

Indoor Distribution Test Report

Spectrum Lighting Inc.

994 Jefferson Street
Fall River, MA 02721
+1.508.678.2303

Spectrum Lighting Photometric Lab

Luminaire

VP2407-60L-35K-EX-xx
Nom. 24" diam x nom. 7" H

Test Number

SP-00692_1_M-60L

Test Date

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

Summary of Results

Power

Input Watts	44 W
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Lumen Output

Output Lumens	4846
Efficacy	110.15 lm/W

Luminous Dimensions

0° - 180° Size	-2.01
90° - 270° Size	-2.01
Height	0

Spacing Criterion

Two luminaires, plane 0°	1.25
Two luminaires, plane 90°	1.25
Four luminaires	1.37

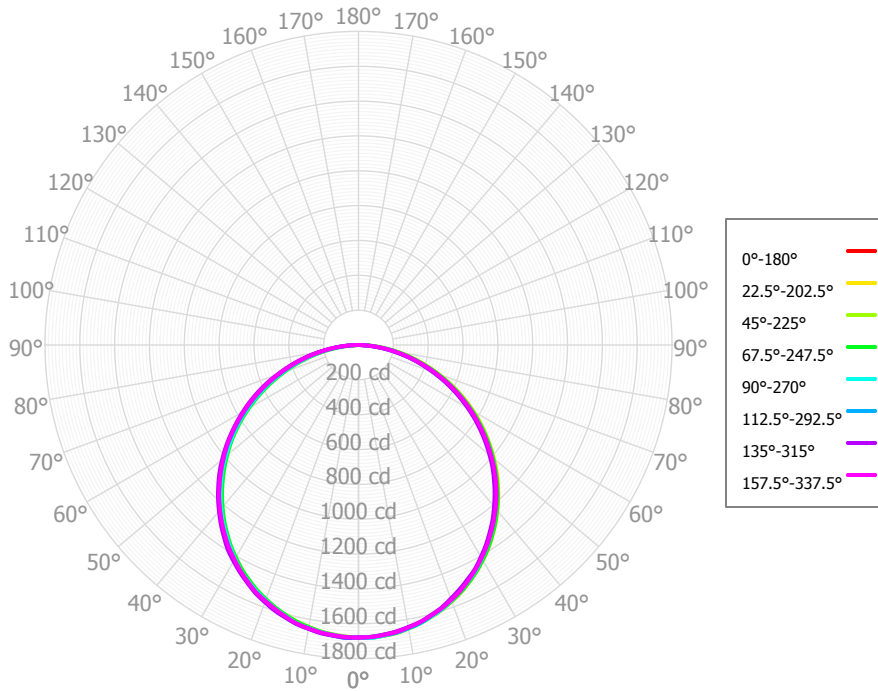
Full Beam Angle

0° - 180°	113°
90° - 270°	112°

IES File Header Contents

Keyword	Value
TEST	SP-00692_1_M-60L
TESTLAB	Spectrum Lighting Photometric Lab VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	6/18/2018
UPDATE	3/11/2019
LUMCAT	VP2407-60L-35K-EX-xx
LUMINAIRE	Nom. 24" diam x nom. 7" H
OTHER	Reflector: Matte White interior finish
OTHER	Matte white diffusing lens - 2.0 ft diameter
OTHER	Beam Angle: 113 degrees
LAMP	N/A, Gen3
LAMPCAT	N/A
OTHER	Total Luminaire Watts is approximate
OTHER	CCT Multipliers: 27K x 0.97, 30K x 0.98, 40K x 1.02, 50K x 1.07
OTHER	This report generated by Spectrum Lighting
_CRI	80+
_CCTMULT	27K x 0.97, 30K x 0.98, 40K x 1.02, 50K x 1.07
_LAMPMULT	20L x 0.31, 40L x 0.63

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	161.32	3.33%	90.00° - 100.00°	0.33	0.01%
10.00° - 20.00°	454.68	9.38%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	688.88	14.21%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	830.64	17.14%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	862.35	17.79%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	781.82	16.13%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	603.17	12.45%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	359.76	7.42%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	103.47	2.14%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	4,846.09	99.99%	0.00° - 180.00°	4,846.42	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°	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40	1,679.40
2.50°	1,677.22	1,679.20	1,677.27	1,681.71	1,683.26	1,683.60	1,681.76	1,677.73	1,678.44	1,676.44	1,675.80	1,678.54	1,678.31	1,676.87	1,678.46	1,677.88	1,677.22
5.00°	1,669.82	1,674.11	1,670.58	1,675.48	1,674.25	1,675.08	1,675.23	1,671.70	1,673.14	1,668.34	1,669.04	1,669.87	1,671.05	1,671.27	1,668.97	1,671.40	1,669.82
7.50°	1,660.20	1,668.21	1,662.90	1,667.43	1,665.03	1,666.28	1,668.48	1,664.28	1,665.47	1,659.84	1,660.95	1,659.63	1,663.67	1,665.55	1,659.32	1,662.88	1,660.20
10.00°	1,646.41	1,651.83	1,648.58	1,652.77	1,650.42	1,653.84	1,654.90	1,651.82	1,651.78	1,644.61	1,643.98	1,644.93	1,650.24	1,650.51	1,644.37	1,647.00	1,646.41
12.50°	1,631.09	1,635.15	1,633.40	1,636.57	1,635.49	1,640.65	1,641.06	1,638.07	1,635.78	1,628.97	1,626.53	1,629.10	1,636.68	1,634.89	1,629.34	1,629.93	1,631.09
15.00°	1,609.56	1,614.58	1,612.72	1,614.83	1,613.10	1,618.62	1,620.27	1,615.06	1,614.09	1,607.81	1,606.01	1,606.09	1,612.94	1,610.25	1,605.70	1,608.63	1,609.56
17.50°	1,585.76	1,593.43	1,591.37	1,591.83	1,590.30	1,596.07	1,599.18	1,589.79	1,590.82	1,586.36	1,584.47	1,581.34	1,589.03	1,585.11	1,581.93	1,585.81	1,585.76
20.00°	1,566.55	1,565.55	1,562.98	1,564.44	1,558.63	1,567.74	1,571.39	1,563.40	1,563.72	1,555.10	1,556.48	1,552.73	1,559.88	1,554.12	1,549.82	1,557.72	1,566.55
22.50°	1,525.44	1,537.04	1,533.73	1,535.54	1,526.83	1,538.91	1,543.25	1,536.74	1,534.40	1,523.41	1,527.21	1,523.22	1,530.65	1,522.81	1,517.66	1,527.76	1,525.44
25.00°	1,490.55	1,501.90	1,499.19	1,501.49	1,492.53	1,504.90	1,507.89	1,501.42	1,499.83	1,489.12	1,490.37	1,487.74	1,497.00	1,487.56	1,483.39	1,491.61	1,490.55
27.50°	1,454.37	1,466.35	1,464.05	1,466.01	1,457.72	1,470.08	1,472.38	1,464.11	1,463.43	1,454.71	1,452.81	1,450.86	1,463.31	1,452.12	1,449.11	1,454.22	1,454.37
30.00°	1,415.12	1,426.38	1,422.96	1,425.74	1,414.34	1,427.20	1,433.94	1,423.40	1,422.85	1,411.45	1,411.14	1,408.60	1,418.52	1,409.32	1,405.30	1,412.77	1,415.12
32.50°	1,374.82	1,385.76	1,381.23	1,383.91	1,370.68	1,384.00	1,394.93	1,381.94	1,380.39	1,367.86	1,368.74	1,365.15	1,373.72	1,366.23	1,361.46	1,370.03	1,374.82
35.00°	1,328.70	1,338.69	1,334.51	1,337.09	1,322.62	1,337.66	1,346.49	1,335.22	1,333.70	1,320.82	1,322.22	1,316.83	1,326.29	1,319.03	1,313.09	1,323.20	1,328.70
37.50°	1,280.69	1,291.21	1,287.28	1,288.98	1,274.24	1,290.66	1,297.82	1,287.34	1,286.01	1,273.68	1,274.78	1,267.50	1,278.81	1,271.68	1,264.68	1,275.50	1,280.69
40.00°	1,228.57	1,239.91	1,234.39	1,236.82	1,221.25	1,237.96	1,245.74	1,236.61	1,236.11	1,219.60	1,222.47	1,214.20	1,226.11	1,216.77	1,210.79	1,225.17	1,228.57
42.50°	1,175.15	1,188.16	1,180.97	1,183.36	1,168.01	1,184.90	1,193.44	1,185.29	1,184.17	1,165.33	1,169.28	1,160.07	1,173.35	1,161.62	1,156.87	1,173.27	1,175.15
45.00°	1,118.83	1,132.46	1,125.20	1,125.96	1,111.55	1,128.87	1,137.99	1,128.12	1,127.87	1,109.41	1,111.65	1,102.62	1,116.11	1,105.49	1,100.58	1,116.66	1,118.83
47.50°	1,061.61	1,076.14	1,069.23	1,067.93	1,054.72	1,072.28	1,082.15	1,069.79	1,070.24	1,053.45	1,053.39	1,044.50	1,058.80	1,049.33	1,044.16	1,058.72	1,061.61
50.00°	1,001.04	1,014.72	1,006.05	1,008.01	993.38	1,011.06	1,021.12	1,011.04	1,009.81	991.59	991.88	984.75	996.56	988.56	981.99	996.87	1,001.04
52.50°	939.45	953.22	942.24	947.13	931.87	949.25	959.83	952.20	948.66	929.65	929.92	924.69	934.29	927.69	919.79	934.64	939.45
55.00°	875.95	891.07	880.49	883.46	868.43	883.00	895.30	888.16	886.02	865.87	865.77	860.34	870.48	863.57	856.03	871.38	875.95
57.50°	811.89	828.46	818.90	819.17	804.78	816.87	830.76	823.14	822.09	802.07	801.15	795.18	806.59	799.39	792.18	807.42	811.89
60.00°	745.79	762.25	751.83	753.11	738.71	751.67	766.22	757.22	755.58	735.27	734.37	727.43	739.89	731.22	725.59	741.53	745.79
62.50°	679.09	695.84	684.35	686.58	672.28	686.11	701.46	691.13	687.94	668.43	667.45	659.21	673.14	663.00	658.98	675.28	679.09
65.00°	611.28	628.12	617.00	618.76	602.28	618.16	634.39	623.03	618.08	599.35	599.97	590.44	604.91	595.58	591.80	608.03	611.28
67.50°	543.19	559.94	549.70	550.85	532.76	549.95	566.66	554.58	549.77	530.48	532.56	521.58	536.75	527.96	524.31	540.06	543.19
70.00°	477.09	490.09	483.14	482.76	465.36	480.81	495.88	485.69	483.71	463.69	465.33	454.28	469.03	458.39	454.80	470.75	477.09
72.50°	410.78	422.22	416.36	415.93	398.52	413.10	427.20	417.45	417.68	397.57	397.55	387.54	401.24	390.86	387.98	403.27	410.78
75.00°	342.55	356.63	349.07	350.01	332.38	347.03	361.27	351.29	351.70	332.61	329.25	322.32	333.33	326.92	325.32	337.07	342.55
77.50°	277.29	292.03	283.78	285.82	269.56	281.89	295.36	284.75	286.39	266.65	265.44	257.68	268.93	262.09	258.94	271.30	277.29
80.00°	214.49	227.57	220.74	220.76	208.01	217.56	229.26	220.22	219.74	202.01	201.92	194.16	205.53	198.21	195.79	206.20	214.49
82.50°	153.31	164.09	159.90	157.08	147.59	154.83	165.30	159.77	154.36	139.99	139.48	132.98	144.26	136.65	136.69	145.32	153.31
85.00°	90.74	103.12	99.79	97.26	89.09	96.04	105.47	99.46	93.00	79.70	79.33	76.05	86.37	78.55	77.74	87.52	90.74
87.50°	35.17	44.56	44.83	40.59	34.72	41.26	46.70	41.45	36.01	25.50	25.86	24.67	30.21	25.44	24.23	29.29	35.17
90.00°	2.19	3.03	3.22	3.30	1.87	4.50	3.95	3.34	1.61	1.58	1.16	1.35	1.27	1.99	2.23	1.43	2.19
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%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	5,769	5,769	5,769	5,769	5,635	5,635	5,635	5,635	5,385	5,385	5,385	5,156	5,156	5,156	4,945	4,945	4,945	4,846
	1	5,259	5,022	4,809	4,618	5,126	4,911	4,718	4,542	4,704	4,545	4,398	4,514	4,384	4,263	4,339	4,234	4,136	4,143
	2	4,773	4,366	4,029	3,747	4,644	4,274	3,964	3,701	4,100	3,839	3,614	3,941	3,722	3,531	3,793	3,612	3,451	3,532
	3	4,347	3,827	3,426	3,105	4,225	3,750	3,377	3,077	3,604	3,285	3,021	3,470	3,197	2,968	3,345	3,114	2,916	3,044
	4	3,977	3,387	2,955	2,625	3,864	3,322	2,919	2,607	3,199	2,848	2,570	3,085	2,781	2,534	2,979	2,717	2,499	2,656
	5	3,655	3,024	2,583	2,257	3,552	2,969	2,554	2,244	2,865	2,499	2,219	2,768	2,447	2,194	2,678	2,396	2,170	2,344
	6	3,374	2,721	2,282	1,968	3,281	2,674	2,260	1,958	2,586	2,216	1,940	2,504	2,174	1,923	2,427	2,134	1,905	2,089
	7	3,128	2,466	2,037	1,736	3,044	2,427	2,019	1,729	2,351	1,984	1,716	2,281	1,950	1,703	2,215	1,917	1,690	1,878
	8	2,912	2,250	1,833	1,547	2,835	2,216	1,819	1,542	2,151	1,790	1,532	2,091	1,763	1,523	2,034	1,736	1,513	1,702
	9	2,720	2,065	1,663	1,391	2,651	2,035	1,651	1,388	1,980	1,627	1,380	1,927	1,604	1,372	1,878	1,582	1,365	1,552
	10	2,550	1,905	1,518	1,261	2,488	1,879	1,508	1,258	1,831	1,489	1,252	1,785	1,469	1,246	1,742	1,451	1,240	1,425

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	55.5 fc	16.4 ft
6.5 ft	39.7 fc	19.4 ft
7.5 ft	29.9 fc	22.4 ft
8.0 ft	26.2 fc	23.9 ft
10.0 ft	16.8 fc	29.9 ft
12.0 ft	11.7 fc	35.8 ft
14.0 ft	8.6 fc	41.8 ft
16.0 ft	6.6 fc	47.8 ft
20.0 ft	4.2 fc	59.7 ft
24.0 ft	2.9 fc	71.7 ft
28.0 ft	2.1 fc	83.6 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	5,697	5,697	5,697
45.00°	5,367	5,398	5,332
55.00°	5,181	5,207	5,136
65.00°	4,907	4,953	4,834
75.00°	4,490	4,575	4,356
85.00°	3,532	3,884	3,467

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	17.1	18.7	17.4	19.0	19.4	17.0	18.6	17.4	19.0	19.3
	3H	19.0	20.5	19.3	20.8	21.1	18.8	20.3	19.2	20.7	21.0
	4H	19.7	21.1	20.1	21.4	21.8	19.5	21.0	19.9	21.3	21.7
	6H	20.2	21.6	20.7	21.9	22.3	20.1	21.4	20.5	21.8	22.2
	8H	20.4	21.7	20.9	22.1	22.5	20.3	21.5	20.7	21.9	22.3
	12H	20.6	21.8	21.0	22.1	22.6	20.4	21.6	20.8	22.0	22.4
4H	2H	17.7	19.1	18.1	19.5	19.8	17.7	19.1	18.1	19.4	19.8
	3H	19.8	21.0	20.2	21.4	21.8	19.7	20.9	20.2	21.3	21.7
	4H	20.7	21.8	21.1	22.2	22.6	20.6	21.7	21.0	22.1	22.5
	6H	21.4	22.3	21.9	22.8	23.2	21.3	22.2	21.7	22.6	23.1
	8H	21.6	22.5	22.1	23.0	23.4	21.5	22.4	21.9	22.8	23.3
	12H	21.8	22.6	22.3	23.1	23.6	21.6	22.4	22.1	22.9	23.4
8H	4H	21.0	21.9	21.5	22.3	22.8	20.9	21.8	21.4	22.3	22.7
	6H	21.9	22.6	22.4	23.1	23.6	21.7	22.5	22.2	23.0	23.4
	8H	22.2	22.9	22.7	23.4	23.8	22.0	22.7	22.6	23.2	23.7
	12H	22.5	23.0	23.0	23.5	24.1	22.3	22.9	22.8	23.4	23.9
12H	4H	21.1	21.9	21.5	22.3	22.8	21.0	21.8	21.5	22.3	22.7
	6H	21.9	22.6	22.5	23.1	23.6	21.8	22.5	22.3	22.9	23.5
	8H	22.3	22.9	22.8	23.4	24.0	22.2	22.8	22.7	23.3	23.8

Corrected UGR values based on total output lumens

SHR = 1.0