

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CW04XXPC 10L 35K MD XX CL XX

Nom 4" diam Gamma Cylinder (wet location), MD optic, clear glass lens

Test Number

SP-01047_M-10L

Test Date

1/30/2020

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

Summary of Results

Power

Input Watts	6.5 W
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Lumen Output

Output Lumens	549
Efficacy	84.48 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.45
Two luminaires, plane 90°	0.44
Four luminaires	0.47

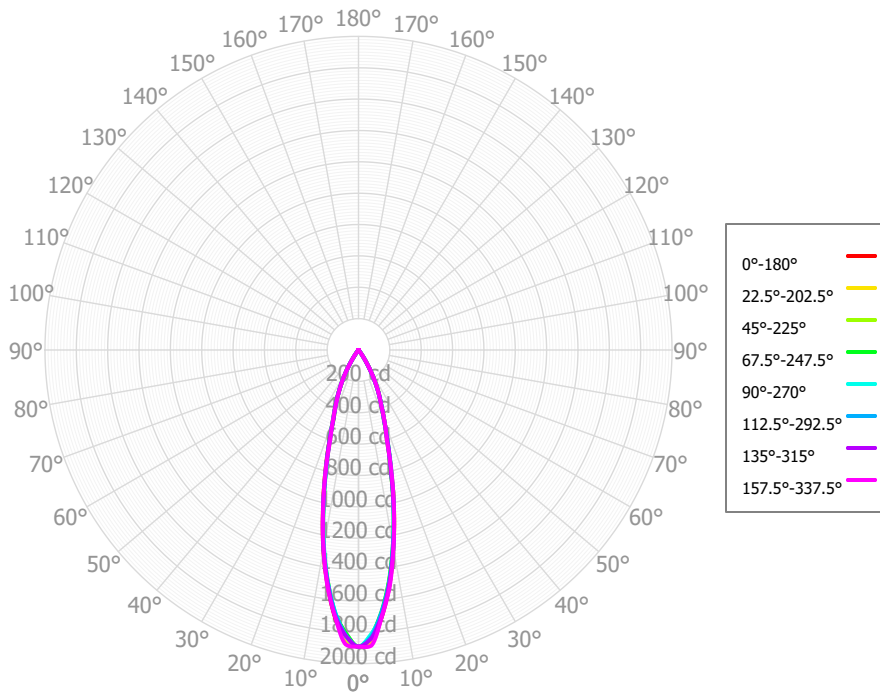
Full Beam Angle

0° - 180°	27°
90° - 270°	27°

IES File Header Contents

Keyword	Value
TEST	SP-01047_M-10L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/30/2020
ISSUEDATE	3/24/2020
LUMCAT	CW04XXPC 10L 35K MD XX CL XX
LUMINAIRE	Nom 4" diam Gamma Cylinder (wet location), MD optic, clear glass lens
OTHER	Beam Angle: 27.2 deg
OTHER	Medium optic
LAMPCAT	N/A
LAMP	N/A
OTHER	CCT Output Multipliers: 27K x 0.97, 30K x 0.98, 40K x 1.04
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting, scaled from 20L

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	149.61	27.25%	90.00° - 100.00°	0.04	0.01%
10.00° - 20.00°	222.49	40.52%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	136.25	24.81%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	33.90	6.17%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	2.68	0.49%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	1.59	0.29%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	1.08	0.20%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	0.81	0.15%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	0.64	0.12%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	549.05	99.99%	0.00° - 180.00°	549.09	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°	1892.37	1892.37	1892.37	1892.37	1892.37	1892.37	1892.37	1892.37	1892.37	1892.37	1892.37	1892.37	1892.37	1892.37	1892.37	1892.37	1892.37
2.50°	1867.78	1867.96	1825.21	1824.96	1816.89	1822.70	1827.57	1879.80	1846.61	1851.87	1812.18	1811.42	1829.38	1833.26	1843.50	1886.96	1867.78
5.00°	1707.78	1694.12	1689.92	1678.07	1695.77	1691.17	1706.34	1709.56	1713.94	1696.62	1694.01	1691.22	1685.24	1680.85	1702.41	1708.25	1707.78
7.50°	1513.36	1509.25	1491.66	1487.37	1498.72	1501.05	1503.49	1518.31	1512.93	1508.24	1492.66	1497.12	1495.88	1498.13	1503.67	1523.75	1513.36
10.00°	1282.48	1274.47	1272.74	1263.64	1282.61	1279.88	1288.84	1284.43	1291.67	1280.11	1282.20	1282.78	1269.71	1264.46	1279.19	1282.88	1282.48
12.50°	1047.21	1040.68	1036.59	1033.55	1039.22	1037.09	1042.52	1044.13	1048.21	1040.86	1037.38	1037.07	1037.29	1032.20	1041.74	1043.23	1047.21
15.00°	807.03	811.77	794.42	798.43	816.07	816.93	811.37	820.24	824.54	820.05	805.02	811.52	799.52	802.43	798.15	817.47	807.03
17.50°	615.90	600.33	620.17	616.77	623.43	613.37	623.68	599.10	623.71	604.77	623.44	618.89	614.61	609.02	620.63	599.40	615.90
20.00°	482.19	483.44	471.29	479.72	471.70	473.58	462.37	476.76	473.39	476.96	460.72	465.86	477.29	483.72	476.19	486.33	482.19
22.50°	376.62	373.05	377.50	376.98	384.95	383.01	381.81	372.66	384.34	377.30	381.35	381.04	372.58	375.43	377.70	375.46	376.62
25.00°	305.70	301.46	305.61	304.33	302.16	302.38	302.81	296.30	300.93	296.11	302.51	299.63	298.74	300.80	303.54	301.72	305.70
27.50°	232.79	229.78	230.96	229.84	225.98	229.83	228.89	225.54	224.70	221.27	226.27	224.43	224.59	226.00	228.08	228.07	232.79
30.00°	157.28	157.56	155.15	153.64	154.19	159.51	157.38	156.60	153.57	151.74	152.35	153.25	150.13	150.86	151.89	156.21	157.28
32.50°	93.37	89.04	94.58	91.25	90.12	91.08	94.36	88.06	89.28	84.16	90.64	89.80	89.15	85.87	91.93	85.38	93.37
35.00°	45.26	47.97	40.84	42.25	40.90	45.09	40.47	48.94	42.32	44.60	35.59	40.84	42.28	43.42	41.55	47.01	45.26
37.50°	14.12	10.85	16.92	14.02	19.41	19.22	21.18	16.87	19.87	15.97	19.20	21.30	14.48	12.14	16.53	9.29	14.12
40.00°	7.36	7.03	7.16	6.95	4.75	5.69	5.39	7.63	5.82	6.22	4.85	7.34	7.67	7.18	7.29	6.10	7.36
42.50°	3.23	3.52	3.50	3.12	3.58	3.80	3.96	4.32	4.28	4.30	3.64	5.36	3.97	3.51	3.55	2.94	3.23
45.00°	3.07	3.02	2.90	2.77	2.67	2.68	2.76	3.24	3.24	3.42	2.58	3.77	3.87	3.10	3.40	2.86	3.07
47.50°	2.78	2.55	2.41	2.53	2.29	2.33	2.53	2.78	2.99	3.00	2.60	3.08	3.54	2.74	3.03	2.78	2.78
50.00°	2.29	2.26	1.98	2.42	1.90	1.97	2.29	2.40	2.66	2.58	2.59	2.53	2.92	2.51	2.50	2.54	2.29
52.50°	1.84	1.95	1.70	2.08	1.49	1.61	2.01	2.05	2.22	2.17	2.28	2.34	2.42	2.23	2.11	2.29	1.84
55.00°	1.48	1.43	1.52	1.48	1.25	1.33	1.76	1.83	1.79	1.93	1.96	2.12	2.06	1.80	1.82	1.84	1.48
57.50°	1.26	0.93	1.41	1.15	1.41	1.14	1.73	1.66	1.40	1.78	1.63	1.80	1.82	1.48	1.65	1.40	1.26
60.00°	1.28	0.94	1.34	1.17	1.43	1.03	1.68	1.40	1.17	1.46	1.32	1.52	1.72	1.47	1.58	1.41	1.28
62.50°	1.23	0.95	1.10	1.08	1.13	1.00	1.53	1.12	1.23	1.05	1.22	1.34	1.49	1.41	1.50	1.43	1.23
65.00°	1.07	0.78	0.75	0.87	0.88	0.88	1.37	1.09	1.20	0.82	1.13	1.16	1.06	1.20	1.40	1.44	1.07
67.50°	0.93	0.62	0.67	0.76	0.80	0.65	1.15	1.16	0.97	0.68	1.14	0.97	0.84	1.03	1.39	1.44	0.93
70.00°	0.83	0.66	0.76	0.81	0.74	0.54	0.94	1.00	0.78	0.63	1.13	0.81	0.91	0.99	1.45	1.35	0.83
72.50°	0.77	0.70	0.70	0.83	0.73	0.55	0.85	0.75	0.68	0.64	0.94	0.72	0.91	0.95	1.28	1.24	0.77
75.00°	0.76	0.73	0.52	0.83	0.76	0.58	0.77	0.66	0.61	0.62	0.77	0.68	0.80	0.90	0.89	0.99	0.76
77.50°	0.74	0.76	0.50	0.81	0.86	0.62	0.80	0.62	0.59	0.58	0.79	0.74	0.77	0.84	0.65	0.72	0.74
80.00°	0.69	0.77	0.56	0.76	0.87	0.68	0.75	0.64	0.60	0.66	0.74	0.77	0.84	0.75	0.55	0.66	0.69
82.50°	0.62	0.73	0.64	0.63	0.73	0.75	0.59	0.61	0.61	0.68	0.52	0.76	0.87	0.64	0.58	0.60	0.62
85.00°	0.55	0.57	0.66	0.51	0.53	0.74	0.74	0.55	0.57	0.49	0.59	0.64	0.83	0.52	0.68	0.52	0.55
87.50°	0.47	0.55	0.55	0.49	0.42	0.57	0.66	0.59	0.59	0.49	0.60	0.54	0.70	0.47	0.81	0.55	0.47
90.00°	0.51	0.46	0.69	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.57	0.57	0.75	0.58	0.51
92.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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%	0%
	pcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	0	654	654	654	654	638	638	638	638	610	610	610	584	584	584	560	560	549
	1	629	617	605	595	616	605	595	586	583	575	568	563	557	551	544	540	529
	2	606	585	567	552	595	575	559	546	558	545	534	542	532	523	528	519	509
	3	584	556	535	518	574	549	529	514	535	519	506	523	509	498	511	500	491
	4	564	531	508	489	555	525	504	487	514	496	481	504	488	476	494	481	473
	5	544	509	484	465	536	504	481	463	495	475	460	486	469	456	478	464	456
	6	526	488	463	445	519	484	460	443	477	456	440	470	451	438	463	447	440
	7	508	469	444	426	502	466	442	425	460	438	423	454	435	421	448	432	425
	8	492	452	427	409	486	449	425	409	444	422	407	439	420	405	434	417	411
	9	476	436	411	394	471	433	410	394	429	407	392	425	405	391	421	403	397
	10	462	421	397	380	457	419	396	380	415	394	379	411	392	378	408	390	385

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	62.6 fc	2.7 ft
6.5 ft	44.8 fc	3.1 ft
7.5 ft	33.6 fc	3.6 ft
8.0 ft	29.6 fc	3.9 ft
10.0 ft	18.9 fc	4.8 ft
12.0 ft	13.1 fc	5.8 ft
14.0 ft	9.7 fc	6.7 ft
16.0 ft	7.4 fc	7.7 ft
20.0 ft	4.7 fc	9.6 ft
24.0 ft	3.3 fc	11.6 ft
28.0 ft	2.4 fc	13.5 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	238155	238155	238155
45.00°	546	516	475
55.00°	325	332	273
65.00°	318	225	262
75.00°	371	255	368
85.00°	790	954	771

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	-7.1	-6.2	-6.8	-5.9	-5.6	-5.5	-4.6	-5.1	-4.3	-4.0
	3H	-4.5	-3.7	-4.1	-3.4	-3.0	-4.3	-3.5	-3.9	-3.1	-2.8
	4H	-3.3	-2.6	-2.9	-2.2	-1.8	-3.3	-2.6	-2.9	-2.2	-1.9
	6H	-2.0	-1.4	-1.6	-1.0	-0.6	-1.8	-1.1	-1.3	-0.7	-0.3
	8H	-1.3	-0.7	-0.9	-0.3	0.1	-0.8	-0.2	-0.4	0.2	0.6
	12H	-0.6	0.0	-0.2	0.3	0.8	0.1	0.7	0.6	1.1	1.6
4H	2H	-6.2	-5.5	-5.8	-5.1	-4.8	-4.8	-4.1	-4.4	-3.8	-3.4
	3H	-3.2	-2.6	-2.8	-2.2	-1.8	-3.4	-2.8	-3.0	-2.4	-2.0
	4H	-1.9	-1.4	-1.5	-0.9	-0.5	-2.4	-1.8	-1.9	-1.4	-1.0
	6H	-0.5	-0.1	0.0	0.4	0.9	-0.6	-0.2	-0.1	0.3	0.8
	8H	0.2	0.7	0.7	1.1	1.6	0.5	0.9	1.0	1.4	1.8
	12H	1.0	1.4	1.5	1.9	2.3	1.6	2.0	2.1	2.5	2.9
8H	4H	-1.5	-1.1	-1.0	-0.6	-0.2	-1.9	-1.4	-1.4	-1.0	-0.5
	6H	0.1	0.5	0.6	1.0	1.5	0.2	0.5	0.7	1.0	1.5
	8H	1.1	1.4	1.6	1.9	2.4	1.5	1.8	2.0	2.3	2.8
	12H	2.1	2.4	2.6	2.9	3.4	2.8	3.1	3.4	3.6	4.2
12H	4H	-1.4	-1.1	-0.9	-0.6	-0.1	-1.7	-1.4	-1.3	-0.9	-0.4
	6H	0.3	0.6	0.8	1.1	1.6	0.4	0.6	0.9	1.1	1.7
	8H	1.4	1.7	1.9	2.2	2.7	1.8	2.0	2.3	2.5	3.1

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0