

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

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

Test Number

SP-01441_M-30L

Test Date

10/27/2022

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	1930
Efficacy	108.45 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.39
Two luminaires, plane 90°	0.39
Four luminaires	0.42

Full Beam Angle

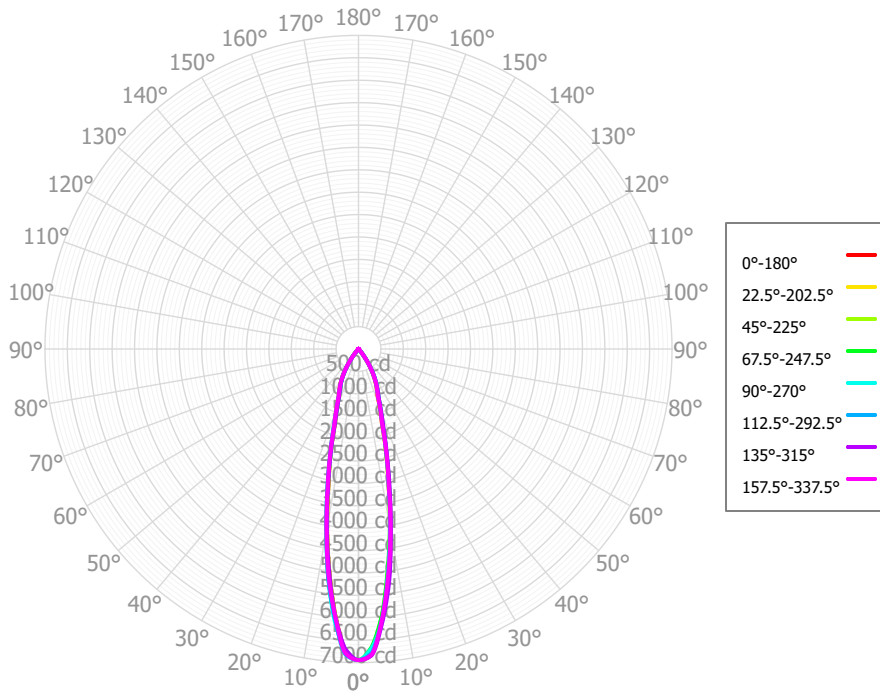
0° - 180°	23°
90° - 270°	23°

IES File Header Contents

Keyword	Value
TEST	SP-01441_M-30L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	10/27/2022
ISSUEDATE	11/22/2022
LUMCAT	CK0407PC 30L 35K ND xx NL xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Round Cylinder, Narrow Beam
OTHER	No lens, Matte White finish
OTHER	23 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°	514.88	26.67%	90.00° - 100.00°	1.63	0.08%
10.00° - 20.00°	669.70	34.69%	100.00° - 110.00°	1.70	0.09%
20.00° - 30.00°	455.65	23.60%	100.00° - 120.00°	3.26	0.17%
30.00° - 40.00°	224.09	11.61%	120.00° - 130.00°	1.49	0.08%
40.00° - 50.00°	23.99	1.24%	130.00° - 140.00°	1.39	0.07%
50.00° - 60.00°	12.64	0.65%	140.00° - 150.00°	1.22	0.06%
60.00° - 70.00°	12.28	0.64%	150.00° - 160.00°	0.94	0.05%
70.00° - 80.00°	4.02	0.21%	160.00° - 170.00°	0.56	0.03%
80.00° - 90.00°	2.53	0.13%	170.00° - 180.00°	0.18	0.01%
0.00° - 90.00°	1919.78	99.45%	0.00° - 180.00°	1930.45	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°	6944.30	6944.30	6944.30	6944.30	6944.30	6944.30	6944.30	6944.30	6944.30	6944.30	6944.30	6944.30	6944.30	6944.30	6944.30	6944.30	6944.30
2.50°	6824.50	6757.81	6815.79	6666.59	6691.44	6818.96	6708.52	6796.77	6732.85	6784.63	6742.34	6757.91	6724.97	6789.20	6841.02	6821.59	6824.50
5.00°	6041.36	6000.28	6015.94	5977.85	6094.15	6038.38	5983.54	5988.02	5961.65	5999.11	5960.88	6042.82	6095.16	6048.10	6115.70	6047.26	6041.36
7.50°	5168.20	5036.38	5140.69	4982.77	5058.37	5167.07	5015.45	5120.10	4999.52	5130.64	4996.30	5151.88	5153.57	5086.83	5238.35	5083.79	5168.20
10.00°	4106.47	4059.06	4095.04	4032.11	4076.73	4130.25	4070.44	4112.83	4045.95	4091.72	4042.58	4086.91	4090.92	4103.47	4151.73	4100.74	4106.47
12.50°	3154.66	3078.10	3153.29	3109.18	3177.01	3201.69	3135.44	3190.77	3094.59	3162.42	3091.38	3175.23	3212.92	3113.15	3211.40	3113.41	3154.66
15.00°	2395.13	2371.79	2409.91	2391.03	2415.05	2439.16	2403.67	2437.82	2405.56	2421.43	2393.03	2392.46	2394.07	2417.55	2444.33	2405.70	2395.13
17.50°	1783.39	1722.51	1812.00	1781.81	1829.40	1831.21	1745.35	1827.70	1769.41	1827.90	1738.52	1816.85	1861.99	1795.04	1857.89	1744.53	1783.39
20.00°	1392.62	1390.55	1447.08	1414.63	1409.05	1426.73	1389.36	1454.92	1439.18	1447.81	1408.84	1391.10	1404.13	1452.60	1455.85	1412.70	1392.62
22.50°	1109.35	1108.09	1168.21	1154.46	1170.91	1142.93	1121.04	1171.81	1154.95	1167.94	1119.62	1132.32	1170.47	1162.75	1177.97	1118.31	1109.35
25.00°	962.11	958.11	1007.49	978.68	987.22	993.93	971.78	1014.41	1006.53	1012.74	983.19	977.05	981.09	999.40	1007.80	968.97	962.11
27.50°	812.74	821.93	843.21	834.05	854.53	848.41	849.39	861.99	871.56	863.30	858.91	837.83	835.63	853.46	844.26	829.12	812.74
30.00°	661.04	655.98	674.81	668.44	698.25	706.18	692.64	715.58	707.72	720.02	699.92	706.97	696.41	680.42	685.60	663.21	661.04
32.50°	501.38	488.22	506.05	496.61	522.91	545.98	529.95	555.51	542.38	561.95	539.71	546.25	529.38	504.90	519.52	496.72	501.38
35.00°	334.33	326.10	336.95	335.58	356.73	371.08	365.76	381.25	377.32	390.41	374.80	372.66	359.70	342.62	348.75	336.00	334.33
37.50°	200.83	165.91	198.72	177.07	196.82	225.60	201.39	234.24	214.34	244.63	213.28	231.13	220.52	180.95	212.33	179.92	200.83
40.00°	93.72	93.96	86.83	97.89	100.92	100.81	113.82	111.27	122.70	118.78	124.24	101.11	82.95	105.52	94.09	106.25	93.72
42.50°	40.49	25.94	30.97	32.85	41.89	41.92	31.98	45.27	36.09	52.62	41.29	50.14	48.86	32.53	43.36	38.16	40.49
45.00°	23.67	18.53	16.22	18.26	18.42	22.12	20.14	21.94	21.67	26.09	23.53	21.95	16.69	21.56	22.85	23.86	23.67
47.50°	14.93	11.90	10.16	10.17	12.35	13.33	10.45	11.85	8.80	13.71	7.93	13.64	12.71	11.38	14.49	11.40	14.93
50.00°	10.87	12.07	9.50	10.29	10.47	10.00	9.62	10.27	8.99	9.23	7.78	9.89	9.18	10.87	10.59	11.09	10.87
52.50°	11.92	12.78	11.58	11.07	10.30	11.14	9.05	10.53	9.52	9.00	8.26	10.12	11.69	10.96	11.07	11.42	11.92
55.00°	15.45	16.76	15.09	14.16	13.93	14.13	13.57	11.79	12.00	10.79	12.04	11.04	14.20	15.81	12.87	14.94	15.45
57.50°	18.77	20.04	18.24	17.31	18.82	16.55	17.77	14.89	14.55	14.31	15.40	14.59	16.74	19.91	16.88	17.76	18.77
60.00°	22.02	20.09	21.23	16.72	19.17	18.76	18.63	18.83	17.43	18.52	17.10	18.47	18.39	19.92	21.40	17.99	22.02
62.50°	18.51	18.79	17.84	15.97	18.31	15.27	18.64	17.02	18.22	15.73	17.31	15.54	14.88	18.70	17.70	16.92	18.51
65.00°	12.77	12.60	12.15	11.64	14.66	10.19	12.69	13.05	11.80	10.69	12.81	12.11	11.39	12.24	12.55	11.94	12.77
67.50°	8.57	7.38	8.78	7.45	10.43	8.03	7.40	9.92	6.67	7.34	8.90	8.63	7.96	6.96	8.95	7.81	8.57
70.00°	4.77	4.92	6.10	4.87	6.74	6.49	5.51	7.04	5.14	4.43	6.48	5.18	5.04	5.64	5.56	5.82	4.77
72.50°	3.88	3.13	4.65	2.65	3.14	5.30	3.98	5.31	3.86	3.58	4.69	3.90	3.90	4.46	4.41	4.15	3.88
75.00°	3.59	2.94	3.49	3.01	3.03	4.17	3.91	3.85	3.14	3.13	4.25	2.71	3.02	3.70	3.44	3.12	3.59
77.50°	3.65	3.09	3.30	3.28	3.30	3.67	3.80	4.15	2.70	3.11	3.87	3.28	2.84	3.13	3.02	2.66	3.65
80.00°	3.76	3.92	3.28	3.09	2.77	3.24	3.59	4.77	2.80	3.16	3.60	3.73	2.67	2.99	2.63	3.21	3.76
82.50°	2.90	3.86	2.64	2.79	2.18	2.67	3.27	3.68	2.60	2.93	3.15	2.99	2.49	2.60	2.63	3.14	2.90
85.00°	1.94	2.29	1.92	2.06	2.00	2.10	2.66	2.36	1.92	2.68	2.46	2.27	2.22	1.74	2.60	2.17	1.94
87.50°	1.74	1.47	1.99	1.52	1.82	1.75	2.20	1.97	1.53	1.90	1.84	1.74	1.77	1.23	1.94	1.60	1.74
90.00°	1.58	1.69	2.11	1.60	1.68	1.42	2.07	1.67	1.55	1.10	1.34	1.27	1.46	1.28	1.34	1.53	1.58
92.50°	1.56	1.74	1.97	1.59	1.54	1.48	1.87	1.58	1.53	1.14	1.08	1.15	1.36	1.52	1.53	1.50	1.56
95.00°	1.53	1.56	1.82	1.35	1.46	1.54	1.57	1.50	1.47	1.19	1.11	1.05	1.20	2.02	1.69	1.50	1.53
97.50°	1.22	1.45	1.73	1.34	1.41	1.52	1.51	1.67	1.49	1.29	1.31	1.00	0.96	2.03	1.64	1.64	1.22
100.00°	0.96	1.42	1.65	1.82	1.59	1.50	1.82	1.83	1.59	1.38	1.68	1.05	1.05	1.49	1.59	1.92	0.96

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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%	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	2296	2296	2296	2296	2241	2241	2241	2241	2139	2139	2139	2046	2046	2046	1960	1960	1960	1920
	1	2204	2158	2116	2078	2157	2115	2078	2044	2036	2007	1980	1963	1940	1919	1896	1878	1862	1840
	2	2117	2036	1970	1914	2075	2003	1943	1892	1940	1891	1849	1882	1843	1809	1829	1797	1770	1762
	3	2033	1929	1848	1784	1996	1902	1829	1769	1852	1791	1740	1805	1755	1712	1762	1721	1685	1688
	4	1955	1834	1745	1677	1922	1812	1730	1667	1771	1702	1647	1733	1674	1627	1698	1649	1608	1618
	5	1881	1748	1655	1587	1852	1730	1644	1579	1697	1622	1565	1666	1601	1551	1636	1581	1537	1553
	6	1812	1671	1576	1508	1786	1656	1567	1503	1628	1550	1492	1602	1534	1482	1578	1518	1472	1492
	7	1747	1601	1506	1439	1724	1588	1499	1435	1565	1485	1428	1543	1472	1420	1522	1460	1412	1436
	8	1686	1537	1442	1378	1665	1526	1437	1375	1506	1426	1369	1487	1416	1363	1470	1405	1357	1383
	9	1629	1478	1385	1322	1610	1469	1380	1320	1452	1372	1315	1436	1363	1311	1420	1355	1306	1335
	10	1575	1424	1333	1272	1558	1416	1329	1270	1401	1322	1267	1387	1314	1263	1374	1308	1260	1289

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	229.6 fc	2.3 ft
6.5 ft	164.4 fc	2.7 ft
7.5 ft	123.5 fc	3.1 ft
8.0 ft	108.5 fc	3.3 ft
10.0 ft	69.4 fc	4.1 ft
12.0 ft	48.2 fc	4.9 ft
14.0 ft	35.4 fc	5.7 ft
16.0 ft	27.1 fc	6.6 ft
20.0 ft	17.4 fc	8.2 ft
24.0 ft	12.1 fc	9.8 ft
28.0 ft	8.9 fc	11.5 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	659085	659085	659085
45.00°	3177	2177	2473
55.00°	2556	2497	2305
65.00°	2868	2729	3292
75.00°	1317	1279	1113
85.00°	2117	2093	2174

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	6.6	7.6	7.0	7.9	8.2	5.6	6.5	5.9	6.8	7.1
	3H	7.2	8.0	7.6	8.3	8.7	6.5	7.3	6.9	7.7	8.1
	4H	7.3	8.0	7.7	8.4	8.8	6.7	7.4	7.1	7.8	8.2
	6H	7.6	8.3	8.0	8.6	9.1	6.9	7.6	7.3	8.0	8.4
	8H	7.8	8.4	8.2	8.8	9.2	7.1	7.7	7.5	8.1	8.5
	12H	7.9	8.5	8.4	8.9	9.4	7.2	7.8	7.7	8.2	8.7
4H	2H	7.0	7.7	7.4	8.1	8.5	6.2	6.9	6.6	7.3	7.7
	3H	7.6	8.2	8.0	8.6	9.0	7.2	7.8	7.6	8.2	8.6
	4H	7.7	8.3	8.2	8.7	9.2	7.3	7.9	7.8	8.3	8.8
	6H	8.2	8.6	8.6	9.1	9.6	7.7	8.2	8.2	8.7	9.1
	8H	8.5	8.9	8.9	9.4	9.8	7.9	8.4	8.4	8.8	9.3
	12H	8.7	9.1	9.2	9.6	10.1	8.2	8.6	8.7	9.1	9.6
8H	4H	7.7	8.1	8.2	8.6	9.1	7.4	7.8	7.9	8.3	8.8
	6H	8.3	8.7	8.9	9.2	9.7	8.0	8.4	8.5	8.9	9.4
	8H	8.8	9.1	9.4	9.7	10.2	8.4	8.7	8.9	9.2	9.7
	12H	9.2	9.5	9.8	10.0	10.6	8.8	9.0	9.3	9.6	10.2
12H	4H	7.7	8.1	8.2	8.6	9.1	7.4	7.8	7.9	8.3	8.8
	6H	8.4	8.7	8.9	9.1	9.7	8.1	8.4	8.7	8.9	9.5
	8H	8.9	9.2	9.5	9.7	10.3	8.6	8.8	9.1	9.3	9.9

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0