

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

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

### **Test Number**

SP-01446\_M-30L

### **Test Date**

11/21/2022

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	1588
Efficacy	89.2 lm/W

### Luminous Dimensions

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

### Spacing Criterion

Two luminaires, plane 0°	0.91
Two luminaires, plane 90°	0.92
Four luminaires	0.89

### Full Beam Angle

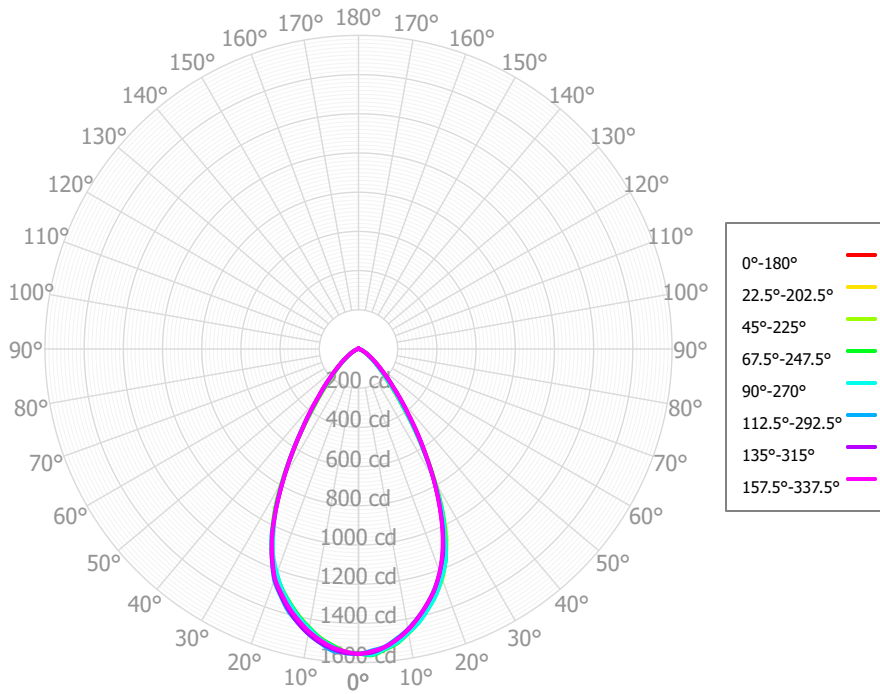
0° - 180°	60°
90° - 270°	60°

## IES File Header Contents

Keyword	Value
TEST	SP-01446_M-30L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/21/2022
ISSUEDATE	12/01/2022
LUMCAT	CK0407PC 30L 35K XW xx SO xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Round Cylinder, Xtra Wide Beam
OTHER	Solite lens, Matte White finish
OTHER	60 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°	145.84	9.19%	90.00° - 100.00°	2.09	0.13%
10.00° - 20.00°	380.14	23.94%	100.00° - 110.00°	2.02	0.13%
20.00° - 30.00°	466.22	29.36%	100.00° - 120.00°	3.93	0.25%
30.00° - 40.00°	318.79	20.08%	120.00° - 130.00°	1.77	0.11%
40.00° - 50.00°	153.31	9.66%	130.00° - 140.00°	1.58	0.10%
50.00° - 60.00°	70.35	4.43%	140.00° - 150.00°	1.34	0.08%
60.00° - 70.00°	28.79	1.81%	150.00° - 160.00°	0.99	0.06%
70.00° - 80.00°	9.06	0.57%	160.00° - 170.00°	0.62	0.04%
80.00° - 90.00°	2.69	0.17%	170.00° - 180.00°	0.21	0.01%
0.00° - 90.00°	1575.18	99.21%	0.00° - 180.00°	1587.71	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°	1555.36	1555.36	1555.36	1555.36	1555.36	1555.36	1555.36	1555.36	1555.36	1555.36	1555.36	1555.36	1555.36	1555.36	1555.36	1555.36	1555.36
2.50°	1550.69	1555.15	1555.10	1564.48	1561.02	1550.09	1552.70	1544.63	1548.51	1546.15	1546.95	1546.41	1553.42	1540.37	1550.51	1544.37	1550.69
5.00°	1530.04	1534.96	1539.08	1539.92	1536.54	1545.74	1535.96	1528.11	1524.84	1521.04	1524.49	1517.97	1523.83	1524.81	1528.12	1527.18	1530.04
7.50°	1502.12	1505.68	1509.02	1514.60	1511.02	1512.30	1510.89	1498.25	1495.38	1490.13	1488.77	1488.09	1493.70	1490.14	1495.56	1495.76	1502.12
10.00°	1457.31	1464.62	1471.49	1471.54	1470.46	1476.65	1475.59	1462.37	1454.01	1449.63	1446.99	1443.50	1448.88	1452.81	1452.48	1456.31	1457.31
12.50°	1409.45	1419.24	1423.22	1427.76	1428.42	1431.09	1431.40	1416.88	1409.77	1403.73	1397.95	1397.83	1403.32	1403.21	1403.97	1405.74	1409.45
15.00°	1355.66	1364.84	1370.15	1372.13	1373.50	1385.11	1377.86	1367.64	1358.24	1349.98	1346.47	1344.20	1348.46	1350.34	1348.17	1350.00	1355.66
17.50°	1294.20	1307.73	1311.34	1314.86	1316.08	1321.73	1317.33	1308.64	1305.29	1291.74	1292.48	1288.65	1291.46	1285.60	1289.21	1288.12	1294.20
20.00°	1219.71	1234.56	1250.33	1242.00	1243.54	1257.17	1250.30	1246.52	1231.37	1227.93	1226.72	1222.91	1217.48	1214.02	1212.04	1211.63	1219.71
22.50°	1132.05	1157.38	1160.43	1163.50	1162.99	1154.99	1156.16	1147.96	1154.47	1146.03	1150.28	1148.78	1138.08	1122.41	1128.08	1119.82	1132.05
25.00°	1025.34	1041.60	1061.41	1045.98	1044.14	1050.02	1040.40	1040.08	1035.46	1044.88	1046.28	1038.81	1026.09	1020.76	1015.57	1012.24	1025.34
27.50°	905.43	918.41	925.67	923.13	918.77	906.97	908.36	904.25	912.50	921.18	920.88	920.40	909.16	894.00	894.37	890.47	905.43
30.00°	769.19	776.26	780.24	773.21	769.06	764.90	764.88	762.58	768.60	776.26	780.15	773.38	769.89	764.88	766.31	763.78	769.19
32.50°	639.20	631.46	636.07	626.87	625.10	631.02	632.51	631.81	623.50	634.23	629.08	631.14	634.10	630.84	636.59	633.29	639.20
35.00°	516.03	509.19	492.17	495.33	498.44	501.96	506.80	502.72	504.81	494.51	497.54	502.06	510.67	508.92	523.82	518.98	516.03
37.50°	411.92	389.20	387.05	375.72	383.99	403.13	406.87	408.22	387.49	384.82	377.35	386.75	397.44	408.35	414.37	415.63	411.92
40.00°	325.64	311.70	287.84	295.26	300.89	310.85	319.99	317.69	311.45	295.83	293.23	303.99	314.72	320.95	334.66	332.49	325.64
42.50°	257.16	236.59	230.12	224.40	229.39	249.26	255.41	256.69	237.08	231.72	226.82	233.63	242.47	253.83	259.21	260.99	257.16
45.00°	202.96	193.46	177.08	179.21	182.67	192.73	200.61	197.74	192.69	182.67	180.23	187.84	196.01	198.27	209.04	208.26	202.96
47.50°	160.98	151.04	145.16	139.54	141.94	154.74	160.39	161.07	149.79	146.21	142.06	148.85	154.73	157.89	161.51	164.67	160.98
50.00°	127.63	122.50	114.66	112.56	112.33	119.89	125.47	125.06	121.62	116.21	115.44	121.25	124.30	124.55	131.23	131.22	127.63
52.50°	102.94	94.52	92.04	88.57	87.32	94.71	99.54	101.90	94.64	93.73	92.87	97.29	97.85	99.36	101.96	102.06	102.94
55.00°	83.47	76.19	69.68	70.37	69.56	72.24	76.27	79.03	76.22	74.55	75.84	78.66	78.55	78.66	83.21	80.79	83.47
57.50°	65.97	58.38	56.60	54.81	54.41	56.62	60.61	62.47	58.84	59.53	60.39	62.13	61.63	62.41	64.72	62.26	65.97
60.00°	49.51	46.06	43.67	43.56	42.77	43.19	46.82	46.52	46.87	46.05	47.64	48.24	48.33	48.89	52.03	49.38	49.51
62.50°	38.33	34.33	33.99	33.86	32.98	34.52	37.46	37.37	35.80	36.26	35.52	37.38	37.58	37.70	39.53	38.09	38.33
65.00°	29.49	26.75	24.58	26.38	25.38	27.06	28.95	28.55	28.33	27.58	27.31	29.77	30.22	29.09	30.48	29.88	29.49
67.50°	22.61	19.57	18.11	19.75	18.90	21.85	22.17	22.38	21.42	21.89	19.81	22.91	23.23	22.44	21.75	22.39	22.61
70.00°	16.44	14.53	12.03	14.17	13.55	16.59	15.64	16.57	16.36	16.96	14.89	16.76	16.66	16.79	16.32	16.24	16.44
72.50°	11.93	9.93	8.90	10.07	9.78	11.25	11.47	12.80	11.85	12.90	10.30	12.05	11.70	11.77	11.17	10.34	11.93
75.00°	7.93	7.17	6.05	7.54	7.37	7.33	7.52	9.21	8.82	9.01	7.91	8.51	8.34	8.21	8.12	7.45	7.93
77.50°	5.50	4.82	4.73	5.50	5.35	5.33	5.61	6.41	6.21	6.84	5.70	6.02	5.97	5.43	5.34	4.97	5.50
80.00°	3.46	3.82	3.50	3.89	3.63	3.81	3.81	3.98	4.55	4.91	4.36	4.30	4.48	3.71	3.99	3.50	3.46
82.50°	2.61	2.94	2.64	2.82	2.48	2.84	2.94	2.88	3.19	3.49	3.05	3.29	3.26	2.49	2.83	2.11	2.61
85.00°	1.98	2.41	1.92	2.16	1.70	2.23	2.10	2.00	2.44	2.12	2.53	2.71	2.26	2.03	2.48	1.84	1.98
87.50°	2.00	1.99	1.67	1.98	1.58	1.97	1.94	1.74	1.95	2.06	2.03	2.19	1.86	1.87	2.20	1.61	2.00
90.00°	2.12	1.83	1.48	2.15	1.82	1.92	1.78	1.54	1.91	2.07	2.00	1.71	1.86	1.97	2.10	1.65	2.12
92.50°	1.97	1.74	1.47	2.13	1.86	2.03	1.65	1.45	1.84	2.05	1.97	1.76	2.15	2.16	2.12	1.69	1.97
95.00°	1.79	1.77	1.52	1.99	1.80	2.06	1.53	1.41	1.74	2.02	2.01	2.07	2.60	2.10	2.45	1.83	1.79
97.50°	2.01	1.82	1.71	1.87	1.87	2.02	1.55	1.47	1.80	2.13	2.01	2.16	2.49	1.98	2.60	1.96	2.01
100.00°	2.25	1.89	1.82	1.76	1.99	1.96	1.57	1.53	2.07	2.23	1.68	2.17	2.12	1.97	2.33	1.93	2.25

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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>	1887	1887	1887	1887	1842	1842	1842	1842	1757	1757	1757	1680	1680	1680	1609	1609	1575
	<b>1</b>	1789	1740	1697	1658	1748	1704	1666	1630	1638	1606	1578	1576	1551	1528	1519	1500	1469
	<b>2</b>	1689	1603	1533	1473	1651	1574	1510	1456	1520	1467	1421	1470	1427	1389	1424	1389	1360
	<b>3</b>	1593	1480	1393	1324	1559	1457	1377	1312	1412	1345	1290	1371	1315	1268	1333	1286	1260
	<b>4</b>	1502	1371	1275	1201	1472	1352	1262	1193	1315	1238	1177	1281	1215	1162	1249	1193	1170
	<b>5</b>	1418	1274	1173	1098	1390	1257	1163	1092	1227	1144	1081	1198	1126	1070	1171	1109	1088
	<b>6</b>	1341	1187	1084	1010	1315	1173	1076	1006	1147	1061	997	1123	1047	989	1100	1034	1015
	<b>7</b>	1269	1109	1006	933	1245	1098	1000	930	1075	988	924	1055	977	918	1035	966	949
	<b>8</b>	1202	1040	937	867	1181	1030	932	865	1011	923	860	993	913	855	976	904	889
	<b>9</b>	1141	977	876	808	1122	968	872	807	952	864	803	936	857	799	922	849	835
	<b>10</b>	1085	920	822	757	1067	913	819	755	898	812	752	885	806	749	872	799	787

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	51.4 fc	6.3 ft
6.5 ft	36.8 fc	7.4 ft
7.5 ft	27.7 fc	8.6 ft
8.0 ft	24.3 fc	9.1 ft
10.0 ft	15.6 fc	11.4 ft
12.0 ft	10.8 fc	13.7 ft
14.0 ft	7.9 fc	16.0 ft
16.0 ft	6.1 fc	18.3 ft
20.0 ft	3.9 fc	22.9 ft
24.0 ft	2.7 fc	27.4 ft
28.0 ft	2.0 fc	32.0 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	147619	147619	147619
<b>45.00°</b>	27242	23769	24519
<b>55.00°</b>	13811	11531	11510
<b>65.00°</b>	6622	5521	5699
<b>75.00°</b>	2907	2218	2703
<b>85.00°</b>	2158	2086	1853

### UGR CIE 190:2010

<b>Ceiling reflectance</b>		<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>	<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>
<b>Wall reflectance</b>		<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>
<b>Plane reflectance</b>		<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>
<b>Room dimensions</b>		<b>Viewed crosswise</b>					<b>Viewed endwise</b>				
<b>2H</b>	<b>2H</b>	15.1	16.2	15.5	16.6	16.9	14.9	16.0	15.2	16.3	16.6
	<b>3H</b>	15.6	16.5	16.0	16.9	17.3	15.3	16.3	15.7	16.7	17.1
	<b>4H</b>	15.6	16.5	16.0	16.9	17.3	15.4	16.3	15.8	16.7	17.1
	<b>6H</b>	15.6	16.4	16.0	16.8	17.2	15.4	16.2	15.8	16.6	17.0
	<b>8H</b>	15.5	16.3	16.0	16.7	17.2	15.4	16.2	15.8	16.6	17.0
	<b>12H</b>	15.5	16.3	16.0	16.7	17.1	15.4	16.1	15.8	16.5	16.9
<b>4H</b>	<b>2H</b>	15.2	16.1	15.6	16.5	16.9	15.0	15.9	15.4	16.2	16.7
	<b>3H</b>	15.7	16.4	16.1	16.9	17.3	15.6	16.3	16.0	16.7	17.1
	<b>4H</b>	15.8	16.4	16.2	16.9	17.3	15.7	16.3	16.1	16.7	17.2
	<b>6H</b>	15.8	16.3	16.3	16.8	17.3	15.7	16.2	16.2	16.7	17.2
	<b>8H</b>	15.8	16.3	16.2	16.7	17.2	15.7	16.2	16.2	16.7	17.1
	<b>12H</b>	15.7	16.2	16.2	16.7	17.2	15.7	16.1	16.2	16.6	17.1
<b>8H</b>	<b>4H</b>	15.7	16.2	16.2	16.7	17.2	15.6	16.1	16.1	16.6	17.1
	<b>6H</b>	15.7	16.1	16.2	16.7	17.2	15.7	16.1	16.2	16.6	17.1
	<b>8H</b>	15.7	16.1	16.3	16.6	17.1	15.7	16.0	16.2	16.6	17.1
	<b>12H</b>	15.7	16.1	16.3	16.6	17.2	15.7	16.0	16.2	16.5	17.1
<b>12H</b>	<b>4H</b>	15.7	16.1	16.2	16.6	17.1	15.5	16.0	16.1	16.5	17.0
	<b>6H</b>	15.7	16.1	16.2	16.5	17.1	15.6	16.0	16.2	16.5	17.0
	<b>8H</b>	15.7	16.0	16.2	16.5	17.1	15.7	16.0	16.2	16.5	17.1

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0