Indoor Distribution Test Report

Spectrum Lighting Inc.

994 Jefferson Street
Fall River, MA 02721
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Spectrum Lighting Photometric Lab

Luminaire
C0614LM 137L 35K ND DX NL CD XX
N/A

Test Number
SP-01011

Test Date
1/14/2020

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

Summary of Results

Power

Input Watts	106 W

Lumen Output

Output Lumens	9699
Efficacy	91.5 lm/W

Luminous Dimensions

0° - 180° Size	-0.5
90° - 270° Size	-0.5
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.43
Two luminaires, plane 90°	0.43
Four luminaires	0.48

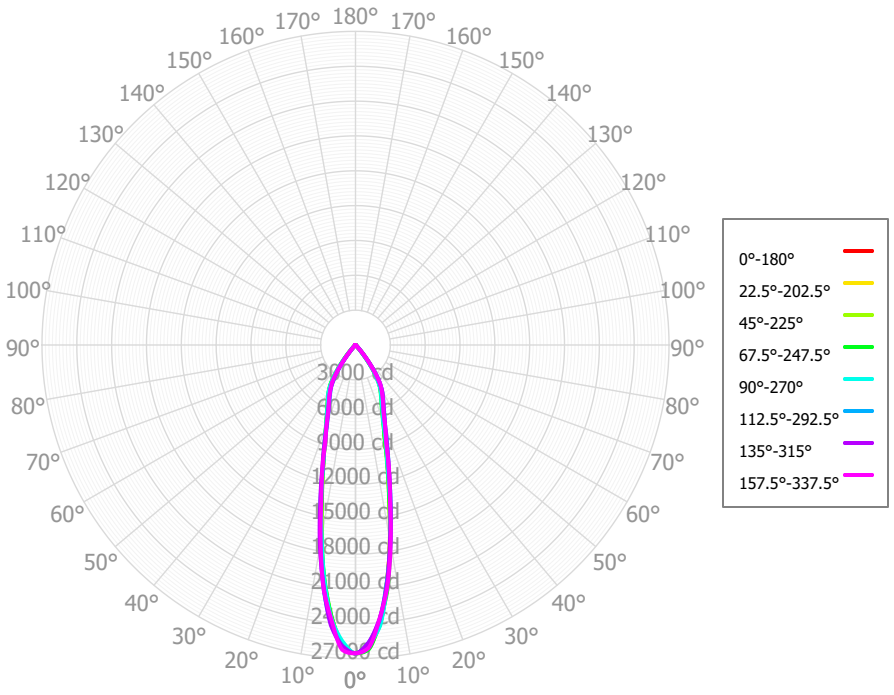
Full Beam Angle

0° - 180°	26°
90° - 270°	26°

IES File Header Contents

Keyword	Value
TEST	SP-01011
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/14/2020
ISSUEDATE	2/5/2020
LUMCAT	C0614LM 137L 35K ND DX NL CD XX
LUMINAIRE	N/A
OTHER	Beam Angle: 25.8 deg
LAMPCAT	N/A
LAMP	N/A
OTHER	CCT Output Multipliers: 27K x .934, 30K x .963, 40K x 1.02, 50K x 1.03
OTHER	Total luminaire watts is approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	82
_CCTMULT	27K x .934, 30K x .963, 40K x 1.02, 50K x 1.03
_LAMPMULT	100L x .799, 120L x .906

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	2,071.59	21.36%	90.00° - 100.00°	0.06	0.00%
10.00° - 20.00°	3,040.92	31.35%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	2,559.30	26.39%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	1,689.94	17.42%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	258.11	2.66%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	59.66	0.62%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	14.30	0.15%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	3.34	0.03%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.30	0.01%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	9,698.46	100.00%	0.00° - 180.00°	9,698.52	100.00%

SPECTRUM LIGHTING INC.

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°	33
0.00°	26,553.52	26,553.52	26,553.52	26,553.52	26,553.52	26,553.52	26,553.52	26,553.52	26,553.52	26,553.52	26,553.52	26,553.52	26,553.52	26,553.52	26,553.52	26,5
2.50°	25,708.98	26,155.63	26,060.31	26,229.65	25,835.90	25,926.08	25,963.72	26,270.86	25,661.22	26,071.92	25,744.98	25,968.29	25,564.49	25,672.46	25,670.05	26,1
5.00°	24,178.52	23,781.36	24,131.29	23,914.66	24,278.04	24,113.59	24,245.88	23,773.87	24,045.41	23,597.98	23,587.27	23,535.47	23,708.37	23,823.78	23,699.81	23,7
7.50°	20,661.87	21,041.98	20,688.30	21,158.70	20,780.46	21,104.03	21,005.10	21,125.19	20,679.39	20,493.97	20,536.81	20,438.54	20,491.55	20,629.80	20,769.69	21,0
10.00°	17,164.92	17,040.66	17,111.45	17,085.66	17,268.73	17,274.12	17,620.26	17,284.86	16,862.29	16,974.29	16,657.98	16,954.63	16,776.19	17,349.93	17,111.44	17,4
12.50°	13,747.27	13,335.32	13,386.87	13,353.66	13,717.20	13,898.03	14,040.83	13,588.72	13,712.05	13,332.69	13,400.19	13,334.55	13,669.57	13,943.47	13,910.04	13,7
15.00°	10,633.51	10,686.36	10,463.65	10,631.82	10,578.96	10,840.13	11,058.15	11,007.67	10,735.77	10,829.19	10,723.24	10,833.00	10,784.20	11,090.15	11,057.97	11,1
17.50°	8,758.32	8,347.64	8,419.24	8,270.63	8,615.54	8,675.35	8,876.22	8,571.93	8,844.59	8,670.06	8,738.56	8,721.85	8,900.72	9,070.94	8,976.44	8,77
20.00°	7,087.42	7,106.03	6,907.95	7,009.71	6,935.33	7,132.71	7,186.11	7,282.33	7,239.90	7,377.77	7,397.28	7,418.13	7,391.76	7,469.42	7,480.34	7,46
22.50°	6,240.87	6,000.78	5,994.42	5,909.30	6,053.57	6,060.71	6,171.10	6,066.56	6,305.68	6,345.45	6,387.11	6,404.42	6,430.80	6,493.62	6,414.72	6,30
25.00°	5,461.48	5,393.68	5,281.37	5,294.46	5,271.46	5,324.11	5,361.89	5,444.91	5,546.79	5,650.88	5,691.56	5,708.61	5,673.06	5,691.44	5,683.63	5,64
27.50°	4,962.81	4,814.95	4,791.67	4,710.21	4,778.48	4,727.27	4,833.37	4,831.20	4,994.25	5,060.79	5,106.46	5,126.06	5,121.50	5,151.49	5,089.34	5,04
30.00°	4,422.40	4,338.93	4,226.08	4,219.47	4,216.66	4,229.37	4,224.62	4,282.69	4,497.51	4,482.77	4,625.63	4,564.25	4,648.56	4,572.98	4,600.68	4,49
32.50°	3,709.22	3,749.17	3,574.02	3,598.86	3,456.67	3,463.58	3,503.96	3,681.41	3,692.69	3,908.46	3,919.74	4,009.90	3,906.36	3,935.74	3,875.52	3,95
35.00°	2,930.09	2,742.91	2,727.61	2,576.95	2,622.56	2,506.56	2,643.95	2,637.90	2,805.37	2,958.05	2,996.58	3,081.86	3,062.30	3,115.60	2,963.60	2,96
37.50°	1,868.14	1,779.26	1,661.21	1,618.97	1,568.80	1,604.95	1,590.77	1,631.21	1,847.57	1,891.06	2,058.50	2,017.97	2,090.52	2,014.57	2,017.07	1,91
40.00°	932.27	973.51	880.57	860.67	703.07	743.23	808.92	928.01	870.26	1,136.93	1,106.10	1,226.53	1,069.07	1,135.49	1,043.39	1,14
42.50°	531.48	317.16	430.68	266.22	389.83	306.69	411.80	289.21	482.75	480.87	532.26	535.14	591.13	600.11	496.42	410
45.00°	196.84	220.94	170.07	189.07	145.91	178.62	163.47	213.40	256.97	269.98	329.68	291.98	322.90	253.48	291.85	244
47.50°	153.39	138.28	127.14	122.33	111.72	108.94	124.74	142.05	175.14	200.13	206.29	215.08	209.96	197.17	177.19	165
50.00°	112.84	107.02	92.27	88.17	80.92	81.95	90.70	108.98	134.08	151.09	160.05	164.92	158.61	149.00	134.22	124
52.50°	84.95	77.25	66.86	58.76	60.34	58.32	63.45	76.87	99.14	108.70	119.70	124.58	121.67	113.64	98.33	90.4
55.00°	59.38	53.03	46.47	44.68	41.73	37.14	41.81	53.53	65.92	78.23	85.23	93.78	90.39	83.27	68.13	65.5
57.50°	43.97	32.36	31.95	31.54	29.23	24.26	28.23	31.47	44.76	51.53	59.13	66.57	65.37	60.71	45.97	42.1
60.00°	29.28	25.44	20.89	21.41	18.54	17.54	17.85	21.01	27.09	36.29	41.31	46.52	42.87	41.60	30.32	30.6
62.50°	17.78	18.37	13.89	12.60	13.39	12.49	12.10	11.39	18.73	24.79	28.56	29.15	29.58	28.00	19.93	20.9
65.00°	8.11	10.74	8.91	7.89	8.81	8.68	7.51	9.72	13.04	17.57	20.95	19.63	19.99	17.65	13.86	13.9
67.50°	5.53	5.06	6.08	5.08	5.67	5.59	4.58	7.92	8.55	11.73	14.83	13.14	13.43	12.27	8.89	7.32
70.00°	3.60	3.85	4.24	5.77	3.69	2.98	2.84	5.38	4.37	8.27	10.13	9.36	8.05	7.43	4.70	5.01
72.50°	2.86	3.29	2.99	4.12	3.07	2.39	2.24	3.27	3.54	5.44	6.85	6.44	5.53	3.13	2.84	3.33
75.00°	2.45	3.20	2.04	1.47	2.70	2.35	1.82	2.06	3.31	3.80	4.40	4.74	3.71	1.73	1.88	3.17
77.50°	2.01	3.16	2.19	1.06	2.61	1.97	1.35	1.79	4.05	2.47	3.47	3.31	2.51	1.31	2.04	2.08
80.00°	0.96	2.25	2.65	1.21	2.62	1.86	0.63	1.79	2.88	1.66	2.52	2.27	1.60	1.43	2.04	1.19
82.50°	0.64	1.82	1.35	1.22	1.49	1.69	1.98	1.47	1.59	1.33	1.60	2.10	1.14	1.16	1.65	1.42
85.00°	0.87	2.15	1.39	0.84	1.38	1.47	1.41	0.63	1.01	1.29	1.73	1.24	1.34	0.69	0.96	1.36
87.50°	0.62	0.67	0.69	1.39	0.95	1.13	0.78	0.83	0.61	0.82	0.85	0.69	0.61	1.12	1.84	0.87
90.00°	0.00	0.00	0.00	0.00	0.00	0.89	1.48	0.77	1.37	0.49	0.96	0.72	0.61	0.00	0.00	0.00
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
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
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
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
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
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
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
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
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

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%	3
	0	11,546	11,546	11,546	11,546	11,277	11,277	11,277	11,277	10,776	10,776	10,776	10,318	10,318	10,318	9,896	9,896	9,896	9,
	1	11,069	10,827	10,609	10,413	10,834	10,619	10,424	10,248	10,229	10,075	9,934	9,871	9,750	9,639	9,541	9,448	9,361	9,
	2	10,597	10,175	9,826	9,533	10,388	10,010	9,694	9,426	9,701	9,443	9,221	9,417	9,208	9,025	9,153	8,987	8,838	8,
	3	10,142	9,589	9,162	8,821	9,957	9,458	9,066	8,750	9,210	8,882	8,612	8,980	8,708	8,479	8,767	8,543	8,351	8,
	4	9,710	9,063	8,589	8,227	9,544	8,956	8,518	8,179	8,754	8,380	8,084	8,566	8,249	7,992	8,392	8,124	7,902	7,
RCR	5	9,300	8,586	8,088	7,720	9,152	8,498	8,033	7,686	8,332	7,928	7,619	8,177	7,828	7,554	8,033	7,732	7,490	7,
	6	8,914	8,154	7,644	7,278	8,781	8,081	7,602	7,254	7,942	7,520	7,206	7,813	7,442	7,159	7,692	7,367	7,113	7,
	7	8,551	7,760	7,248	6,888	8,432	7,699	7,215	6,871	7,582	7,150	6,836	7,473	7,088	6,801	7,371	7,029	6,767	6,
	8	8,211	7,401	6,891	6,541	8,104	7,349	6,865	6,528	7,250	6,813	6,502	7,157	6,764	6,476	7,069	6,715	6,451	6,
	9	7,893	7,072	6,569	6,230	7,796	7,028	6,548	6,220	6,943	6,506	6,200	6,863	6,465	6,180	6,787	6,426	6,161	6,
	10	7,596	6,771	6,277	5,948	7,508	6,733	6,259	5,941	6,659	6,225	5,925	6,589	6,191	5,910	6,524	6,159	5,895	6,

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	877.8 fc	2.5 ft
6.5 ft	628.5 fc	3.0 ft
7.5 ft	472.1 fc	3.4 ft
8.0 ft	414.9 fc	3.7 ft
10.0 ft	265.5 fc	4.6 ft
12.0 ft	184.4 fc	5.5 ft
14.0 ft	135.5 fc	6.4 ft
16.0 ft	103.7 fc	7.3 ft
20.0 ft	66.4 fc	9.1 ft
24.0 ft	46.1 fc	11.0 ft
28.0 ft	33.9 fc	12.8 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	1,455,668	1,455,668	1,455,668
45.00°	15,261	13,185	11,312
55.00°	5,675	4,442	3,988
65.00°	1,051	1,156	1,143
75.00°	519	433	573
85.00°	546	874	866

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	4.0	4.9	4.3	5.2	5.5	5.8	6.7	6.1	7.0	7.3
	3H	3.9	4.7	4.3	5.0	5.4	5.7	6.6	6.1	6.9	7.3
	4H	3.8	4.6	4.2	4.9	5.3	5.7	6.4	6.1	6.8	7.2
	6H	3.7	4.4	4.1	4.8	5.2	5.6	6.3	6.0	6.7	7.1
	8H	3.7	4.3	4.1	4.7	5.1	5.6	6.2	6.0	6.6	7.0
	12H	3.6	4.2	4.1	4.6	5.0	5.5	6.1	5.9	6.5	6.9
4H	2H	3.8	4.6	4.2	4.9	5.3	5.6	6.4	6.0	6.7	7.1
	3H	3.7	4.3	4.2	4.8	5.2	5.6	6.2	6.1	6.7	7.1
	4H	3.7	4.2	4.1	4.7	5.1	5.6	6.1	6.0	6.5	7.0
	6H	3.6	4.1	4.1	4.5	5.0	5.5	6.0	6.0	6.4	6.9
	8H	3.6	4.0	4.0	4.5	4.9	5.5	5.9	5.9	6.4	6.8
	12H	3.5	3.9	4.0	4.4	4.9	5.4	5.8	5.9	6.3	6.8
8H	4H	3.5	4.0	4.0	4.4	4.9	5.4	5.9	5.9	6.3	6.8
	6H	3.5	3.8	4.0	4.3	4.8	5.4	5.7	5.9	6.2	6.7
	8H	3.5	3.8	4.0	4.3	4.8	5.3	5.6	5.9	6.2	6.7
	12H	3.5	3.7	4.0	4.2	4.8	5.3	5.6	5.9	6.1	6.7
12H	4H	3.5	3.8	4.0	4.3	4.8	5.4	5.7	5.9	6.2	6.7
	6H	3.4	3.7	4.0	4.2	4.8	5.3	5.6	5.8	6.1	6.6
	8H	3.4	3.7	4.0	4.2	4.8	5.3	5.6	5.8	6.1	6.6

Corrected UGR values based on total output lumens

SHR = 1.0