

## Indoor Distribution Test Report

# Spectrum Lighting Inc.

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## Spectrum Lighting Photometric Lab

### Luminaire

CF04XXPC 10L 35K WD XX NL XX  
Nom 4" diam Gamma Cylinder, WD optic, no lens

### Test Number

SP-01070\_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
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#### Lumen Output

Output Lumens	801
Efficacy	123.18 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.81
Two luminaires, plane 90°	0.81
Four luminaires	0.79

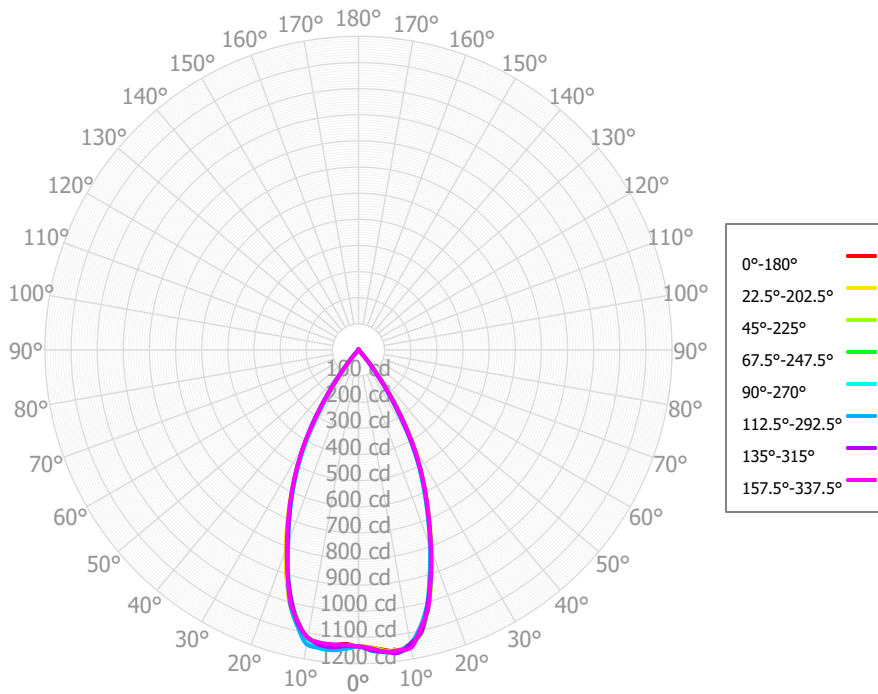
#### Full Beam Angle

0° - 180°	51°
90° - 270°	51°

### IES File Header Contents

Keyword	Value
TEST	SP-01070_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 WD XX NL XX
LUMINAIRE	Nom 4" diam Gamma Cylinder, WD optic, no lens
OTHER	Beam Angle: 49.4 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°	110.99	13.86%	90.00° - 100.00°	0.77	0.10%
10.00° - 20.00°	276.11	34.48%	100.00° - 110.00°	0.72	0.09%
20.00° - 30.00°	273.22	34.12%	100.00° - 120.00°	1.37	0.17%
30.00° - 40.00°	124.76	15.58%	120.00° - 130.00°	0.61	0.08%
40.00° - 50.00°	7.86	0.98%	130.00° - 140.00°	0.57	0.07%
50.00° - 60.00°	0.71	0.09%	140.00° - 150.00°	0.52	0.06%
60.00° - 70.00°	0.76	0.10%	150.00° - 160.00°	0.40	0.05%
70.00° - 80.00°	0.88	0.11%	160.00° - 170.00°	0.24	0.03%
80.00° - 90.00°	0.81	0.10%	170.00° - 180.00°	0.08	0.01%
0.00° - 90.00°	796.10	99.43%	0.00° - 180.00°	800.67	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°	1134.69	1134.69	1134.69	1134.69	1134.69	1134.69	1134.69	1134.69	1134.69	1134.69	1134.69	1134.69	1134.69	1134.69	1134.69	1134.69	1134.69
2.50°	1140.99	1138.61	1143.75	1148.06	1144.35	1144.34	1134.36	1129.54	1126.13	1131.23	1130.35	1137.02	1145.30	1152.70	1149.94	1142.75	1140.99
5.00°	1152.45	1155.84	1156.05	1158.82	1159.17	1153.68	1141.27	1130.85	1134.53	1134.13	1135.67	1142.85	1148.89	1160.94	1159.52	1159.10	1152.45
7.50°	1163.73	1156.87	1169.53	1167.90	1160.94	1150.35	1138.29	1129.63	1133.56	1136.97	1132.98	1134.89	1151.65	1161.17	1168.84	1159.16	1163.73
10.00°	1141.14	1151.21	1145.74	1153.83	1149.55	1143.55	1116.96	1119.06	1122.19	1120.79	1115.13	1122.40	1123.61	1141.74	1142.96	1157.57	1141.14
12.50°	1102.24	1096.54	1112.85	1104.47	1100.66	1082.23	1072.38	1067.05	1078.22	1080.49	1073.00	1064.26	1079.07	1087.97	1108.20	1094.39	1102.24
15.00°	1017.25	1026.40	1025.18	1028.67	1020.19	1009.75	992.19	1003.81	1004.89	1012.48	994.09	995.06	995.92	1012.00	1018.04	1027.99	1017.25
17.50°	914.31	923.16	928.26	920.33	918.57	900.31	900.02	902.78	912.02	915.98	904.43	896.97	896.47	904.88	918.16	917.86	914.31
20.00°	807.55	811.89	818.85	811.05	802.54	785.94	793.02	802.42	804.89	815.30	801.25	793.79	795.30	799.21	810.91	808.68	807.55
22.50°	699.67	709.42	708.06	700.83	696.77	689.66	694.63	703.80	703.72	711.02	702.67	696.83	693.58	695.22	702.86	706.82	699.67
25.00°	604.87	608.43	609.71	599.69	596.60	594.65	604.86	606.71	606.15	609.74	608.78	600.55	596.10	595.41	606.22	606.42	604.87
27.50°	512.87	515.62	511.99	506.12	503.05	504.29	511.33	512.69	502.87	510.54	506.06	499.30	499.69	499.58	510.21	513.40	512.87
30.00°	416.08	423.63	416.02	408.67	412.46	413.58	414.65	410.62	396.85	396.43	396.00	397.81	387.72	393.03	401.74	416.93	416.08
32.50°	318.57	322.06	319.91	308.58	312.70	309.24	311.16	295.33	285.02	274.00	283.84	281.12	273.05	278.21	293.72	308.06	318.57
35.00°	220.73	220.14	221.40	214.41	209.80	206.80	203.06	191.41	171.02	172.59	170.24	166.64	176.25	179.57	193.87	205.14	220.73
37.50°	122.86	136.82	126.79	123.44	128.04	125.31	119.49	102.55	94.46	80.76	91.25	93.87	81.34	90.99	98.92	118.92	122.86
40.00°	65.84	56.68	66.61	63.60	51.70	50.86	49.24	43.55	28.95	36.06	31.44	27.15	41.83	41.20	49.73	50.53	65.84
42.50°	10.86	27.99	14.53	17.49	23.27	24.36	18.38	16.62	10.40	7.99	8.78	13.16	5.33	11.25	7.32	21.00	10.86
45.00°	5.71	2.18	7.11	3.90	3.90	2.45	4.98	3.10	1.87	1.60	2.38	1.19	3.01	2.01	3.78	2.07	5.71
47.50°	0.91	1.44	1.18	1.38	1.32	1.43	1.20	1.61	0.87	0.93	0.67	0.88	0.81	1.07	0.95	1.44	0.91
50.00°	0.78	0.81	0.98	0.82	0.76	0.67	0.72	0.95	0.95	0.69	0.60	0.67	0.86	0.85	0.97	1.06	0.78
52.50°	0.66	0.74	0.83	0.76	0.70	0.76	0.71	0.89	0.87	0.52	0.71	0.81	0.89	0.85	0.96	1.05	0.66
55.00°	0.65	0.70	0.83	0.76	0.67	0.81	0.83	0.83	0.79	0.69	0.88	0.91	0.84	0.89	0.84	0.92	0.65
57.50°	0.66	0.73	0.80	0.77	0.73	0.73	0.82	0.78	0.78	0.91	0.85	0.88	0.80	0.93	0.75	0.65	0.66
60.00°	0.74	0.75	0.70	0.74	0.79	0.71	0.79	0.89	0.78	0.82	0.78	0.85	0.83	0.83	0.73	0.64	0.74
62.50°	0.79	0.68	0.65	0.70	0.63	0.79	0.79	1.09	0.83	0.71	0.63	0.82	0.86	0.70	0.69	0.86	0.79
65.00°	0.77	0.63	0.66	0.72	0.50	0.82	0.81	1.02	0.86	0.67	0.47	0.81	0.92	0.80	0.63	0.91	0.77
67.50°	0.78	0.62	0.67	0.75	0.67	0.75	0.84	0.85	0.79	0.64	0.65	0.81	0.93	0.92	0.69	0.81	0.78
70.00°	0.87	0.63	0.67	0.76	0.79	0.71	0.86	0.84	0.73	0.71	0.85	0.80	0.79	0.97	0.95	1.11	0.87
72.50°	0.95	0.69	0.72	0.76	0.58	0.71	0.84	0.86	0.76	0.77	0.79	0.77	0.70	1.01	1.14	1.65	0.95
75.00°	1.00	0.71	0.82	0.81	0.45	0.76	0.82	0.87	0.77	0.67	0.73	0.75	0.75	0.93	1.25	1.58	1.00
77.50°	0.95	0.66	0.88	0.83	0.64	0.86	0.73	0.88	0.71	0.59	0.73	0.77	0.77	0.86	1.20	1.20	0.95
80.00°	0.72	0.68	0.89	0.69	0.77	0.91	0.67	0.82	0.65	0.58	0.72	0.78	0.75	0.83	1.01	1.02	0.72
82.50°	0.60	0.76	0.90	0.58	0.70	0.91	0.78	0.76	0.59	0.56	0.64	0.80	0.72	0.81	0.84	0.92	0.60
85.00°	0.63	0.79	0.89	0.64	0.66	0.92	0.87	0.80	0.56	0.48	0.57	0.76	0.69	0.91	0.70	0.86	0.63
87.50°	0.67	0.79	0.93	0.68	0.67	0.93	0.81	0.85	0.62	0.44	0.55	0.67	0.69	0.97	0.70	0.80	0.67
90.00°	0.71	0.78	0.98	0.59	0.70	0.88	0.78	0.77	0.68	0.55	0.53	0.64	0.75	0.86	0.81	0.82	0.71
92.50°	0.74	0.76	0.88	0.54	0.74	0.80	0.83	0.70	0.75	0.61	0.46	0.64	0.71	0.78	0.86	0.87	0.74
95.00°	0.75	0.71	0.71	0.63	0.74	0.76	0.86	0.63	0.76	0.58	0.45	0.64	0.59	0.81	0.88	0.87	0.75
97.50°	0.73	0.65	0.63	0.65	0.67	0.73	0.79	0.58	0.65	0.56	0.58	0.64	0.55	0.81	0.90	0.87	0.73
100.00°	0.69	0.76	0.60	0.47	0.62	0.68	0.77	0.80	0.58	0.54	0.64	0.59	0.60	0.74	0.91	0.88	0.69
102.50°	0.66	0.96	0.62	0.42	0.60	0.62	0.85	0.97	0.56	0.59	0.55	0.52	0.59	0.71	0.87	0.89	0.66
105.00°	0.64	0.91	0.66	0.60	0.63	0.66	0.86	0.82	0.56	0.72	0.51	0.52	0.55	0.76	0.81	0.80	0.64
107.50°	0.62	0.76	0.67	0.66	0.74	0.72	0.73	0.69	0.57	0.73	0.57	0.55	0.52	0.79	0.83	0.72	0.62
110.00°	0.60	0.74	0.67	0.52	0.71	0.76	0.69	0.72	0.54	0.59	0.58	0.53	0.51	0.77	0.88	0.88	0.60
112.50°	0.60	0.76	0.61	0.43	0.59	0.79	0.76	0.76	0.46	0.54	0.50	0.49	0.63	0.73	0.83	1.03	0.60

### 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	952	952	952	952	929	929	929	929	887	887	887	848	848	848	813	813	796
	1	911	891	872	856	891	873	857	842	840	827	815	810	800	790	782	774	758
	2	871	836	806	781	854	822	795	772	795	774	755	771	754	738	749	735	720
	3	833	786	750	721	817	775	742	715	754	726	703	734	711	692	716	697	683
	4	796	741	701	671	782	732	695	666	715	683	658	699	672	650	684	661	642
	5	761	701	658	627	748	693	654	624	679	644	618	665	636	613	653	627	607
	6	728	663	620	589	716	657	616	587	645	609	582	634	602	578	623	596	574
	7	696	629	585	555	686	624	582	553	613	577	550	604	571	547	595	566	544
	8	667	597	554	524	657	593	552	523	584	547	521	576	543	518	568	538	516
	9	639	568	525	496	630	565	524	496	557	520	494	550	516	492	543	513	490
	10	612	542	499	471	605	538	498	470	532	495	469	526	492	468	520	489	466

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	37.5 fc	5.2 ft
6.5 ft	26.9 fc	6.2 ft
7.5 ft	20.2 fc	7.1 ft
8.0 ft	17.7 fc	7.6 ft
10.0 ft	11.3 fc	9.5 ft
12.0 ft	7.9 fc	11.4 ft
14.0 ft	5.8 fc	13.3 ft
16.0 ft	4.4 fc	15.2 ft
20.0 ft	2.8 fc	19.0 ft
24.0 ft	2.0 fc	22.8 ft
28.0 ft	1.4 fc	26.6 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	142800	142800	142800
<b>45.00°</b>	1016	1266	694
<b>55.00°</b>	143	181	147
<b>65.00°</b>	230	197	148
<b>75.00°</b>	488	400	218
<b>85.00°</b>	913	1292	954

### 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	-12.3	-11.4	-12.0	-11.1	-10.8	-11.3	-10.4	-10.9	-10.1	-9.7
	3H	-8.1	-7.3	-7.7	-6.9	-6.6	-7.9	-7.1	-7.5	-6.7	-6.4
	4H	-5.0	-4.3	-4.6	-3.9	-3.5	-6.5	-5.7	-6.0	-5.4	-5.0
	6H	-3.1	-2.4	-2.7	-2.1	-1.6	-4.3	-3.6	-3.9	-3.3	-2.8
	8H	-2.4	-1.8	-2.0	-1.4	-1.0	-3.2	-2.5	-2.7	-2.1	-1.7
	12H	-1.6	-1.0	-1.2	-0.6	-0.2	-2.0	-1.4	-1.5	-1.0	-0.5
4H	2H	-11.5	-10.7	-11.0	-10.4	-10.0	-10.6	-9.9	-10.2	-9.5	-9.1
	3H	-6.4	-5.8	-6.0	-5.4	-5.0	-6.8	-6.2	-6.4	-5.8	-5.3
	4H	-3.2	-2.7	-2.8	-2.3	-1.8	-5.0	-4.5	-4.6	-4.1	-3.6
	6H	-1.3	-0.9	-0.8	-0.4	0.1	-2.6	-2.2	-2.1	-1.7	-1.2
	8H	-0.6	-0.2	-0.1	0.3	0.8	-1.4	-1.0	-0.9	-0.5	0.0
	12H	0.3	0.7	0.8	1.2	1.7	-0.1	0.3	0.4	0.8	1.3
8H	4H	-2.4	-2.0	-1.9	-1.5	-1.0	-4.2	-3.8	-3.7	-3.4	-2.9
	6H	-0.3	0.1	0.3	0.6	1.1	-1.5	-1.2	-1.0	-0.7	-0.2
	8H	0.7	1.0	1.3	1.5	2.1	0.0	0.2	0.5	0.8	1.3
	12H	1.9	2.2	2.4	2.7	3.3	1.5	1.8	2.1	2.3	2.9
12H	4H	-2.2	-1.9	-1.7	-1.4	-0.9	-4.0	-3.7	-3.5	-3.2	-2.7
	6H	0.0	0.3	0.6	0.8	1.4	-1.3	-1.0	-0.7	-0.5	0.1
	8H	1.2	1.4	1.7	1.9	2.5	0.4	0.6	0.9	1.1	1.7

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0