

Indoor Distribution Test Report

Spectrum Lighting Inc.

994 Jefferson Street
Fall River, MA 02721
+1.508.678.2303

Spectrum Lighting Photometric Lab

Luminaire

VP2407-40L-35K-EX-xx
Nom. 24" diam x nom. 7" H

Test Number

SP-00692_1_M-40L

Test Date

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

Summary of Results

Power

Input Watts	28.1 W
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Lumen Output

Output Lumens	3072
Efficacy	109.31 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

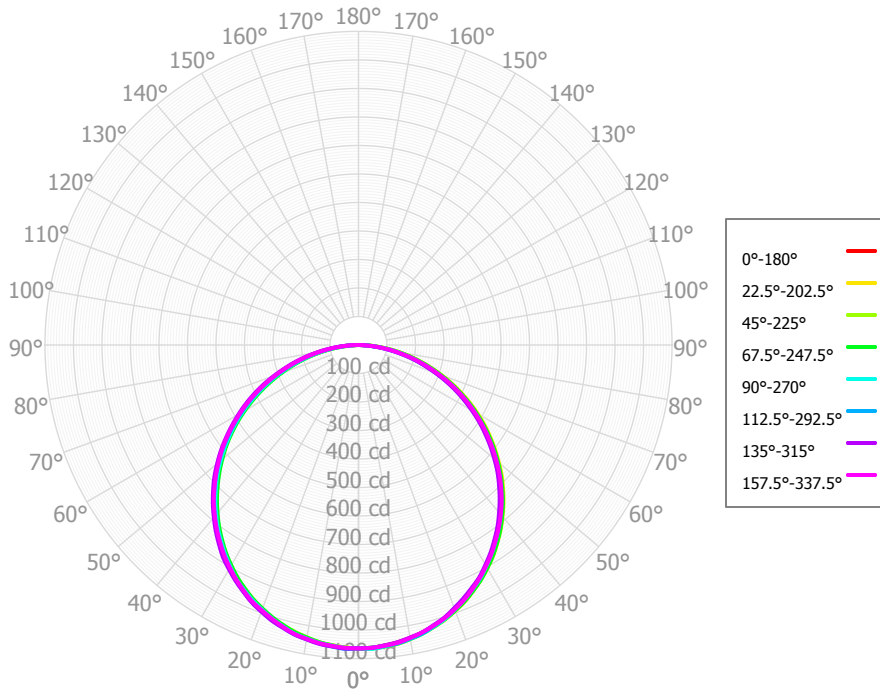
Full Beam Angle

0° - 180°	113°
90° - 270°	112°

IES File Header Contents

Keyword	Value
TEST	SP-00692_1_M-40L
TESTLAB	Spectrum Lighting Photometric Lab VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	6/18/2018
UPDATE	3/11/2019
LUMCAT	VP2407-40L-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+

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	102.24	3.33%	90.00° - 100.00°	0.21	0.01%
10.00° - 20.00°	288.18	9.38%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	436.61	14.21%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	526.46	17.14%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	546.56	17.79%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	495.52	16.13%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	382.29	12.45%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	228.02	7.42%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	65.58	2.14%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	3,071.47	99.99%	0.00° - 180.00°	3,071.67	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°	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41	1,064.41
2.50°	1,063.03	1,064.28	1,063.06	1,065.87	1,066.86	1,067.07	1,065.90	1,063.35	1,063.80	1,062.53	1,062.12	1,063.86	1,063.72	1,062.81	1,063.81	1,063.44	1,063.03
5.00°	1,058.33	1,061.06	1,058.82	1,061.93	1,061.15	1,061.67	1,061.77	1,059.53	1,060.44	1,057.40	1,057.84	1,058.37	1,059.12	1,059.26	1,057.80	1,059.34	1,058.33
7.50°	1,052.24	1,057.32	1,053.95	1,056.82	1,055.30	1,056.09	1,057.49	1,054.83	1,055.58	1,052.01	1,052.72	1,051.88	1,054.44	1,055.63	1,051.68	1,053.94	1,052.24
10.00°	1,043.50	1,046.94	1,044.88	1,047.53	1,046.04	1,048.21	1,048.88	1,046.93	1,046.91	1,042.36	1,041.96	1,042.56	1,045.93	1,046.10	1,042.21	1,043.87	1,043.50
12.50°	1,033.79	1,036.36	1,035.25	1,037.27	1,036.58	1,039.85	1,040.11	1,038.22	1,036.76	1,032.45	1,030.90	1,032.53	1,037.33	1,036.20	1,032.68	1,033.05	1,033.79
15.00°	1,020.15	1,023.32	1,022.14	1,023.49	1,022.39	1,025.88	1,026.93	1,023.63	1,023.02	1,019.03	1,017.90	1,017.94	1,022.28	1,020.58	1,017.70	1,019.55	1,020.15
17.50°	1,005.06	1,009.92	1,008.61	1,008.90	1,007.93	1,011.60	1,013.56	1,007.61	1,008.27	1,005.44	1,004.24	1,002.26	1,007.13	1,004.65	1,002.63	1,005.09	1,005.06
20.00°	986.55	992.25	990.62	991.55	987.86	993.64	995.95	990.89	991.09	985.63	986.50	984.12	988.65	985.01	982.28	987.29	986.55
22.50°	966.83	974.18	972.08	973.23	967.71	975.37	978.12	973.99	972.51	965.54	967.95	965.42	970.13	965.16	961.90	968.30	966.83
25.00°	944.72	951.91	950.19	951.65	945.97	953.81	955.71	951.61	950.60	943.81	944.60	942.93	948.80	942.82	940.18	945.39	944.72
27.50°	921.79	929.38	927.92	929.16	923.91	931.74	933.20	927.95	927.53	922.00	920.79	919.56	927.45	920.36	918.45	921.69	921.79
30.00°	896.91	904.05	901.88	903.64	896.41	904.57	908.84	902.15	901.81	894.58	894.39	892.77	899.06	893.23	890.68	895.42	896.91
32.50°	871.36	878.30	875.43	877.12	868.74	877.18	884.11	875.88	874.89	866.95	867.51	865.23	870.67	865.92	862.90	868.33	871.36
35.00°	842.14	848.46	845.82	847.45	838.28	847.81	853.41	846.27	845.30	837.14	838.03	834.61	840.60	836.01	832.24	838.65	842.14
37.50°	811.71	818.37	815.88	816.96	807.62	818.03	822.56	815.92	815.08	807.26	807.96	803.34	810.52	805.99	801.56	808.41	811.71
40.00°	778.67	785.86	782.36	783.90	774.03	784.62	789.55	783.77	783.45	772.99	774.80	769.56	777.11	771.19	767.40	776.51	778.67
42.50°	744.81	753.06	748.50	750.02	740.29	750.99	756.41	751.24	750.53	738.59	741.09	735.26	743.67	736.24	733.23	743.62	744.81
45.00°	709.12	717.75	713.16	713.64	704.50	715.48	721.26	715.01	714.85	703.15	704.57	698.84	707.39	700.66	697.55	707.74	709.12
47.50°	672.85	682.06	677.68	676.85	668.49	679.61	685.87	678.04	678.32	667.68	667.64	662.01	671.07	665.07	661.79	671.02	672.85
50.00°	634.46	643.13	637.64	638.88	629.61	640.81	647.19	640.80	640.02	628.48	628.66	624.14	631.63	626.55	622.39	631.82	634.46
52.50°	595.43	604.15	597.20	600.29	590.62	601.64	608.34	603.51	601.26	589.22	589.38	586.07	592.16	587.97	582.97	592.38	595.43
55.00°	555.18	564.77	558.06	559.94	550.41	559.65	567.44	562.92	561.56	548.79	548.73	545.29	551.71	547.33	542.55	552.28	555.18
57.50°	514.58	525.08	519.02	519.19	510.07	517.74	526.54	521.71	521.04	508.35	507.77	503.99	511.22	506.66	502.08	511.75	514.58
60.00°	472.68	483.11	476.51	477.32	468.20	476.41	485.64	479.93	478.89	466.02	465.44	461.05	468.94	463.45	459.88	469.98	472.68
62.50°	430.41	441.03	433.75	435.15	426.09	434.86	444.59	438.04	436.02	423.66	423.03	417.81	426.64	420.21	417.66	427.99	430.41
65.00°	387.43	398.10	391.06	392.17	381.73	391.79	402.08	394.88	391.74	379.87	380.26	374.22	383.39	377.48	375.08	385.37	387.43
67.50°	344.27	354.89	348.40	349.13	337.67	348.56	359.15	351.50	348.45	336.22	337.54	330.58	340.19	334.62	332.31	342.29	344.27
70.00°	302.38	310.62	306.22	305.97	294.95	304.74	314.29	307.83	306.58	293.89	294.93	287.93	297.27	290.53	288.25	298.36	302.38
72.50°	260.35	267.60	263.89	263.62	252.58	261.83	270.76	264.58	264.72	251.98	251.97	245.62	254.31	247.73	245.91	255.59	260.35
75.00°	217.11	226.03	221.24	221.84	210.66	219.95	228.98	222.65	222.91	210.81	208.68	204.28	211.27	207.20	206.19	213.64	217.11
77.50°	175.75	185.09	179.86	181.15	170.85	178.67	187.20	180.48	181.52	169.01	168.24	163.32	170.45	166.12	164.12	171.95	175.75
80.00°	135.95	144.23	139.91	139.92	131.84	137.89	145.31	139.58	139.27	128.03	127.98	123.06	130.26	125.63	124.09	130.69	135.95
82.50°	97.17	104.00	101.35	99.56	93.55	98.13	104.77	101.27	97.83	88.72	88.40	84.29	91.43	86.61	86.64	92.10	97.17
85.00°	57.51	65.36	63.25	61.65	56.46	60.87	66.84	63.04	58.94	50.51	50.28	48.20	54.74	49.79	49.27	55.47	57.51
87.50°	22.29	28.24	28.41	25.73	22.01	26.15	29.60	26.27	22.82	16.16	16.39	15.64	19.15	16.12	15.36	18.57	22.29
90.00°	1.39	1.92	2.04	2.09	1.19	2.85	2.50	2.11	1.02	1.00	0.74	0.85	0.80	1.26	1.41	0.90	1.39
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	3,657	3,657	3,657	3,657	3,572	3,572	3,572	3,572	3,413	3,413	3,413	3,268	3,268	3,268	3,134	3,134	3,071
	1	3,333	3,183	3,048	2,927	3,249	3,113	2,990	2,879	2,981	2,880	2,788	2,861	2,778	2,702	2,750	2,683	2,621
	2	3,025	2,767	2,554	2,375	2,944	2,709	2,512	2,346	2,599	2,433	2,291	2,498	2,359	2,238	2,404	2,290	2,188
	3	2,755	2,426	2,171	1,968	2,678	2,377	2,141	1,950	2,285	2,082	1,915	2,199	2,026	1,881	2,120	1,974	1,848
	4	2,520	2,147	1,873	1,664	2,449	2,105	1,850	1,652	2,028	1,805	1,629	1,955	1,762	1,606	1,888	1,722	1,584
	5	2,317	1,916	1,637	1,430	2,251	1,882	1,619	1,422	1,816	1,584	1,406	1,755	1,551	1,391	1,697	1,519	1,375
	6	2,139	1,725	1,447	1,247	2,079	1,695	1,432	1,241	1,639	1,405	1,230	1,587	1,378	1,219	1,538	1,353	1,208
	7	1,983	1,563	1,291	1,100	1,929	1,538	1,280	1,096	1,490	1,257	1,088	1,446	1,236	1,079	1,404	1,215	1,071
	8	1,846	1,426	1,162	981	1,797	1,404	1,153	977	1,364	1,135	971	1,325	1,117	965	1,289	1,100	959
	9	1,724	1,309	1,054	882	1,680	1,290	1,046	879	1,255	1,031	875	1,221	1,017	870	1,190	1,003	865
	10	1,616	1,207	962	799	1,577	1,191	956	797	1,161	943	794	1,132	931	790	1,104	920	786

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	35.2 fc	16.4 ft
6.5 ft	25.2 fc	19.4 ft
7.5 ft	18.9 fc	22.4 ft
8.0 ft	16.6 fc	23.9 ft
10.0 ft	10.6 fc	29.9 ft
12.0 ft	7.4 fc	35.8 ft
14.0 ft	5.4 fc	41.8 ft
16.0 ft	4.2 fc	47.8 ft
20.0 ft	2.7 fc	59.7 ft
24.0 ft	1.8 fc	71.7 ft
28.0 ft	1.4 fc	83.6 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	3,611	3,611	3,611
45.00°	3,402	3,421	3,380
55.00°	3,283	3,300	3,255
65.00°	3,110	3,139	3,064
75.00°	2,846	2,900	2,761
85.00°	2,238	2,462	2,198

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	15.5	17.2	15.9	17.5	17.8	15.4	17.1	15.8	17.4	17.7
	3H	17.4	18.9	17.8	19.2	19.6	17.3	18.8	17.6	19.1	19.4
	4H	18.1	19.5	18.5	19.9	20.2	18.0	19.4	18.4	19.7	20.1
	6H	18.7	20.0	19.1	20.3	20.7	18.5	19.8	18.9	20.2	20.6
	8H	18.9	20.1	19.3	20.5	20.9	18.7	19.9	19.1	20.3	20.7
	12H	19.0	20.2	19.4	20.6	21.0	18.8	20.0	19.2	20.4	20.8
4H	2H	16.1	17.5	16.5	17.9	18.3	16.1	17.5	16.5	17.8	18.2
	3H	18.2	19.4	18.6	19.8	20.2	18.2	19.3	18.6	19.7	20.1
	4H	19.1	20.2	19.5	20.6	21.0	19.0	20.1	19.4	20.5	20.9
	6H	19.8	20.8	20.3	21.2	21.6	19.7	20.6	20.1	21.1	21.5
	8H	20.1	20.9	20.5	21.4	21.8	19.9	20.8	20.4	21.2	21.7
	12H	20.2	21.0	20.7	21.5	22.0	20.1	20.9	20.5	21.3	21.8
8H	4H	19.4	20.3	19.9	20.8	21.2	19.4	20.2	19.8	20.7	21.1
	6H	20.3	21.0	20.8	21.5	22.0	20.2	20.9	20.7	21.4	21.9
	8H	20.6	21.3	21.1	21.8	22.3	20.5	21.1	21.0	21.6	22.1
	12H	20.9	21.4	21.4	21.9	22.5	20.7	21.3	21.2	21.8	22.3
12H	4H	19.5	20.3	20.0	20.7	21.2	19.4	20.2	19.9	20.7	21.1
	6H	20.4	21.0	20.9	21.5	22.0	20.2	20.9	20.8	21.4	21.9
	8H	20.7	21.3	21.2	21.8	22.4	20.6	21.2	21.1	21.7	22.2

Corrected UGR values based on total output lumens

SHR = 1.0