

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

CK0407PC 30L 35K XW xx NL xx MW  
Nom. 4.5" Diam x 7"H Round Cylinder, Xtra Wide Beam

### **Test Number**

SP-01445\_M-30L

### **Test Date**

10/26/2022

The results contained in this report pertain only to this IES file.

### Summary of Results

#### Power

Input Watts	17.8 W
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#### Lumen Output

Output Lumens	1817
Efficacy	102.07 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.98
Two luminaires, plane 90°	1
Four luminaires	0.93

#### Full Beam Angle

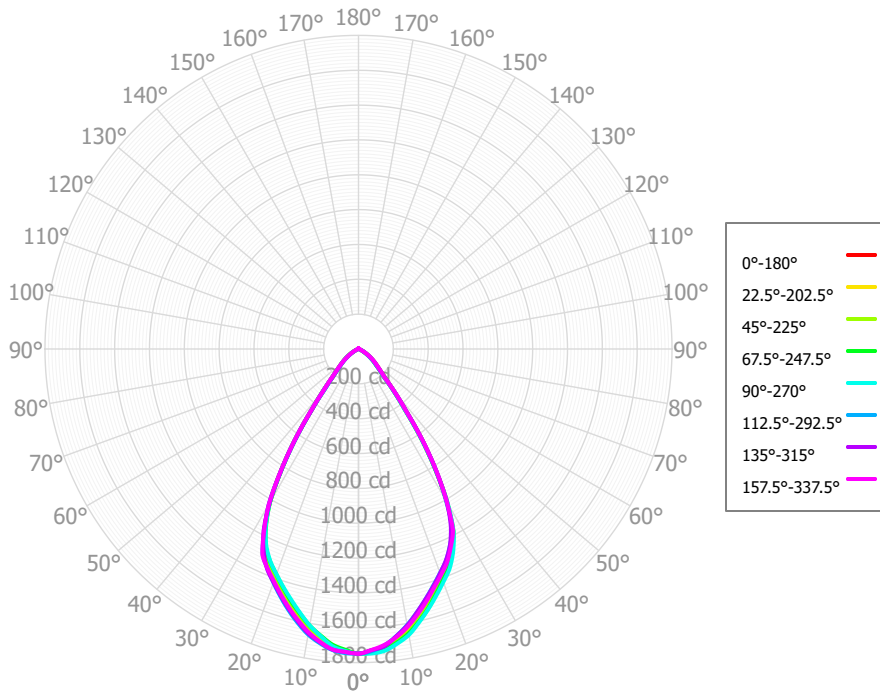
0° - 180°	64°
90° - 270°	64°

### IES File Header Contents

Keyword	Value
TEST	SP-01445_M-30L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	10/26/2022
ISSUEDATE	11/22/2022
LUMCAT	CK0407PC 30L 35K XW xx NL xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Round Cylinder, Xtra Wide Beam
OTHER	No lens, Matte White finish
OTHER	64 Degree Beam Angle
OTHER	Reference Project SL378
LAMP	N/A
LAMPCAT	N/A, Min. 80 CRI
OTHER	Total Luminaire Watts is approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	80
_CCTMULT	27K x 0.95, 30K x 0.97, 40K x 1.03
_LAMPMULT	10L x 0.34, 15L x 0.49, 20L x 0.67

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**Candela Polar Plot**



**Zonal Lumen Summary**

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	163.65	9.01%	90.00° - 100.00°	2.08	0.11%
10.00° - 20.00°	426.32	23.46%	100.00° - 110.00°	2.06	0.11%
20.00° - 30.00°	571.18	31.44%	100.00° - 120.00°	4.00	0.22%
30.00° - 40.00°	393.47	21.66%	120.00° - 130.00°	1.79	0.10%
40.00° - 50.00°	145.75	8.02%	130.00° - 140.00°	1.63	0.09%
50.00° - 60.00°	71.43	3.93%	140.00° - 150.00°	1.40	0.08%
60.00° - 70.00°	23.68	1.30%	150.00° - 160.00°	1.07	0.06%
70.00° - 80.00°	5.97	0.33%	160.00° - 170.00°	0.65	0.04%
80.00° - 90.00°	2.61	0.14%	170.00° - 180.00°	0.22	0.01%
0.00° - 90.00°	1804.08	99.29%	0.00° - 180.00°	1816.93	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°	1749.06	1749.06	1749.06	1749.06	1749.06	1749.06	1749.06	1749.06	1749.06	1749.06	1749.06	1749.06	1749.06	1749.06	1749.06	1749.06	1749.06
2.50°	1732.76	1745.17	1743.72	1744.50	1749.75	1747.57	1741.11	1741.39	1733.82	1740.09	1732.60	1728.71	1735.87	1736.60	1730.42	1729.44	1732.76
5.00°	1717.50	1726.75	1732.37	1733.17	1738.77	1734.13	1731.58	1730.77	1718.47	1720.07	1709.29	1704.34	1712.73	1707.74	1713.33	1705.27	1717.50
7.50°	1675.51	1692.52	1693.42	1699.69	1706.14	1703.61	1697.95	1695.65	1681.65	1678.93	1666.91	1659.76	1662.63	1662.88	1662.96	1668.00	1675.51
10.00°	1631.57	1646.05	1652.38	1658.55	1666.97	1664.78	1658.70	1651.33	1640.67	1629.86	1621.07	1613.04	1611.60	1609.08	1611.46	1620.11	1631.57
12.50°	1572.45	1588.48	1591.79	1603.05	1607.45	1610.92	1603.13	1596.44	1584.73	1575.21	1564.31	1555.52	1550.99	1548.78	1548.94	1562.35	1572.45
15.00°	1512.86	1526.63	1530.91	1543.11	1546.98	1552.29	1545.73	1539.12	1527.78	1519.21	1506.64	1497.71	1490.92	1487.37	1487.05	1501.83	1512.86
17.50°	1451.42	1462.04	1468.67	1477.36	1484.60	1490.32	1484.69	1479.34	1468.56	1461.70	1447.08	1437.31	1433.43	1425.40	1428.24	1439.51	1451.42
20.00°	1390.81	1400.65	1407.30	1415.07	1424.01	1427.72	1425.62	1419.28	1410.40	1404.00	1389.77	1377.87	1376.43	1368.93	1369.81	1382.44	1390.81
22.50°	1332.36	1340.71	1348.41	1356.05	1365.96	1365.13	1369.27	1364.46	1353.90	1346.02	1335.75	1323.67	1320.89	1314.35	1312.50	1327.72	1332.36
25.00°	1259.16	1263.25	1272.83	1274.64	1285.61	1301.78	1287.54	1304.75	1275.29	1284.13	1261.63	1256.90	1251.38	1243.46	1242.77	1254.15	1259.16
27.50°	1160.29	1180.76	1165.15	1178.26	1182.49	1168.84	1181.22	1172.94	1171.70	1158.18	1166.80	1150.75	1154.67	1169.22	1148.24	1174.94	1160.29
30.00°	1020.16	1011.36	1019.25	1016.24	1023.92	1029.39	1022.40	1030.87	1020.01	1021.93	1015.72	1016.53	1018.03	1005.36	1015.61	1012.59	1020.16
32.50°	829.82	828.17	822.32	823.10	825.37	824.09	826.65	831.20	829.86	824.38	823.68	822.99	827.52	832.59	828.76	836.21	829.82
35.00°	640.45	633.36	629.68	626.21	628.22	623.44	632.70	636.38	638.54	631.05	631.88	633.00	638.45	636.60	640.82	641.85	640.45
37.50°	451.94	440.06	441.09	428.18	431.77	444.50	439.62	457.75	446.55	451.79	440.22	448.15	450.80	446.56	451.78	447.99	451.94
40.00°	323.13	322.48	312.16	312.29	310.39	294.58	319.35	312.62	323.51	305.32	318.73	313.52	320.95	324.21	319.92	328.98	323.13
42.50°	231.44	214.14	224.08	210.80	214.51	226.19	223.05	239.86	227.16	232.09	221.39	231.89	231.07	215.33	228.59	218.88	231.44
45.00°	182.30	177.13	173.65	171.05	171.00	170.91	178.70	183.02	181.07	176.36	177.70	179.02	179.01	176.59	176.94	183.00	182.30
47.50°	151.14	143.08	140.95	136.17	138.00	140.91	144.34	150.13	146.98	147.35	145.54	147.58	144.97	142.40	145.35	149.75	151.14
50.00°	126.80	121.36	116.71	114.34	114.20	114.51	120.37	122.45	122.93	121.14	123.71	122.82	122.09	122.05	122.03	127.69	126.80
52.50°	104.36	99.74	95.06	92.89	91.28	92.93	97.25	100.37	100.16	98.02	102.90	101.51	102.80	101.79	101.46	106.11	104.36
55.00°	84.08	78.38	75.88	74.72	71.39	72.37	76.28	80.12	80.92	78.08	83.14	81.60	83.33	81.73	81.72	85.75	84.08
57.50°	64.12	59.14	57.15	57.09	52.18	52.80	56.00	61.26	62.04	60.61	63.67	62.18	63.82	63.60	62.13	66.53	64.12
60.00°	49.57	43.71	42.78	41.85	40.30	37.97	42.66	46.05	47.37	46.29	47.54	46.89	48.13	48.21	46.91	49.32	49.57
62.50°	35.43	30.79	28.79	28.64	28.83	26.39	30.19	32.84	33.32	33.70	32.36	32.49	32.80	35.56	32.11	34.95	35.43
65.00°	25.99	20.99	20.80	20.98	19.48	18.21	21.80	23.08	23.12	23.80	22.12	23.45	23.84	25.68	22.89	24.23	25.99
67.50°	17.11	14.29	13.23	14.30	11.61	11.64	14.28	14.57	14.26	14.92	13.55	14.93	15.27	17.54	14.13	16.09	17.11
70.00°	12.30	10.32	9.69	9.45	8.16	8.20	9.27	10.71	10.08	10.58	10.05	10.38	10.61	10.66	10.35	10.30	12.30
72.50°	7.96	7.55	6.49	6.31	5.41	5.75	5.65	7.88	6.69	7.29	7.22	6.15	6.56	7.14	6.93	6.94	7.96
75.00°	5.48	5.54	4.80	5.43	4.05	4.58	4.68	5.98	5.08	5.45	5.79	5.23	5.41	5.30	5.36	5.12	5.48
77.50°	3.56	4.67	3.36	4.54	3.10	3.64	3.91	4.19	3.75	3.77	4.65	4.38	4.37	4.32	4.05	4.06	3.56
80.00°	3.04	4.29	2.65	3.64	2.74	3.01	3.39	3.24	2.86	3.37	3.91	3.93	3.67	3.62	3.54	3.33	3.04
82.50°	2.56	3.27	2.20	2.94	2.30	2.41	2.83	2.34	2.23	2.99	3.15	3.42	3.02	2.85	2.96	2.87	2.56
85.00°	2.13	2.07	2.26	2.38	1.79	2.31	2.23	1.91	1.87	2.41	2.37	2.70	2.46	2.07	2.23	2.48	2.13
87.50°	1.86	2.18	2.21	2.08	1.53	2.22	1.87	1.63	1.71	1.93	2.10	2.14	2.14	1.75	1.80	2.05	1.86
90.00°	1.77	2.49	2.02	1.91	1.46	2.20	1.67	2.15	1.70	2.00	2.19	1.88	2.14	1.48	1.77	1.63	1.77
92.50°	1.73	2.19	1.99	1.97	1.59	2.13	1.76	2.47	1.77	2.06	2.02	1.71	2.06	1.81	1.76	1.83	1.73
95.00°	1.72	1.87	2.10	2.08	1.82	1.85	2.00	2.16	1.88	2.11	1.70	1.69	1.91	2.09	1.77	2.06	1.72
97.50°	1.88	1.56	2.21	1.94	1.89	1.64	2.07	1.91	2.05	2.07	1.83	1.73	1.80	1.89	1.84	1.89	1.88
100.00°	2.13	1.33	2.33	1.77	1.89	1.66	2.08	1.78	2.24	1.81	2.10	1.84	1.72	1.73	1.94	1.75	2.13

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### 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>	2160	2160	2160	2160	2108	2108	2108	2108	2012	2012	2012	1923	1923	1923	1842	1842	1804
	<b>1</b>	2050	1996	1947	1903	2003	1955	1911	1872	1879	1844	1812	1809	1781	1755	1744	1723	1687
	<b>2</b>	1938	1842	1763	1697	1896	1810	1738	1677	1748	1689	1638	1691	1643	1600	1639	1600	1567
	<b>3</b>	1830	1704	1607	1529	1792	1677	1588	1515	1627	1551	1489	1581	1517	1464	1537	1485	1455
	<b>4</b>	1728	1580	1472	1389	1693	1558	1458	1380	1517	1430	1362	1478	1404	1345	1442	1379	1352
	<b>5</b>	1633	1470	1356	1271	1601	1451	1345	1265	1416	1323	1252	1384	1303	1240	1354	1284	1259
	<b>6</b>	1544	1370	1254	1170	1515	1355	1245	1165	1325	1228	1156	1298	1212	1147	1272	1197	1175
	<b>7</b>	1461	1281	1164	1082	1435	1268	1157	1079	1243	1144	1072	1219	1131	1065	1197	1119	1099
	<b>8</b>	1385	1201	1085	1005	1361	1189	1079	1003	1168	1068	997	1148	1058	992	1129	1048	1030
	<b>9</b>	1314	1128	1014	937	1293	1118	1010	935	1100	1001	931	1082	992	927	1066	983	968
	<b>10</b>	1249	1063	951	877	1229	1054	947	875	1038	940	872	1023	932	869	1008	925	911

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	57.8 fc	6.8 ft
6.5 ft	41.4 fc	8.1 ft
7.5 ft	31.1 fc	9.3 ft
8.0 ft	27.3 fc	10.0 ft
10.0 ft	17.5 fc	12.5 ft
12.0 ft	12.1 fc	14.9 ft
14.0 ft	8.9 fc	17.4 ft
16.0 ft	6.8 fc	19.9 ft
20.0 ft	4.4 fc	24.9 ft
24.0 ft	3.0 fc	29.9 ft
28.0 ft	2.2 fc	34.9 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	166004	166004	166004
<b>45.00°</b>	24469	23308	22952
<b>55.00°</b>	13912	12556	11813
<b>65.00°</b>	5837	4670	4375
<b>75.00°</b>	2008	1759	1485
<b>85.00°</b>	2324	2461	1945

### 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	14.9	15.9	15.3	16.3	16.6	14.3	15.3	14.6	15.7	16.0
	3H	15.0	16.0	15.4	16.3	16.7	14.4	15.3	14.8	15.6	16.0
	4H	15.0	15.9	15.4	16.2	16.6	14.3	15.2	14.7	15.6	16.0
	6H	14.9	15.7	15.4	16.1	16.5	14.3	15.1	14.7	15.5	15.9
	8H	14.9	15.7	15.4	16.1	16.5	14.3	15.0	14.7	15.4	15.8
	12H	14.9	15.6	15.3	16.0	16.4	14.2	14.9	14.7	15.3	15.8
4H	2H	14.8	15.7	15.2	16.1	16.5	14.2	15.1	14.7	15.5	15.9
	3H	15.0	15.7	15.4	16.1	16.6	14.4	15.1	14.8	15.5	15.9
	4H	15.0	15.6	15.4	16.0	16.5	14.4	15.0	14.8	15.4	15.9
	6H	15.0	15.5	15.4	16.0	16.5	14.3	14.9	14.8	15.3	15.8
	8H	14.9	15.4	15.4	15.9	16.4	14.3	14.8	14.8	15.3	15.8
	12H	14.9	15.4	15.4	15.9	16.4	14.3	14.8	14.8	15.3	15.8
8H	4H	14.9	15.4	15.4	15.8	16.3	14.2	14.7	14.7	15.2	15.7
	6H	14.9	15.3	15.4	15.8	16.3	14.3	14.7	14.8	15.2	15.7
	8H	14.9	15.2	15.4	15.8	16.3	14.3	14.6	14.8	15.2	15.7
	12H	14.9	15.2	15.4	15.7	16.3	14.3	14.6	14.9	15.2	15.8
12H	4H	14.8	15.2	15.3	15.7	16.2	14.2	14.6	14.7	15.1	15.6
	6H	14.8	15.2	15.4	15.7	16.2	14.2	14.6	14.8	15.1	15.6
	8H	14.8	15.2	15.4	15.7	16.3	14.3	14.6	14.8	15.1	15.7

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0