

## Indoor Distribution Test Report

# Spectrum Lighting Inc.

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## Spectrum Lighting Photometric Lab

### Luminaire

CW04XXUDPC 20LWDCL 20LWDCL 35KXX XXMW (IND/DIR Wet location)  
Nom. 4" Diam. Gamma Indirect/Direct Cylinder

### Test Number

SP-01088

### Test Date

1/20/2020

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

### Summary of Results

#### Power

Input Watts	25.8 W
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#### Lumen Output

Output Lumens	2409
Efficacy	93.36 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.77
Two luminaires, plane 90°	0.79
Four luminaires	0.74

#### Full Beam Angle

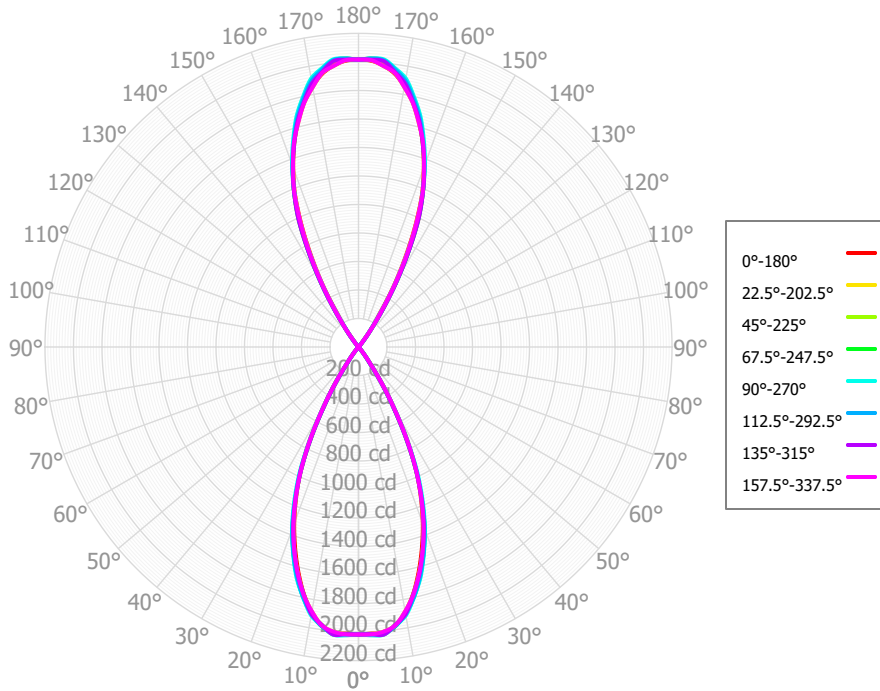
0° - 180°	311°
90° - 270°	311°

### IES File Header Contents

Keyword	Value
TEST	SP-01088
TESTLAB	VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/20/2020
ISSUEDATE	4/21/2020
LUMCAT	CW04XXUDPC 20LWDCL 20LWDCL 35KXX XXMW (IND/DIR Wet location)
LUMINAIRE	Nom. 4" Diam. Gamma Indirect/Direct Cylinder
OTHER	Uplight: Wide Optic, Flush Clear Glass lens
OTHER	Uplight: 47.6 Degree Beam Angle
OTHER	Downlight: Wide Optic, Regressed Glass lens
OTHER	Downlight: 47.6 Degree Beam Angle
OTHER	Trim: Matte White
LAMP	N/A
LAMPCAT	N/A, 19mm LES Uplight
OTHER	N/A, 19mm LES Downlight
OTHER	Total Luminaire Watts is approximate
OTHER	CCT Output Multipliers: 27K x 0.97, 30K x 0.98, 40K x 1.04, 27HK x 0.78, 30HK x 0.82
OTHER	See Catalog cut sheet for different source lumen multipliers
OTHER	This report prepared by Spectrum Lighting
_CRI	80
CCTMULT	27K x 0.97. 30K x 0.98. 40K x 1.04

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### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	197.71	8.21%	90.00° - 100.00°	1.53	0.06%
10.00° - 20.00°	455.39	18.91%	100.00° - 110.00°	1.80	0.07%
20.00° - 30.00°	423.64	17.59%	100.00° - 120.00°	3.78	0.16%
30.00° - 40.00°	115.16	4.78%	120.00° - 130.00°	1.86	0.08%
40.00° - 50.00°	5.17	0.21%	130.00° - 140.00°	5.82	0.24%
50.00° - 60.00°	1.67	0.07%	140.00° - 150.00°	122.68	5.09%
60.00° - 70.00°	1.66	0.07%	150.00° - 160.00°	432.20	17.94%
70.00° - 80.00°	1.81	0.08%	160.00° - 170.00°	454.18	18.85%
80.00° - 90.00°	1.57	0.07%	170.00° - 180.00°	196.25	8.15%
0.00° - 90.00°	1203.77	49.97%	0.00° - 180.00°	2422.07	100.55%

### Candela Distribution

	0.00°	22.50°	45.00°	67.50°	90.00°
0.00°	2017.37	2017.37	2017.37	2017.37	2017.37
2.50°	2013.52	2018.89	2017.41	2018.08	2024.79
5.00°	2015.18	2005.59	2025.81	2015.13	2026.24
7.50°	1973.29	1972.03	1967.25	1976.41	1972.84
10.00°	1890.82	1884.15	1903.77	1901.17	1913.10
12.50°	1774.49	1780.81	1777.72	1796.54	1798.48
15.00°	1632.64	1645.29	1649.67	1667.64	1677.95
17.50°	1479.61	1499.07	1495.77	1518.39	1523.63
20.00°	1319.81	1334.64	1339.11	1355.20	1363.40
22.50°	1144.99	1155.03	1154.48	1163.99	1179.81
25.00°	962.96	954.70	962.72	957.44	982.80
27.50°	745.03	740.32	725.25	730.70	746.54
30.00°	513.21	510.45	495.51	495.24	519.01
32.50°	322.69	316.16	299.17	305.38	311.82
35.00°	144.24	154.59	133.97	131.19	149.45
37.50°	71.42	63.58	67.08	61.74	69.25
40.00°	20.76	25.00	17.22	18.99	18.01
42.50°	9.89	8.39	9.80	8.78	9.19
45.00°	4.84	4.88	4.51	4.32	3.89
47.50°	3.36	2.87	3.39	2.85	2.87
50.00°	2.17	1.59	2.58	1.73	2.17
52.50°	1.96	1.48	2.28	1.75	1.77
55.00°	1.77	1.81	2.04	1.84	1.85
57.50°	1.64	1.75	1.85	1.80	2.30
60.00°	1.56	1.58	1.83	1.75	2.35
62.50°	1.93	1.50	1.98	1.58	2.13
65.00°	2.19	1.43	1.85	1.44	1.97
67.50°	1.73	1.49	1.51	1.47	1.82
70.00°	1.44	1.57	1.55	1.54	1.69
72.50°	1.69	1.86	1.80	1.71	1.58
75.00°	1.66	1.94	1.79	1.89	1.53
77.50°	1.36	1.58	1.85	1.99	1.43
80.00°	1.29	1.62	2.11	1.33	1.32
82.50°	1.44	1.54	1.91	1.14	1.40
85.00°	1.66	1.37	1.77	1.57	1.32
87.50°	1.41	1.30	1.32	1.50	0.97
90.00°	1.10	1.33	1.15	0.98	1.18
92.50°	1.20	1.40	1.73	1.34	0.97
95.00°	1.55	1.21	1.63	1.65	1.32
97.50°	1.25	1.12	1.59	1.65	1.40
100.00°	1.22	1.33	1.54	1.73	1.32
102.50°	1.69	1.51	1.92	1.56	1.43
105.00°	1.86	1.63	2.16	1.44	1.53
107.50°	1.86	1.95	1.79	1.53	1.58
110.00°	1.89	2.25	1.95	1.85	1.69
112.50°	2.03	2.02	2.16	2.11	1.82

CW04XXUDPC 20LWDCL 20LWDCL 35KXX  
 XXMW (IND/DIR Wet location)

### 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>	2593	2593	2593	2593	2391	2391	2391	2391	2014	2014	2014	1669	1669	1669	1353	1353	1204
	<b>1</b>	2430	2351	2281	2217	2245	2180	2121	2068	1859	1820	1784	1565	1540	1517	1294	1280	1151
	<b>2</b>	2278	2144	2034	1942	2109	1998	1905	1826	1723	1659	1604	1470	1428	1391	1235	1211	1098
	<b>3</b>	2138	1966	1833	1728	1984	1840	1727	1636	1602	1523	1457	1383	1329	1284	1179	1146	1048
	<b>4</b>	2009	1811	1666	1556	1869	1702	1577	1481	1495	1406	1335	1303	1242	1192	1125	1086	1000
	<b>5</b>	1891	1676	1525	1414	1763	1580	1450	1352	1399	1304	1231	1231	1164	1112	1074	1030	954
	<b>6</b>	1783	1557	1405	1296	1666	1473	1340	1244	1313	1215	1141	1165	1095	1041	1026	979	912
	<b>7</b>	1684	1452	1301	1195	1578	1377	1245	1151	1236	1137	1064	1104	1032	978	980	931	871
	<b>8</b>	1595	1359	1210	1108	1497	1293	1162	1071	1167	1067	996	1049	975	922	938	887	834
	<b>9</b>	1513	1276	1131	1033	1423	1217	1088	1000	1104	1005	935	998	924	871	898	846	798
	<b>10</b>	1438	1202	1061	967	1355	1149	1023	939	1047	949	882	951	878	826	860	808	765

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	66.7 fc	0.0 ft
6.5 ft	47.7 fc	0.0 ft
7.5 ft	35.9 fc	0.0 ft
8.0 ft	31.5 fc	0.0 ft
10.0 ft	20.2 fc	0.0 ft
12.0 ft	14.0 fc	0.0 ft
14.0 ft	10.3 fc	0.0 ft
16.0 ft	7.9 fc	0.0 ft
20.0 ft	5.0 fc	0.0 ft
24.0 ft	3.5 fc	0.0 ft
28.0 ft	2.6 fc	0.0 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	253885	253885	253885
<b>45.00°</b>	862	804	692
<b>55.00°</b>	388	447	406
<b>65.00°</b>	652	552	585
<b>75.00°</b>	805	870	742
<b>85.00°</b>	2391	2553	1907

### UGR CIE 190:2010

<b>Ceiling reflectance</b>		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
<b>Wall reflectance</b>		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
<b>Plane reflectance</b>		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
<b>Room dimensions</b>		<b>Viewed crosswise</b>					<b>Viewed endwise</b>				
<b>2H</b>	<b>2H</b>	-11.8	-11.2	-10.8	-10.2	-8.9	-11.2	-10.5	-10.2	-9.6	-8.3
	<b>3H</b>	-8.7	-8.2	-7.7	-7.2	-5.8	-8.3	-7.7	-7.3	-6.7	-5.4
	<b>4H</b>	-6.6	-6.1	-5.6	-5.1	-3.7	-6.5	-6.0	-5.5	-5.0	-3.7
	<b>6H</b>	-5.0	-4.6	-4.0	-3.6	-2.2	-4.9	-4.4	-3.8	-3.4	-2.1
	<b>8H</b>	-4.1	-3.6	-3.0	-2.6	-1.3	-4.0	-3.6	-3.0	-2.6	-1.2
	<b>12H</b>	-2.7	-2.3	-1.7	-1.3	0.1	-3.0	-2.6	-1.9	-1.5	-0.2
<b>4H</b>	<b>2H</b>	-10.6	-10.1	-9.6	-9.1	-7.7	-10.2	-9.6	-9.1	-8.6	-7.3
	<b>3H</b>	-7.3	-6.9	-6.3	-5.8	-4.5	-7.1	-6.7	-6.1	-5.6	-4.3
	<b>4H</b>	-5.0	-4.6	-3.9	-3.5	-2.2	-5.0	-4.6	-3.9	-3.5	-2.2
	<b>6H</b>	-3.3	-2.9	-2.2	-1.9	-0.5	-3.2	-2.8	-2.1	-1.8	-0.4
	<b>8H</b>	-2.2	-1.9	-1.2	-0.9	0.5	-2.3	-2.0	-1.3	-1.0	0.4
	<b>12H</b>	-0.8	-0.6	0.2	0.5	1.9	-1.2	-0.9	-0.1	0.1	1.5
<b>8H</b>	<b>4H</b>	-4.1	-3.8	-3.1	-2.8	-1.4	-4.1	-3.8	-3.0	-2.7	-1.4
	<b>6H</b>	-2.0	-1.7	-0.9	-0.7	0.7	-2.0	-1.8	-1.0	-0.7	0.7
	<b>8H</b>	-0.8	-0.6	0.3	0.5	1.9	-1.1	-0.9	0.0	0.2	1.6
	<b>12H</b>	0.7	0.9	1.8	1.9	3.3	0.3	0.5	1.4	1.5	3.0
<b>12H</b>	<b>4H</b>	-3.9	-3.6	-2.8	-2.6	-1.2	-3.9	-3.6	-2.8	-2.5	-1.1
	<b>6H</b>	-1.6	-1.4	-0.5	-0.3	1.1	-1.6	-1.4	-0.5	-0.3	1.1
	<b>8H</b>	-0.3	-0.1	0.8	1.0	2.4	-0.5	-0.3	0.6	0.7	2.2

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0