

## Indoor Distribution Test Report

# Spectrum Lighting Inc.

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## Spectrum Lighting Photometric Lab

### Luminaire

CW04XXPC 15L 35K WD XX CL XX

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

### Test Number

SP-01072\_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	891
Efficacy	93.74 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.77
Two luminaires, plane 90°	0.79
Four luminaires	0.74

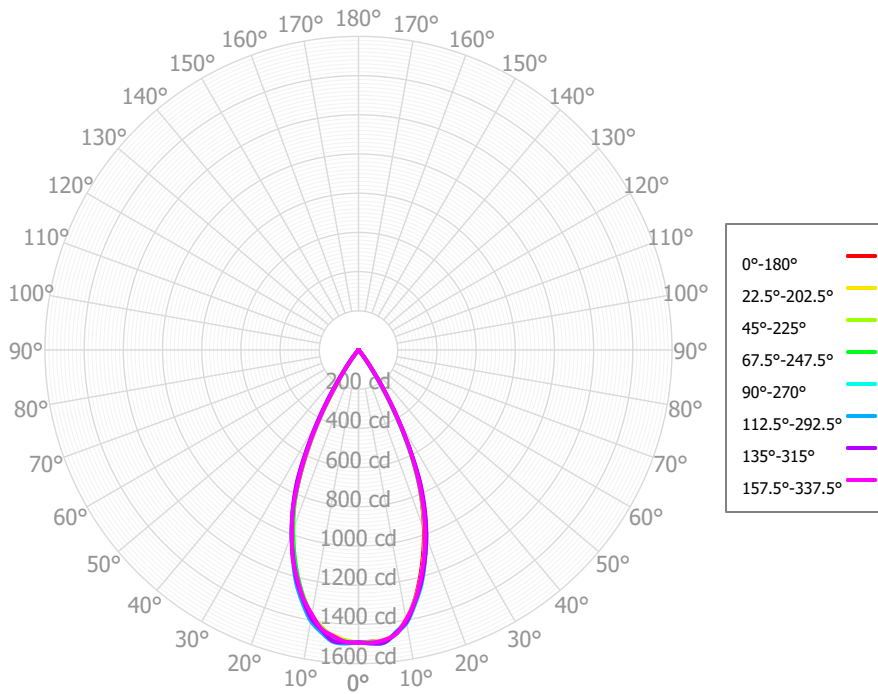
#### Full Beam Angle

0° - 180°	49°
90° - 270°	49°

### IES File Header Contents

Keyword	Value
TEST	SP-01072_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 WD XX CL XX
LUMINAIRE	Nom 4" diam Gamma Cylinder (wet location), WD optic, clear glass lens
OTHER	Beam Angle: 47.6 deg
OTHER	Wide 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°	140.57	15.79%	90.00° - 100.00°	0.06	0.01%
10.00° - 20.00°	335.56	37.68%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	316.45	35.54%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	88.26	9.91%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	4.35	0.49%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	1.44	0.16%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	1.36	0.15%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	1.39	0.16%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.06	0.12%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	890.45	99.99%	0.00° - 180.00°	890.51	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°	1492.85	1492.85	1492.85	1492.85	1492.85	1492.85	1492.85	1492.85	1492.85	1492.85	1492.85	1492.85	1492.85	1492.85	1492.85	1492.85	1492.85
2.50°	1490.01	1493.98	1492.88	1493.38	1498.35	1499.53	1493.27	1491.12	1488.54	1482.81	1483.49	1490.55	1494.29	1498.90	1499.16	1495.31	1490.01
5.00°	1491.23	1484.14	1499.10	1491.20	1499.42	1494.89	1490.32	1465.69	1467.87	1461.41	1472.96	1469.96	1491.27	1499.95	1498.16	1486.01	1491.23
7.50°	1460.24	1459.30	1455.76	1462.54	1459.90	1453.49	1441.17	1436.85	1432.69	1437.09	1427.29	1437.42	1443.52	1453.50	1457.69	1463.34	1460.24
10.00°	1399.21	1394.27	1408.79	1406.86	1415.69	1404.22	1390.10	1370.11	1374.53	1373.36	1373.65	1373.98	1391.63	1404.91	1410.63	1397.18	1399.21
12.50°	1313.12	1317.80	1315.51	1329.44	1330.88	1320.90	1304.77	1299.89	1303.08	1304.21	1291.70	1294.32	1302.50	1318.89	1324.15	1320.50	1313.12
15.00°	1208.15	1217.52	1220.76	1234.05	1241.68	1230.15	1217.00	1207.78	1211.70	1207.95	1202.09	1195.99	1211.13	1231.48	1233.34	1217.29	1208.15
17.50°	1094.91	1109.31	1106.87	1123.61	1127.48	1115.93	1108.63	1114.38	1110.89	1109.71	1091.29	1089.99	1107.32	1122.92	1124.74	1109.58	1094.91
20.00°	976.66	987.63	990.94	1002.84	1008.92	998.85	998.02	994.55	991.41	990.13	975.91	975.09	998.38	1011.37	1011.63	992.86	976.66
22.50°	847.30	854.72	854.32	861.36	873.06	874.88	875.47	871.96	865.09	868.63	850.73	857.30	868.66	876.71	884.86	863.32	847.30
25.00°	712.59	706.47	712.41	708.51	727.27	735.72	742.86	710.73	703.57	701.05	711.44	707.27	726.89	734.69	742.48	713.38	712.59
27.50°	551.32	547.84	536.69	540.72	552.44	566.90	571.09	548.76	532.38	533.61	548.17	549.53	549.17	553.99	562.65	554.43	551.32
30.00°	379.78	377.73	366.68	366.48	384.07	402.37	404.10	381.35	369.75	367.76	388.18	387.00	380.94	380.59	392.27	383.97	379.78
32.50°	238.79	233.96	221.38	225.98	230.75	244.53	250.93	225.32	208.88	211.54	232.81	223.70	234.45	234.25	239.67	237.72	238.79
35.00°	106.74	114.39	99.14	97.08	110.59	126.46	125.49	123.99	117.21	116.69	119.54	129.56	118.56	111.97	121.94	117.21	106.74
37.50°	52.85	47.05	49.64	45.69	51.25	58.19	61.84	40.40	34.73	35.87	53.97	42.36	59.69	56.31	56.59	46.76	52.85
40.00°	15.36	18.50	12.74	14.05	13.33	18.45	18.10	20.51	17.62	18.42	17.88	23.79	20.30	15.93	16.60	19.45	15.36
42.50°	7.32	6.21	7.25	6.49	6.80	8.44	9.35	5.55	5.02	4.75	8.82	8.38	9.86	8.90	8.20	6.63	7.32
45.00°	3.59	3.61	3.34	3.19	2.88	3.20	3.73	3.88	3.67	3.47	4.27	5.76	3.64	4.03	3.57	3.90	3.59
47.50°	2.49	2.12	2.50	2.11	2.12	1.99	2.64	2.59	2.56	2.51	3.16	3.26	2.47	2.95	2.74	2.35	2.49
50.00°	1.60	1.18	1.91	1.28	1.60	1.50	1.92	2.08	2.02	2.33	2.50	2.67	1.96	2.21	2.41	1.46	1.60
52.50°	1.45	1.09	1.69	1.30	1.31	1.50	1.63	1.70	1.52	2.15	2.12	2.11	2.09	1.96	2.50	1.27	1.45
55.00°	1.31	1.34	1.51	1.36	1.37	1.44	1.53	1.53	1.38	1.98	1.98	1.78	1.95	1.77	2.17	1.40	1.31
57.50°	1.22	1.30	1.37	1.33	1.70	1.35	1.61	1.42	1.27	1.72	1.95	1.53	1.57	1.66	1.55	1.18	1.22
60.00°	1.15	1.17	1.35	1.29	1.74	1.27	1.68	1.37	1.35	1.34	1.66	1.68	1.46	1.66	1.23	0.83	1.15
62.50°	1.43	1.11	1.46	1.17	1.58	1.18	1.73	1.35	1.43	1.12	1.28	1.80	1.51	1.77	1.07	0.93	1.43
65.00°	1.62	1.06	1.37	1.06	1.45	1.34	1.69	1.38	1.50	1.13	1.33	1.78	1.42	1.70	1.11	1.16	1.62
67.50°	1.28	1.10	1.12	1.09	1.35	1.56	1.60	1.49	1.51	1.16	1.50	1.69	1.27	1.50	1.23	1.26	1.28
70.00°	1.06	1.16	1.14	1.14	1.25	1.37	1.44	1.66	1.40	1.22	1.57	1.42	1.22	1.66	1.65	1.34	1.06
72.50°	1.25	1.38	1.33	1.27	1.17	1.13	1.32	1.44	1.38	1.11	1.55	1.15	1.21	1.94	2.10	1.75	1.25
75.00°	1.23	1.44	1.32	1.40	1.13	1.06	1.60	1.21	1.38	0.98	1.33	0.87	1.38	1.76	1.79	1.85	1.23
77.50°	1.00	1.17	1.37	1.47	1.06	1.15	1.42	1.12	1.25	0.88	1.59	0.86	1.30	1.55	1.45	1.28	1.00
80.00°	0.96	1.20	1.56	0.99	0.98	1.28	1.14	0.98	0.90	0.88	1.58	1.01	1.20	1.31	1.13	0.94	0.96
82.50°	1.07	1.14	1.42	0.85	1.03	1.22	1.18	0.83	0.93	0.96	1.30	1.20	1.27	1.10	1.20	0.93	1.07
85.00°	1.23	1.02	1.31	1.16	0.98	1.22	1.21	0.90	1.15	0.80	1.18	1.15	0.95	1.12	0.98	1.11	1.23
87.50°	1.04	0.96	0.97	1.11	0.72	0.99	1.28	1.03	0.89	0.63	1.00	0.86	0.88	0.74	0.76	0.99	1.04
90.00°	0.81	0.99	0.85	0.72	0.87	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.90	0.81
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.

<b>RCR</b>	<b>pfc</b>	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	<b>pcc</b>	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	<b>0</b>	1060	1060	1060	1060	1035	1035	1035	1035	989	989	989	947	947	947	909	909	890
	<b>1</b>	1017	994	974	957	995	975	957	941	939	925	912	907	896	885	876	868	851
	<b>2</b>	974	936	904	878	955	921	892	868	893	869	849	866	848	831	842	827	814
	<b>3</b>	934	884	845	814	917	872	836	808	849	819	795	828	803	783	808	788	771
	<b>4</b>	895	837	794	761	880	827	787	757	808	775	748	791	763	740	775	751	731
	<b>5</b>	858	794	749	716	845	786	744	712	771	734	706	756	725	700	743	716	694
	<b>6</b>	823	755	708	675	811	748	705	673	735	697	669	723	690	664	712	683	660
	<b>7</b>	790	718	672	640	779	713	669	638	702	663	635	692	657	632	683	652	628
	<b>8</b>	759	685	639	607	749	680	637	606	671	632	604	663	627	601	655	623	599
	<b>9</b>	729	654	609	578	720	650	607	577	643	603	575	635	599	573	628	596	572
	<b>10</b>	701	626	581	551	693	622	579	550	616	576	549	609	573	547	603	570	546

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	49.4 fc	5.0 ft
6.5 ft	35.3 fc	5.9 ft
7.5 ft	26.5 fc	6.8 ft
8.0 ft	23.3 fc	7.3 ft
10.0 ft	14.9 fc	9.1 ft
12.0 ft	10.4 fc	10.9 ft
14.0 ft	7.6 fc	12.7 ft
16.0 ft	5.8 fc	14.6 ft
20.0 ft	3.7 fc	18.2 ft
24.0 ft	2.6 fc	21.8 ft
28.0 ft	1.9 fc	25.5 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	187875	187875	187875
<b>45.00°</b>	638	595	512
<b>55.00°</b>	287	330	300
<b>65.00°</b>	483	409	433
<b>75.00°</b>	596	644	549
<b>85.00°</b>	1769	1889	1411

### 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	-8.7	-7.8	-8.3	-7.5	-7.2	-7.3	-6.4	-7.0	-6.1	-5.8
	3H	-5.3	-4.5	-4.9	-4.1	-3.8	-4.1	-3.3	-3.7	-3.0	-2.6
	4H	-3.0	-2.2	-2.5	-1.9	-1.5	-2.8	-2.0	-2.4	-1.7	-1.3
	6H	-1.5	-0.9	-1.1	-0.5	-0.1	-1.2	-0.5	-0.8	-0.1	0.3
	8H	-0.6	0.0	-0.2	0.4	0.8	-0.2	0.5	0.3	0.8	1.3
	12H	0.7	1.3	1.2	1.7	2.2	0.8	1.4	1.3	1.8	2.3
4H	2H	-7.6	-6.9	-7.2	-6.5	-6.2	-6.3	-5.5	-5.9	-5.2	-4.8
	3H	-3.6	-3.0	-3.2	-2.6	-2.2	-2.9	-2.3	-2.5	-1.9	-1.5
	4H	-1.1	-0.6	-0.7	-0.2	0.3	-1.6	-1.1	-1.2	-0.7	-0.2
	6H	0.3	0.8	0.8	1.2	1.7	0.2	0.6	0.6	1.1	1.6
	8H	1.3	1.7	1.7	2.1	2.6	1.3	1.7	1.8	2.2	2.7
	12H	2.6	3.0	3.1	3.4	3.9	2.5	2.9	3.0	3.3	3.8
8H	4H	-0.2	0.2	0.3	0.6	1.1	-0.7	-0.3	-0.3	0.1	0.6
	6H	1.5	1.8	2.0	2.3	2.8	1.3	1.6	1.8	2.2	2.6
	8H	2.5	2.8	3.1	3.3	3.8	2.6	2.9	3.2	3.5	4.0
	12H	4.0	4.3	4.5	4.8	5.3	4.0	4.3	4.6	4.8	5.4
12H	4H	-0.1	0.3	0.4	0.8	1.3	-0.6	-0.2	-0.1	0.3	0.7
	6H	1.8	2.1	2.4	2.6	3.1	1.6	1.9	2.2	2.4	3.0
	8H	3.0	3.3	3.5	3.8	4.3	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