

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

994 Jefferson Street  
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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

CK0407PC 15L 35K WD xx NL xx MW  
Nom. 4.5" Diam x 7"H Round Cylinder, Wide Beam

### **Test Number**

SP-01443\_M-15L

### **Test Date**

11/23/2022

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	1042
Efficacy	109.73 lm/W

#### Luminous Dimensions

0° - 180° Size	-0.38
90° - 270° Size	-0.38
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	0.58
Two luminaires, plane 90°	0.59
Four luminaires	0.63

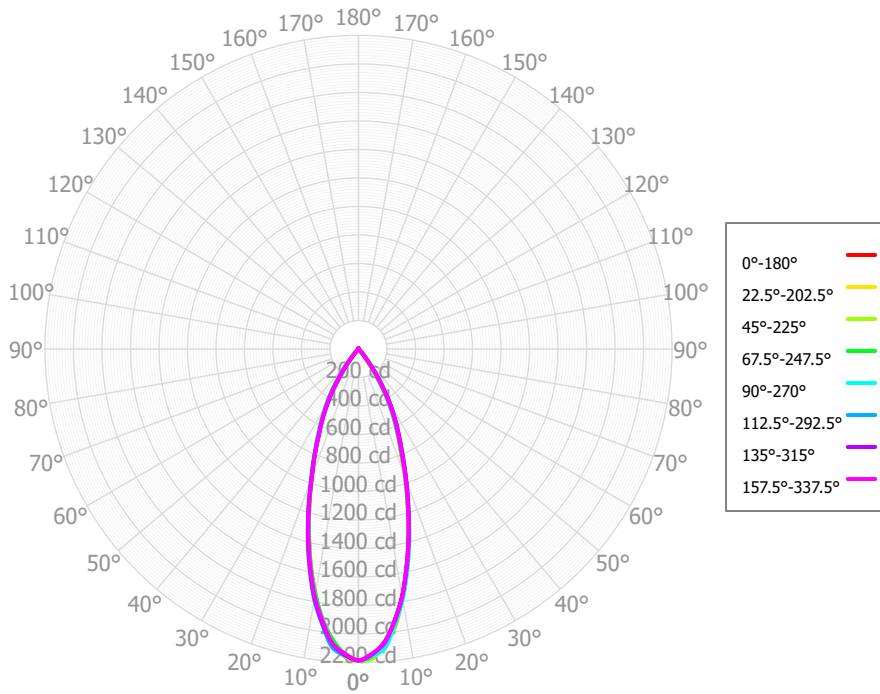
#### Full Beam Angle

0° - 180°	36°
90° - 270°	37°

### IES File Header Contents

Keyword	Value
TEST	SP-01443_M-15L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/23/2022
ISSUEDATE	11/23/2022
LUMCAT	CK0407PC 15L 35K WD xx NL xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Round Cylinder, Wide Beam
OTHER	No lens, Matte White finish
OTHER	37 Degree Beam Angle
OTHER	Reference Project SL378
LAMP	N/A
LAMPCAT	N/A, Min. 80 CRI
OTHER	Total Luminaire Watts is approximate
OTHER	CCT Multipliers: 27K x 0.95, 30K x 0.97, 40K x 1.03
OTHER	This report prepared by Spectrum Lighting

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	189.83	18.21%	90.00° - 100.00°	2.17	0.21%
10.00° - 20.00°	371.54	35.64%	100.00° - 110.00°	2.12	0.20%
20.00° - 30.00°	303.06	29.07%	100.00° - 120.00°	4.13	0.40%
30.00° - 40.00°	132.97	12.76%	120.00° - 130.00°	1.88	0.18%
40.00° - 50.00°	15.25	1.46%	130.00° - 140.00°	1.70	0.16%
50.00° - 60.00°	5.61	0.54%	140.00° - 150.00°	1.40	0.13%
60.00° - 70.00°	4.86	0.47%	150.00° - 160.00°	1.09	0.10%
70.00° - 80.00°	3.55	0.34%	160.00° - 170.00°	0.64	0.06%
80.00° - 90.00°	2.51	0.24%	170.00° - 180.00°	0.22	0.02%
0.00° - 90.00°	1029.19	98.73%	0.00° - 180.00°	1042.41	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°	2184.67	2184.67	2184.67	2184.67	2184.67	2184.67	2184.67	2184.67	2184.67	2184.67	2184.67	2184.67	2184.67	2184.67	2184.67	2184.67	2184.67
2.50°	2164.21	2156.53	2176.12	2161.00	2156.88	2153.72	2149.69	2141.76	2160.09	2143.86	2160.64	2143.86	2142.94	2141.54	2146.81	2141.56	2164.21
5.00°	2069.59	2078.90	2074.80	2078.12	2108.79	2103.90	2077.75	2078.96	2059.67	2059.70	2050.18	2052.41	2076.72	2077.21	2066.60	2073.12	2069.59
7.50°	1952.84	1941.86	1966.31	1952.55	1948.86	1948.49	1941.38	1926.99	1930.20	1915.96	1926.73	1918.08	1924.11	1924.96	1931.79	1926.59	1952.84
10.00°	1763.70	1769.31	1770.98	1777.01	1785.14	1787.64	1773.59	1768.15	1747.43	1745.63	1742.95	1744.94	1761.91	1764.09	1762.34	1764.23	1763.70
12.50°	1562.31	1563.54	1573.81	1578.31	1582.76	1581.37	1575.97	1563.63	1554.01	1547.00	1553.39	1551.07	1558.92	1560.00	1562.88	1561.11	1562.31
15.00°	1355.54	1356.55	1360.51	1366.86	1378.74	1374.54	1367.69	1359.20	1346.16	1339.24	1346.06	1343.20	1357.56	1357.69	1362.78	1358.16	1355.54
17.50°	1148.30	1148.70	1150.54	1151.10	1165.77	1165.12	1163.26	1155.74	1148.19	1144.77	1146.77	1147.27	1160.78	1161.06	1162.25	1155.51	1148.30
20.00°	960.36	958.23	957.14	963.04	963.93	966.92	959.73	958.29	960.25	953.06	965.05	957.45	975.15	975.19	980.12	967.08	960.36
22.50°	776.24	776.97	778.77	781.07	800.25	802.33	803.66	798.66	800.63	803.92	803.29	804.64	812.45	814.10	806.95	798.61	776.24
25.00°	653.45	642.09	648.19	648.80	649.15	652.42	654.02	650.25	663.18	659.52	673.32	665.31	671.75	671.15	674.68	655.96	653.45
27.50°	531.28	524.80	520.90	522.58	527.75	534.43	539.06	544.38	545.07	552.10	553.83	554.19	564.18	558.51	556.46	540.44	531.28
30.00°	413.43	408.37	400.91	401.01	407.79	416.63	426.11	435.68	438.18	445.73	447.13	449.91	454.16	444.38	436.55	423.24	413.43
32.50°	298.79	292.17	287.36	280.35	290.36	299.15	314.00	319.49	328.45	331.17	339.17	341.24	341.31	328.39	316.25	304.70	298.79
35.00°	196.97	193.72	184.52	183.56	186.59	195.19	204.37	211.69	217.49	219.40	230.06	231.90	236.36	222.97	212.74	202.37	196.97
37.50°	108.99	98.13	103.42	92.35	100.60	107.18	120.28	119.78	131.44	132.55	141.88	145.41	138.26	127.65	111.49	109.81	108.99
40.00°	59.45	56.86	49.16	51.39	46.20	51.80	46.20	55.10	52.87	56.40	68.02	61.17	74.60	66.18	64.01	58.80	59.45
42.50°	23.41	19.63	19.18	16.41	23.53	26.13	27.35	28.47	27.15	31.50	32.35	37.89	33.23	28.93	20.16	26.54	23.41
45.00°	14.00	13.49	12.31	11.76	12.16	13.70	12.19	12.78	11.40	12.05	16.49	16.09	15.59	13.90	14.19	14.94	14.00
47.50°	7.93	7.76	8.92	7.97	9.29	10.29	9.71	8.85	8.37	9.47	10.47	11.85	9.55	10.59	8.64	9.83	7.93
50.00°	6.69	7.37	8.01	6.96	7.76	8.52	7.78	6.78	6.66	7.48	8.08	8.07	7.29	8.64	7.29	8.13	6.69
52.50°	6.01	6.97	6.99	6.15	6.98	7.60	7.21	6.21	6.04	6.80	6.93	6.87	6.34	7.22	6.09	7.11	6.01
55.00°	5.95	6.51	5.90	5.78	6.42	6.75	6.58	5.90	5.50	6.42	6.07	5.83	6.01	6.56	5.65	6.41	5.95
57.50°	5.52	6.05	5.34	5.42	5.95	5.94	5.84	5.75	5.69	6.52	5.56	5.38	5.83	6.12	5.33	5.75	5.52
60.00°	4.78	5.62	4.97	5.04	5.52	5.73	5.56	5.42	5.77	6.32	5.10	5.13	5.59	6.06	5.41	5.25	4.78
62.50°	4.59	5.27	4.97	4.84	5.09	5.66	5.89	5.00	5.05	5.77	4.34	5.34	5.34	6.06	5.39	4.79	4.59
65.00°	4.75	5.16	5.07	4.85	4.90	5.31	5.63	4.70	4.44	5.37	3.56	5.19	5.17	5.28	5.10	4.87	4.75
67.50°	4.66	4.86	4.56	4.47	4.74	4.91	4.76	4.43	4.32	5.12	3.92	4.41	5.00	4.44	4.70	4.89	4.66
70.00°	4.46	4.21	3.95	3.73	4.15	4.51	4.24	4.31	4.20	4.73	4.23	3.87	4.21	4.16	4.12	4.30	4.46
72.50°	3.92	3.58	3.32	3.24	3.52	4.12	3.98	4.21	4.06	4.23	3.89	3.66	3.44	3.87	3.64	3.74	3.92
75.00°	3.27	2.96	2.69	2.93	2.99	4.14	3.46	3.64	3.78	3.52	3.53	3.21	3.03	3.41	3.30	3.34	3.27
77.50°	2.89	2.57	2.48	2.85	2.50	4.09	2.80	3.02	3.19	2.70	3.05	2.51	2.65	3.04	3.15	2.97	2.89
80.00°	2.57	2.40	2.26	2.89	2.66	3.31	2.54	2.55	2.65	2.36	2.68	2.27	2.43	3.22	3.21	2.68	2.57
82.50°	2.10	2.29	2.04	2.63	2.78	2.61	2.45	2.10	2.17	2.20	2.69	2.38	2.24	3.27	2.82	2.44	2.10
85.00°	1.61	2.22	1.88	2.24	2.64	2.29	2.42	2.03	2.00	2.19	2.61	2.12	2.17	2.82	2.12	2.30	1.61
87.50°	1.90	2.22	2.16	2.12	2.42	2.05	2.40	1.98	2.22	2.22	2.28	1.64	2.09	2.48	1.84	2.10	1.90
90.00°	2.22	2.27	2.30	2.08	1.91	2.14	2.26	2.12	2.18	2.50	2.02	1.76	1.96	2.46	1.81	1.84	2.22
92.50°	2.11	2.28	1.91	1.85	1.60	2.11	2.09	2.21	1.89	2.81	1.91	2.12	1.89	2.36	2.00	1.72	2.11
95.00°	1.99	2.27	1.67	1.59	1.86	1.83	1.97	2.04	1.84	2.54	1.74	1.93	1.92	2.12	2.29	1.77	1.99
97.50°	1.87	2.08	1.83	1.74	2.06	1.75	1.86	1.92	1.93	2.24	1.50	1.57	1.98	1.98	2.34	1.91	1.87
100.00°	1.79	1.84	2.01	1.92	2.16	2.02	2.13	1.94	1.83	1.97	1.54	1.61	2.09	1.99	2.33	2.14	1.79

### 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>	1238	1238	1238	1238	1207	1207	1207	1207	1151	1151	1151	1099	1099	1099	1052	1052	1029
	<b>1</b>	1185	1158	1134	1112	1158	1134	1113	1094	1090	1073	1058	1049	1036	1024	1012	1002	981
	<b>2</b>	1134	1088	1050	1018	1110	1069	1034	1005	1034	1006	981	1001	978	959	971	953	933
	<b>3</b>	1085	1025	979	942	1064	1010	968	933	981	946	917	955	926	901	930	907	889
	<b>4</b>	1039	969	918	879	1020	957	910	873	934	893	862	912	878	850	892	863	847
	<b>5</b>	996	919	865	825	979	909	859	821	889	846	813	871	834	805	854	822	807
	<b>6</b>	955	873	818	779	940	864	813	776	848	803	769	833	794	763	819	784	771
	<b>7</b>	916	831	776	737	902	824	772	735	810	764	730	797	756	726	785	749	736
	<b>8</b>	880	793	738	700	867	787	735	699	775	728	695	764	722	692	754	716	705
	<b>9</b>	846	758	704	667	835	752	701	666	742	696	663	733	690	660	724	685	675
	<b>10</b>	814	725	672	637	804	721	670	636	712	665	633	703	661	631	696	657	647

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	72.2 fc	3.6 ft
6.5 ft	51.7 fc	4.3 ft
7.5 ft	38.8 fc	4.9 ft
8.0 ft	34.1 fc	5.3 ft
10.0 ft	21.8 fc	6.6 ft
12.0 ft	15.2 fc	7.9 ft
14.0 ft	11.1 fc	9.2 ft
16.0 ft	8.5 fc	10.5 ft
20.0 ft	5.5 fc	13.2 ft
24.0 ft	3.8 fc	15.8 ft
28.0 ft	2.8 fc	18.5 ft

### Average Luminaire Luminance [cd/m<sup>2</sup>]

	0.00°	45.00°	90.00°
<b>0.00°</b>	207347	207347	207347
<b>45.00°</b>	1880	1652	1632
<b>55.00°</b>	985	977	1062
<b>65.00°</b>	1066	1138	1100
<b>75.00°</b>	1199	988	1097
<b>85.00°</b>	1751	2051	2872

### 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	0.5	1.4	0.9	1.8	2.1	0.4	1.3	0.8	1.6	2.0
	3H	3.0	3.8	3.5	4.2	4.6	2.9	3.7	3.3	4.1	4.5
	4H	4.0	4.7	4.4	5.1	5.5	3.9	4.6	4.3	5.0	5.4
	6H	4.9	5.6	5.3	6.0	6.4	4.8	5.5	5.2	5.9	6.3
	8H	5.3	6.0	5.8	6.4	6.8	5.4	6.0	5.8	6.4	6.9
	12H	5.7	6.3	6.2	6.7	7.2	6.1	6.7	6.5	7.1	7.5
4H	2H	1.3	2.0	1.7	2.4	2.8	1.0	1.8	1.5	2.2	2.6
	3H	3.9	4.5	4.3	4.9	5.4	3.8	4.4	4.3	4.9	5.3
	4H	5.0	5.5	5.4	6.0	6.4	5.0	5.6	5.5	6.0	6.5
	6H	6.0	6.5	6.5	7.0	7.5	6.2	6.6	6.7	7.1	7.6
	8H	6.6	7.0	7.1	7.5	8.0	6.8	7.2	7.3	7.7	8.2
	12H	7.1	7.5	7.6	8.0	8.5	7.6	8.0	8.1	8.5	9.0
8H	4H	5.3	5.7	5.8	6.2	6.7	5.5	5.9	6.0	6.4	6.9
	6H	6.6	7.0	7.2	7.5	8.0	6.9	7.2	7.4	7.7	8.2
	8H	7.4	7.7	7.9	8.2	8.7	7.7	8.0	8.2	8.5	9.1
	12H	8.2	8.4	8.7	9.0	9.6	8.7	8.9	9.2	9.5	10.1
12H	4H	5.4	5.8	5.9	6.3	6.8	5.5	5.9	6.0	6.4	6.9
	6H	6.8	7.1	7.4	7.6	8.2	7.0	7.3	7.6	7.8	8.4
	8H	7.7	7.9	8.2	8.5	9.1	8.0	8.2	8.5	8.7	9.4

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0