38	3.34	2.93	3.58	2.82	2.92	3.38	3.56	3.94	3.82	3.83	3.75	4.33	3.71	3.71	3.75	3.38
52.50°	2.72	2.88	2.52	3.08	2.20	2.38	2.97	3.03	3.28	3.21	3.37	3.47	3.58	3.29	3.12	3.39	2.72
55.00°	2.19	2.11	2.24	2.19	1.84	1.97	2.61	2.71	2.65	2.86	2.90	3.14	3.06	2.67	2.69	2.73	2.19
57.50°	1.86	1.38	2.08	1.70	2.08	1.69	2.56	2.45	2.07	2.63	2.41	2.67	2.69	2.20	2.44	2.07	1.86
60.00°	1.89	1.40	1.98	1.72	2.12	1.52	2.49	2.08	1.73	2.16	1.96	2.25	2.55	2.17	2.34	2.08	1.89
62.50°	1.82	1.40	1.63	1.60	1.67	1.47	2.27	1.66	1.82	1.56	1.81	1.98	2.20	2.08	2.22	2.12	1.82
65.00°	1.58	1.15	1.12	1.29	1.30	1.30	2.03	1.62	1.77	1.21	1.67	1.71	1.57	1.77	2.07	2.13	1.58
67.50°	1.37	0.91	0.99	1.13	1.19	0.97	1.70	1.72	1.43	1.00	1.68	1.44	1.24	1.52	2.05	2.14	1.37
70.00°	1.23	0.98	1.13	1.19	1.10	0.79	1.39	1.48	1.15	0.94	1.67	1.19	1.34	1.46	2.15	1.99	1.23
72.50°	1.14	1.04	1.03	1.23	1.09	0.82	1.25	1.11	1.00	0.95	1.40	1.07	1.35	1.40	1.89	1.84	1.14
75.00°	1.13	1.08	0.78	1.23	1.12	0.86	1.14	0.97	0.90	0.91	1.15	1.00	1.19	1.33	1.31	1.46	1.13
77.50°	1.10	1.12	0.73	1.19	1.28	0.92	1.18	0.92	0.88	0.85	1.17	1.10	1.14	1.24	0.96	1.07	1.10
80.00°	1.02	1.14	0.83	1.12	1.28	1.01	1.10	0.95	0.89	0.98	1.09	1.15	1.24	1.11	0.82	0.98	1.02
82.50°	0.92	1.08	0.95	0.93	1.08	1.11	0.88	0.91	0.91	1.01	0.77	1.13	1.29	0.94	0.86	0.89	0.92
85.00°	0.81	0.85	0.98	0.75	0.79	1.10	1.10	0.81	0.85	0.73	0.87	0.94	1.23	0.76	1.01	0.77	0.81
87.50°	0.69	0.82	0.82	0.72	0.63	0.84	0.98	0.87	0.87	0.73	0.88	0.80	1.04	0.70	1.20	0.82	0.69
90.00°	0.76	0.67	1.03	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.85	0.84	1.11	0.85	0.76
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%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	967	967	967	967	945	945	945	945	903	903	903	864	864	864	829	829	829	813
	1	931	913	896	881	912	895	880	867	863	851	840	833	824	816	806	799	792	783
	2	897	865	839	817	880	852	828	808	826	807	790	803	787	774	781	769	758	754
	3	865	824	792	766	850	813	784	760	792	768	748	774	754	737	756	740	726	726
	4	834	786	751	724	821	778	745	720	761	734	712	746	723	704	732	712	696	700
	5	805	753	716	689	794	746	712	686	732	703	680	720	694	674	708	686	669	675
	6	778	722	685	658	768	716	681	656	705	675	652	695	668	648	685	662	644	651
	7	752	694	657	631	743	690	654	629	680	649	626	672	644	623	663	639	620	629
	8	728	669	631	606	720	665	629	605	657	625	602	649	621	600	643	617	598	608
	9	705	645	608	583	698	642	606	582	635	603	581	629	600	579	623	597	577	588
	10	683	623	587	563	677	620	585	562	614	583	561	609	580	559	604	577	558	569

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	92.6 fc	2.7 ft
6.5 ft	66.3 fc	3.1 ft
7.5 ft	49.8 fc	3.6 ft
8.0 ft	43.8 fc	3.9 ft
10.0 ft	28.0 fc	4.8 ft
12.0 ft	19.4 fc	5.8 ft
14.0 ft	14.3 fc	6.7 ft
16.0 ft	10.9 fc	7.7 ft
20.0 ft	7.0 fc	9.6 ft
24.0 ft	4.9 fc	11.6 ft
28.0 ft	3.6 fc	13.5 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	352469	352469	352469
<b>45.00°</b>	809	763	703
<b>55.00°</b>	481	492	405
<b>65.00°</b>	471	333	388
<b>75.00°</b>	550	378	545
<b>85.00°</b>	1169	1412	1141

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

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0