Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CF04XXPC 10L 35K MD XX NL XX

Nom 4" diam Gamma Cylinder (damp location), MD optic, no lens

Test Number

SP-01068_1_M-10L

Test Date

1/31/2020

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

Summary of Results

Power

Input Watts	6.5 W

Lumen Output

Output Lumens	817
Efficacy	125.75 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.43
Two luminaires, plane 90°	0.43
Four luminaires	0.46

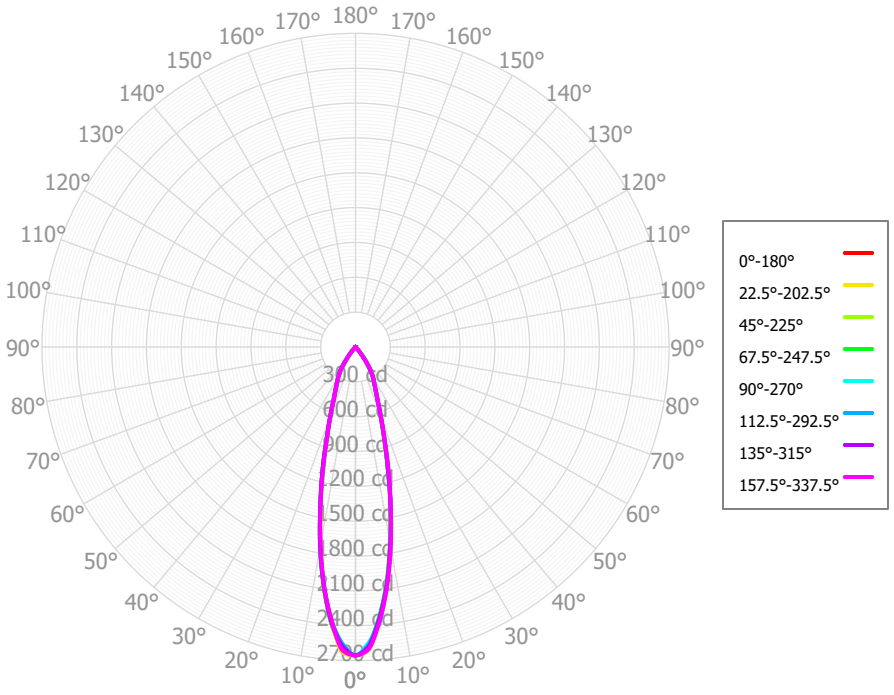
Full Beam Angle

0° - 180°	26°
90° - 270°	26°

IES File Header Contents

Keyword	Value
TEST	SP-01068_1_M-10L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/31/2020
ISSUEDATE	3/19/2020
LUMCAT	CF04XXPC 10L 35K MD XX NL XX
LUMINAIRE	Nom 4" diam Gamma Cylinder (damp location), MD optic, no lens
OTHER	Beam Angle: 26 deg
LAMPCAT	N/A
LAMP	N/A
OTHER	CCT Output Multipliers: 27K x 0.972, 30K x 0.981, 40K x 1.04, 27HK x 0.89, 30HK x 0.83
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	206.83	25.30%	90.00° - 100.00°	0.68	0.08%
10.00° - 20.00°	297.44	36.39%	100.00° - 110.00°	0.60	0.07%
20.00° - 30.00°	192.52	23.55%	100.00° - 120.00°	1.15	0.14%
30.00° - 40.00°	105.39	12.89%	120.00° - 130.00°	0.49	0.06%
40.00° - 50.00°	8.39	1.03%	130.00° - 140.00°	0.52	0.06%
50.00° - 60.00°	0.65	0.08%	140.00° - 150.00°	0.47	0.06%
60.00° - 70.00°	0.79	0.10%	150.00° - 160.00°	0.35	0.04%
70.00° - 80.00°	0.75	0.09%	160.00° - 170.00°	0.21	0.03%
80.00° - 90.00°	0.70	0.09%	170.00° - 180.00°	0.06	0.01%
0.00° - 90.00°	813.45	99.52%	0.00° - 180.00°	817.39	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°	2655.25	2655.25	2655.25	2655.25	2655.25	2655.25	2655.25	2655.25	2655.25	2655.25	2655.25	2655.25	2655.25	2655.25	2655.25	2655.25	2655.25
2.50°	2597.80	2612.51	2560.52	2570.37	2552.72	2562.68	2580.14	2613.58	2598.39	2629.50	2572.31	2584.29	2559.08	2568.36	2584.22	2604.76	2597.80
5.00°	2354.36	2353.26	2343.01	2336.53	2383.68	2366.22	2379.84	2361.22	2388.22	2364.84	2392.64	2384.79	2380.60	2342.45	2352.42	2375.39	2354.36
7.50°	2063.63	2068.06	2046.62	2054.73	2068.99	2075.21	2082.65	2077.43	2082.31	2084.72	2077.44	2089.78	2069.77	2060.90	2066.14	2082.93	2063.63
10.00°	1718.44	1725.21	1712.91	1716.88	1747.16	1748.39	1752.10	1728.54	1745.65	1726.06	1745.15	1754.12	1740.30	1722.79	1725.23	1746.02	1718.44
12.50°	1387.03	1378.20	1385.72	1388.48	1400.09	1397.48	1399.11	1391.01	1391.13	1378.26	1389.13	1395.20	1399.43	1392.66	1394.43	1395.96	1387.03
15.00°	1069.51	1086.98	1061.15	1069.74	1079.42	1095.18	1095.72	1074.09	1091.63	1074.41	1077.40	1091.79	1057.43	1069.62	1072.61	1100.73	1069.51
17.50°	820.23	797.93	825.85	819.77	836.22	821.27	821.29	810.16	820.15	800.75	820.14	815.77	828.05	819.44	823.57	818.75	820.23
20.00°	631.89	638.74	621.53	632.09	627.47	634.58	633.85	629.43	638.03	629.16	622.77	630.42	605.84	625.81	631.00	645.72	631.89
22.50°	498.43	482.70	499.47	499.50	505.44	492.57	490.96	488.26	494.95	482.43	489.74	483.99	494.69	493.86	499.17	493.62	498.43
25.00°	407.76	413.05	401.16	410.51	405.97	408.02	405.65	401.89	411.19	405.81	398.90	402.89	386.77	404.24	408.40	416.11	407.76
27.50°	347.38	344.99	349.95	349.69	354.90	348.69	345.62	335.86	349.43	337.69	348.27	345.55	341.70	343.13	345.68	349.86	347.38
30.00°	307.88	301.94	309.82	308.57	301.85	297.94	293.26	294.39	294.30	290.22	292.65	289.88	295.84	299.00	299.66	299.07	307.88
32.50°	249.47	256.25	249.07	250.09	245.08	250.40	243.81	238.74	241.27	234.42	232.88	234.72	229.83	236.28	237.63	249.96	249.47
35.00°	179.74	184.95	184.38	181.08	182.80	182.93	177.14	167.90	171.12	161.33	165.86	166.64	163.87	163.99	167.37	178.16	179.74
37.50°	114.10	115.78	116.71	115.63	111.58	109.13	105.00	103.70	96.50	95.80	93.59	95.27	98.74	99.80	103.09	104.72	114.10
40.00°	50.57	61.77	48.61	52.09	55.76	58.60	56.98	45.73	50.29	43.79	46.08	50.60	38.24	39.26	41.50	56.49	50.57
42.50°	20.42	15.00	24.05	21.40	21.97	14.19	15.28	14.45	10.19	9.80	14.46	11.52	18.98	14.66	15.80	9.15	20.42
45.00°	5.32	7.17	4.14	5.78	2.58	3.91	4.97	5.01	2.84	4.10	2.37	3.74	2.21	3.76	3.80	4.76	5.32
47.50°	0.95	0.82	1.92	1.17	1.15	0.84	1.44	0.97	0.95	0.78	1.14	1.04	1.39	0.89	0.92	0.67	0.95
50.00°	0.68	0.90	0.88	0.87	0.55	0.48	0.76	0.84	0.68	0.72	0.67	0.73	0.70	0.62	1.03	0.78	0.68
52.50°	0.54	0.92	0.84	0.73	0.86	0.58	0.56	0.90	0.61	0.65	0.55	0.69	0.64	0.60	0.89	0.89	0.54
55.00°	0.42	0.73	0.84	0.63	0.92	0.68	0.55	1.07	0.62	0.57	0.57	0.71	0.60	0.64	0.68	1.00	0.42
57.50°	0.58	0.59	0.71	0.68	0.75	0.77	0.57	1.04	0.65	0.60	0.65	0.73	0.66	0.65	0.80	1.10	0.58
60.00°	0.82	0.64	0.59	0.76	0.76	0.61	0.68	0.90	0.67	0.75	0.69	0.79	0.71	0.65	0.99	0.96	0.82
62.50°	0.72	0.68	0.69	0.75	0.93	0.43	0.79	1.07	0.69	0.80	0.72	0.86	0.74	0.75	1.08	0.87	0.72
65.00°	0.56	0.71	0.79	0.72	0.87	0.46	0.85	1.39	0.71	0.76	0.87	0.73	0.74	0.87	1.15	1.04	0.56
67.50°	0.52	0.73	0.88	0.69	0.65	0.50	0.91	1.35	0.72	0.69	1.06	0.60	0.67	0.78	1.09	1.17	0.52
70.00°	0.51	0.69	0.95	0.67	0.50	0.42	0.99	1.16	0.60	0.58	0.94	0.69	0.68	0.67	1.03	1.16	0.51
72.50°	0.49	0.65	0.84	0.57	0.39	0.34	1.07	0.98	0.48	0.56	0.75	0.78	0.85	0.77	0.97	1.13	0.49
75.00°	0.48	0.63	0.73	0.46	0.39	0.46	0.96	0.80	0.59	0.60	0.70	0.76	0.98	0.90	0.92	1.01	0.48
77.50°	0.53	0.57	0.65	0.51	0.43	0.59	0.85	0.64	0.68	0.61	0.67	0.75	1.01	0.74	0.80	0.89	0.53
80.00°	0.59	0.49	0.58	0.57	0.55	0.72	0.71	0.48	0.51	0.61	0.71	0.85	1.01	0.57	0.67	0.72	0.59
82.50°	0.60	0.45	0.62	0.53	0.70	0.82	0.58	0.60	0.37	0.63	0.76	0.94	0.97	0.63	0.67	0.60	0.60
85.00°	0.61	0.48	0.66	0.49	0.64	0.63	0.52	0.78	0.44	0.65	0.64	0.84	0.97	0.69	0.67	0.62	0.61
87.50°	0.60	0.59	0.69	0.58	0.49	0.46	0.46	0.69	0.49	0.62	0.51	0.79	1.02	0.66	0.75	0.65	0.60
90.00°	0.59	0.78	0.76	0.68	0.45	0.42	0.45	0.55	0.47	0.57	0.54	0.93	1.03	0.63	0.83	0.70	0.59
92.50°	0.46	0.90	0.94	0.58	0.47	0.41	0.45	0.51	0.46	0.61	0.59	1.01	0.98	0.59	0.72	0.70	0.46
95.00°	0.34	0.94	1.00	0.49	0.57	0.51	0.52	0.48	0.47	0.69	0.61	0.85	0.89	0.55	0.60	0.60	0.34
97.50°	0.56	0.87	0.66	0.50	0.69	0.56	0.58	0.51	0.47	0.62	0.63	0.72	0.75	0.53	0.52	0.54	0.56
100.00°	0.74	0.69	0.48	0.52	0.72	0.45	0.60	0.54	0.43	0.49	0.55	0.73	0.65	0.52	0.45	0.59	0.74
102.50°	0.57	0.64	0.70	0.69	0.73	0.39	0.60	0.56	0.41	0.52	0.46	0.74	0.61	0.57	0.43	0.58	0.57
105.00°	0.42	0.69	0.79	0.83	0.58	0.50	0.54	0.58	0.43	0.60	0.46	0.70	0.53	0.60	0.46	0.50	0.42
107.50°	0.43	0.68	0.61	0.66	0.39	0.59	0.50	0.53	0.50	0.61	0.47	0.67	0.42	0.52	0.81	0.44	0.43
110.00°	0.46	0.63	0.53	0.52	0.43	0.60	0.52	0.48	0.67	0.60	0.50	0.61	0.42	0.46	1.04	0.43	0.46
112.50°	0.57	0.63	0.59	0.56	0.51	0.60	0.53	0.46	0.78	0.56	0.53	0.59	0.50	0.46	0.72	0.45	0.57

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

	ρfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	ρcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	ρw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	972	972	972	972	949	949	949	949	906	906	906	867	867	867	830	830	830	813
	1	934	915	897	882	914	897	881	867	864	851	840	833	823	814	804	797	790	781
	2	898	864	837	813	880	850	825	804	824	803	786	799	783	769	777	764	752	749
	3	863	819	786	759	847	808	777	753	787	761	740	767	746	728	749	732	717	718
	4	830	779	742	714	816	770	736	709	753	724	701	737	712	692	722	701	684	688
RCR	5	799	743	704	675	786	735	699	672	721	690	666	708	681	660	696	673	654	661
	6	769	710	670	641	758	704	666	639	692	659	635	681	652	630	671	646	626	635
	7	741	680	640	612	731	674	637	610	664	631	607	655	626	603	647	620	600	610
	8	715	652	612	585	706	648	610	584	639	605	581	631	601	579	624	597	576	587
	9	690	626	587	561	682	623	585	560	616	582	558	609	578	556	602	575	554	566
	10	667	603	565	539	660	600	563	538	594	560	537	588	557	535	582	554	534	546

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	87.8 fc	2.5 ft
6.5 ft	62.8 fc	3.0 ft
7.5 ft	47.2 fc	3.5 ft
8.0 ft	41.5 fc	3.7 ft
10.0 ft	26.6 fc	4.6 ft
12.0 ft	18.4 fc	5.5 ft
14.0 ft	13.5 fc	6.5 ft
16.0 ft	10.4 fc	7.4 ft
20.0 ft	6.6 fc	9.2 ft
24.0 ft	4.6 fc	11.1 ft
28.0 ft	3.4 fc	12.9 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	334163	334163	334163
45.00°	947	737	458
55.00°	93	184	202
65.00°	167	234	259
75.00°	233	355	188
85.00°	878	953	922

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	-11.2	-10.3	-10.8	-9.9	-9.6	-11.9	-11.0	-11.5	-10.7	-10.4
	3H	-8.1	-7.3	-7.7	-7.0	-6.6	-9.3	-8.5	-8.9	-8.2	-7.8
	4H	-6.8	-6.1	-6.4	-5.7	-5.3	-7.3	-6.5	-6.8	-6.2	-5.8
	6H	-5.3	-4.6	-4.8	-4.2	-3.8	-4.7	-4.0	-4.2	-3.6	-3.2
	8H	-4.3	-3.7	-3.9	-3.3	-2.9	-3.2	-2.5	-2.7	-2.1	-1.7
	12H	-3.2	-2.6	-2.7	-2.2	-1.7	-1.6	-1.1	-1.2	-0.7	-0.2
4H	2H	-9.7	-9.0	-9.3	-8.6	-8.2	-10.5	-9.8	-10.1	-9.5	-9.1
	3H	-6.3	-5.7	-5.9	-5.3	-4.9	-7.7	-7.1	-7.3	-6.7	-6.3
	4H	-4.7	-4.2	-4.3	-3.8	-3.3	-5.8	-5.2	-5.3	-4.8	-4.3
	6H	-3.2	-2.8	-2.7	-2.3	-1.8	-3.1	-2.6	-2.6	-2.2	-1.7
	8H	-2.4	-1.9	-1.9	-1.5	-1.0	-1.5	-1.1	-1.0	-0.6	-0.1
	12H	-1.2	-0.9	-0.7	-0.4	0.1	0.1	0.5	0.6	1.0	1.5
8H	4H	-4.0	-3.6	-3.5	-3.1	-2.7	-4.8	-4.3	-4.3	-3.9	-3.4
	6H	-2.3	-2.0	-1.8	-1.4	-0.9	-1.9	-1.6	-1.4	-1.1	-0.6
	8H	-1.3	-1.0	-0.8	-0.5	0.0	-0.1	0.1	0.4	0.7	1.2
	12H	0.0	0.3	0.6	0.8	1.4	1.6	1.8	2.1	2.4	2.9
12H	4H	-3.9	-3.6	-3.4	-3.1	-2.6	-4.6	-4.2	-4.1	-3.7	-3.2
	6H	-2.0	-1.7	-1.5	-1.3	-0.7	-1.7	-1.4	-1.1	-0.9	-0.3
	8H	-0.9	-0.7	-0.4	-0.1	0.4	0.2	0.5	0.8	1.0	1.6

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0