

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CW04XXPC 15L 35K ND XX CL XX

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

Test Number

SP-01050_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	834
Efficacy	87.84 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.35
Two luminaires, plane 90°	0.35
Four luminaires	0.37

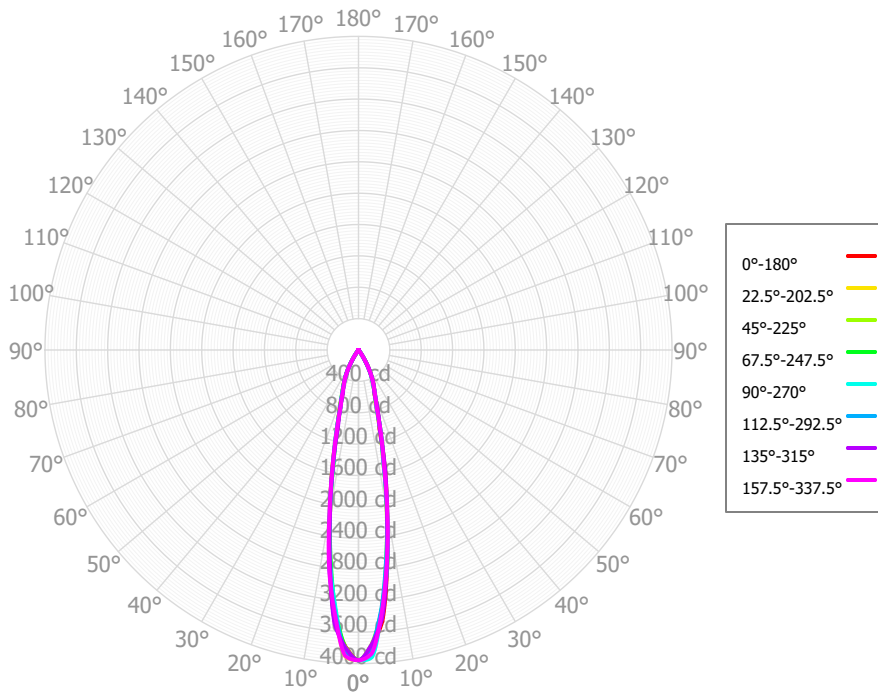
Full Beam Angle

0° - 180°	21°
90° - 270°	21°

IES File Header Contents

Keyword	Value
TEST	SP-01050_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 ND XX CL XX
LUMINAIRE	Nom 4" diam Gamma Cylinder (wet location), ND optic, clear glass lens
OTHER	Beam Angle: 21.2 deg
OTHER	Narrow 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°	282.15	33.81%	90.00° - 100.00°	0.07	0.01%
10.00° - 20.00°	308.25	36.94%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	185.83	22.27%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	47.52	5.69%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	3.25	0.39%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	3.25	0.39%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	1.81	0.22%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	1.26	0.15%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.10	0.13%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	834.42	99.99%	0.00° - 180.00°	834.49	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°	3957.94	3957.94	3957.94	3957.94	3957.94	3957.94	3957.94	3957.94	3957.94	3957.94	3957.94	3957.94	3957.94	3957.94	3957.94	3957.94	3957.94
2.50°	3786.47	3890.41	3766.00	3805.37	3922.53	3837.38	3803.70	3903.74	3789.85	3910.17	3794.14	3808.75	3886.57	3790.34	3768.56	3875.41	3786.47
5.00°	3476.50	3346.88	3363.64	3348.08	3357.83	3387.98	3501.20	3409.00	3477.97	3366.66	3396.49	3355.70	3328.80	3328.33	3440.19	3374.40	3476.50
7.50°	2796.92	2769.16	2702.15	2792.87	2787.33	2830.13	2781.25	2852.46	2772.46	2804.48	2806.61	2717.13	2764.21	2700.72	2778.52	2758.31	2796.92
10.00°	2093.35	2111.38	2076.33	2101.61	2114.56	2109.02	2087.28	2139.80	2091.17	2116.83	2090.37	2090.35	2110.27	2091.21	2089.25	2126.15	2093.35
12.50°	1558.47	1453.22	1486.47	1527.81	1461.74	1512.15	1513.46	1517.16	1538.28	1478.97	1533.08	1469.05	1484.12	1489.38	1567.02	1490.41	1558.47
15.00°	1029.78	1087.84	1057.99	1097.66	1094.21	1077.26	1011.80	1087.15	1045.74	1093.99	1065.90	1073.38	1102.05	1096.66	1052.69	1108.14	1029.78
17.50°	814.77	731.85	773.02	794.75	749.61	772.70	777.24	756.38	804.61	758.03	797.80	766.46	754.46	779.94	821.79	769.68	814.77
20.00°	604.94	613.45	596.51	627.07	619.09	617.80	580.73	610.02	597.97	623.31	626.37	612.73	623.77	622.13	596.86	627.07	604.94
22.50°	518.37	497.57	503.79	502.91	494.21	498.80	499.79	489.78	507.84	499.38	515.29	509.35	500.77	512.21	512.33	510.17	518.37
25.00°	430.77	413.64	410.57	419.53	406.49	415.63	413.98	411.28	414.69	411.36	429.52	413.99	415.75	415.12	426.80	415.82	430.77
27.50°	330.53	327.85	317.01	323.99	316.42	321.68	315.59	322.66	312.98	319.58	329.22	320.84	327.01	321.24	324.57	323.47	330.53
30.00°	231.08	226.71	220.77	218.52	214.55	218.38	219.12	220.06	214.62	217.26	223.81	221.67	223.73	220.70	223.43	222.14	231.08
32.50°	138.31	131.07	122.96	131.36	121.05	131.09	126.83	132.16	124.26	126.03	135.92	121.17	129.93	118.84	133.60	120.33	138.31
35.00°	54.88	69.45	62.95	57.32	61.43	56.03	56.18	62.16	54.34	61.06	53.24	65.60	66.42	64.05	51.69	66.13	54.88
37.50°	28.05	17.28	21.94	20.94	14.20	19.14	25.89	20.60	25.98	15.09	24.25	17.72	17.87	16.31	26.52	13.45	28.05
40.00°	5.75	9.92	7.09	7.88	7.74	7.52	6.30	9.12	7.08	7.95	8.21	8.96	9.83	8.03	5.21	8.56	5.75
42.50°	4.56	3.97	3.63	3.38	3.00	3.23	4.16	3.64	4.92	3.39	4.82	5.27	4.35	4.08	4.59	3.92	4.56
45.00°	3.74	3.51	2.96	3.43	2.98	3.14	2.89	3.74	3.58	3.36	3.90	4.58	4.70	3.67	4.06	3.75	3.74
47.50°	4.34	3.16	3.32	3.48	2.97	2.95	2.85	3.60	3.52	3.63	3.74	4.14	4.77	3.50	3.93	3.62	4.34
50.00°	4.64	3.18	3.40	3.54	2.96	2.71	3.03	3.25	3.68	4.34	3.69	4.00	4.29	4.08	3.82	3.81	4.64
52.50°	3.95	3.36	3.39	3.58	3.01	2.83	3.50	3.25	4.14	4.72	3.70	3.87	4.07	4.67	3.78	4.02	3.95
55.00°	3.33	3.99	3.27	3.61	3.18	3.10	3.77	3.48	3.79	4.67	3.72	4.68	4.28	4.55	3.73	4.34	3.33
57.50°	2.89	3.99	3.12	2.93	3.13	2.71	3.85	3.44	2.51	4.12	3.83	5.45	4.07	4.39	3.61	4.40	2.89
60.00°	2.45	2.57	2.41	2.02	2.66	2.09	3.34	3.22	1.95	3.00	3.95	3.64	3.25	3.32	3.39	2.96	2.45
62.50°	2.00	1.59	1.57	1.57	2.15	1.78	2.28	2.73	2.13	2.17	2.89	1.90	2.55	2.29	2.91	1.80	2.00
65.00°	1.72	1.46	1.10	1.25	1.56	1.56	1.65	2.08	1.89	1.63	1.82	1.51	2.01	1.80	2.47	1.89	1.72
67.50°	1.76	1.26	0.69	1.12	1.30	1.30	1.35	1.63	1.30	1.22	1.49	1.20	1.57	1.38	2.14	1.93	1.76
70.00°	1.60	0.94	0.95	1.04	1.40	1.03	1.25	1.24	1.07	0.92	1.24	1.38	1.23	1.30	1.94	1.85	1.60
72.50°	1.16	0.98	1.19	1.12	1.25	0.90	1.22	1.13	0.99	0.98	1.32	1.44	0.96	1.28	1.92	1.80	1.16
75.00°	0.93	1.28	1.20	1.15	1.01	0.85	1.29	1.08	1.01	1.13	1.29	1.28	0.75	1.36	1.54	1.78	0.93
77.50°	0.85	1.07	1.17	1.08	0.83	0.90	1.19	1.11	1.20	1.35	1.24	1.24	1.01	1.34	1.05	1.45	0.85
80.00°	1.06	1.01	1.11	0.85	1.05	1.12	1.10	1.51	1.23	1.06	1.41	1.25	1.16	1.23	1.21	1.17	1.06
82.50°	1.23	1.11	0.98	1.11	1.25	1.00	1.20	0.93	1.12	0.75	1.15	1.25	1.42	1.03	1.03	1.17	1.23
85.00°	1.04	1.16	1.10	1.00	1.12	1.32	1.05	0.88	1.01	0.81	0.93	1.27	1.53	0.87	0.85	0.97	1.04
87.50°	0.77	1.14	0.97	0.79	0.92	1.11	1.09	1.47	1.20	1.03	1.13	1.40	1.04	0.86	0.89	1.02	0.77
90.00°	0.96	0.98	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	0.97	0.91	1.10	0.85	0.96
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	993	993	993	993	970	970	970	970	927	927	927	888	888	888	851	851	851	834
	1	958	939	923	907	938	921	907	893	888	876	866	858	849	840	829	822	816	806
	2	924	893	866	844	907	879	855	835	853	834	817	828	813	800	806	794	783	779
	3	893	852	820	795	878	841	812	789	820	796	777	801	781	765	783	767	753	753
	4	863	816	781	755	850	807	775	750	790	763	742	775	752	734	760	741	726	728
	5	835	784	747	721	824	776	743	718	763	734	712	750	725	706	738	717	700	705
	6	809	754	718	691	799	748	714	689	737	707	685	727	701	680	717	694	676	683
	7	784	728	691	665	775	723	688	664	713	683	660	705	678	657	697	673	654	662
	8	761	703	667	642	753	699	665	641	691	660	638	684	656	636	677	652	634	642
	9	739	681	645	621	732	677	643	620	671	640	618	664	636	616	658	633	614	624
	10	719	660	625	601	712	657	623	601	651	620	599	646	618	598	641	615	596	607

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	130.8 fc	2.0 ft
6.5 ft	93.7 fc	2.4 ft
7.5 ft	70.4 fc	2.8 ft
8.0 ft	61.8 fc	3.0 ft
10.0 ft	39.6 fc	3.7 ft
12.0 ft	27.5 fc	4.5 ft
14.0 ft	20.2 fc	5.2 ft
16.0 ft	15.5 fc	5.9 ft
20.0 ft	9.9 fc	7.4 ft
24.0 ft	6.9 fc	8.9 ft
28.0 ft	5.0 fc	10.4 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	498105	498105	498105
45.00°	665	527	531
55.00°	732	718	699
65.00°	513	328	464
75.00°	454	582	491
85.00°	1501	1583	1615

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	-0.4	0.4	-0.1	0.8	1.1	-0.1	0.8	0.3	1.1	1.4
	3H	0.3	1.1	0.7	1.5	1.8	0.3	1.1	0.7	1.5	1.8
	4H	0.7	1.5	1.1	1.8	2.2	0.6	1.3	1.0	1.7	2.1
	6H	1.3	1.9	1.7	2.3	2.7	1.2	1.8	1.6	2.2	2.6
	8H	1.8	2.4	2.3	2.8	3.3	1.8	2.5	2.3	2.9	3.3
	12H	2.5	3.1	2.9	3.5	3.9	2.8	3.4	3.2	3.8	4.2
4H	2H	-0.4	0.3	0.0	0.7	1.1	-0.1	0.6	0.3	1.0	1.4
	3H	0.7	1.3	1.1	1.7	2.1	0.5	1.1	0.9	1.5	1.9
	4H	1.4	2.0	1.9	2.4	2.8	1.0	1.5	1.4	1.9	2.4
	6H	2.2	2.7	2.7	3.1	3.6	1.9	2.4	2.4	2.8	3.3
	8H	2.9	3.4	3.4	3.8	4.3	2.8	3.2	3.3	3.6	4.1
	12H	3.8	4.1	4.3	4.6	5.1	4.0	4.4	4.5	4.9	5.3
8H	4H	1.7	2.1	2.2	2.6	3.0	1.2	1.7	1.7	2.1	2.6
	6H	2.8	3.1	3.3	3.6	4.1	2.5	2.9	3.1	3.4	3.9
	8H	3.7	4.0	4.2	4.5	5.0	3.6	3.9	4.1	4.4	4.9
	12H	4.8	5.1	5.3	5.6	6.2	5.2	5.4	5.7	5.9	6.5
12H	4H	1.7	2.1	2.2	2.6	3.1	1.3	1.7	1.8	2.2	2.7
	6H	2.9	3.2	3.5	3.7	4.2	2.8	3.0	3.3	3.5	4.1
	8H	4.0	4.2	4.5	4.7	5.3	4.0	4.2	4.5	4.7	5.3

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0