

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

GL04IND96LX 15L 35K EX DW XX MW

Milltown Light 5.1" Wide x 96" linear pendant or surface mount luminaire

Test Number

SP-00618_2_M-15L

Test Date

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

Summary of Results

Power

Input Watts	90 W
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Lumen Output

Output Lumens	10651
Efficacy	118.34 lm/W

Luminous Dimensions

0° - 180° Size	0.43
90° - 270° Size	8.02
Height	0.17

Spacing Criterion

Two luminaires, plane 0°	1.36
Two luminaires, plane 90°	1.23
Four luminaires	1.45

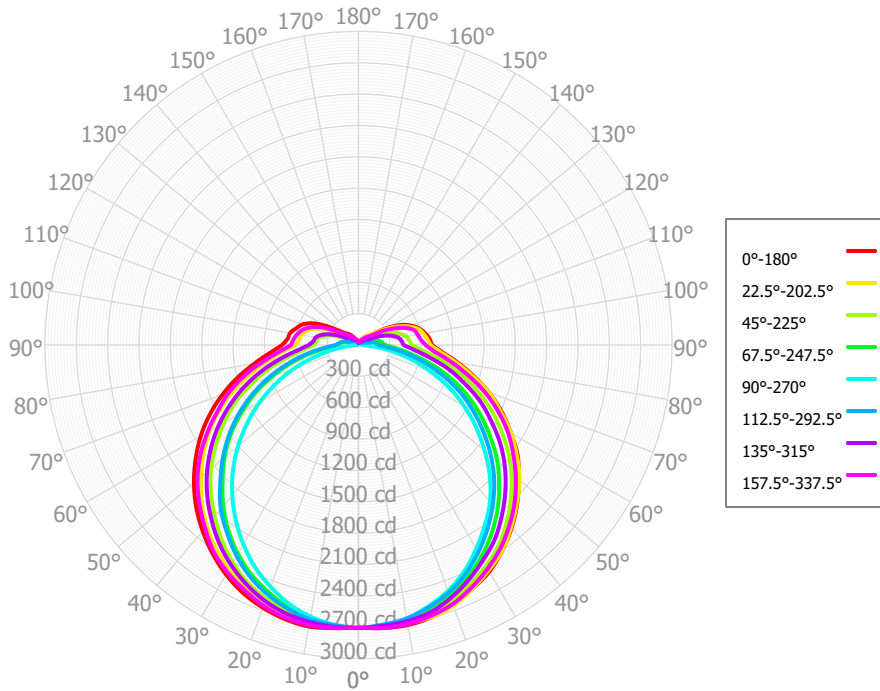
Full Beam Angle

0° - 180°	139°
90° - 270°	108°

IES File Header Contents

Keyword	Value
TEST	SP-00618_2_M-15L
TESTLAB	VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	10/16/2017
UPDATE	3/9/2020
LUMCAT	GL04IND96LX 15L 35K EX DW XX MW
LUMINAIRE	Milltown Light 5.1" Wide x 96" linear pendant or surface mount luminaire
OTHER	96" Linear LED, Diffuse White Acrylic Lens
OTHER	Matte White interior finish
OTHER	112 Degree Beam Angle
LAMPCAT	N/A
LAMP	N/A, 1560 Source Lms/Ft
OTHER	Total Luminaire Watts is approximate
OTHER	CCT Output Multipliers: 30K x 0.98, 35K x 1.0, 40K x 1.03, 50K x 1.06
OTHER	This report prepared by Spectrum Lighting, scaled from 20L

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	273.25	2.57%	90.00° - 100.00°	436.06	4.09%
10.00° - 20.00°	745.95	7.00%	100.00° - 110.00°	353.48	3.32%
20.00° - 30.00°	1,150.41	10.80%	100.00° - 120.00°	578.22	5.43%
30.00° - 40.00°	1,423.34	13.36%	120.00° - 130.00°	110.50	1.04%
40.00° - 50.00°	1,534.84	14.41%	130.00° - 140.00°	61.43	0.58%
50.00° - 60.00°	1,480.16	13.90%	140.00° - 150.00°	34.19	0.32%
60.00° - 70.00°	1,269.02	11.91%	150.00° - 160.00°	18.01	0.17%
70.00° - 80.00°	933.99	8.77%	160.00° - 170.00°	8.82	0.08%
80.00° - 90.00°	589.94	5.54%	170.00° - 180.00°	2.55	0.02%
0.00° - 90.00°	9,400.90	88.27%	0.00° - 180.00°	10,650.67	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°	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01	2,707.01
5.00°	2,718.64	2,710.12	2,700.26	2,701.31	2,696.11	2,690.85	2,707.14	2,717.74	2,719.39	2,709.97	2,701.13	2,696.51	2,686.26	2,686.02	2,697.13	2,718.58	2,718.64
10.00°	2,720.39	2,705.11	2,692.73	2,674.36	2,658.98	2,666.46	2,691.80	2,720.12	2,734.88	2,708.22	2,683.10	2,654.34	2,639.81	2,656.33	2,683.45	2,711.62	2,720.39
15.00°	2,696.26	2,694.96	2,661.37	2,616.54	2,588.20	2,613.54	2,661.84	2,701.88	2,715.71	2,680.38	2,638.77	2,601.51	2,564.90	2,598.32	2,649.93	2,681.96	2,696.26
20.00°	2,641.74	2,655.61	2,600.70	2,547.77	2,504.77	2,540.77	2,608.49	2,654.90	2,674.67	2,645.74	2,583.19	2,516.73	2,461.03	2,523.04	2,577.68	2,637.67	2,641.74
25.00°	2,573.83	2,574.22	2,525.74	2,458.67	2,391.26	2,448.73	2,530.22	2,586.04	2,616.71	2,562.69	2,509.91	2,425.03	2,344.81	2,418.52	2,484.87	2,560.08	2,573.83
30.00°	2,503.57	2,490.28	2,441.54	2,344.72	2,252.02	2,331.55	2,434.10	2,510.09	2,535.01	2,480.27	2,405.08	2,306.92	2,202.33	2,291.30	2,381.02	2,471.47	2,503.57
35.00°	2,399.81	2,400.07	2,337.79	2,214.23	2,106.21	2,192.86	2,320.59	2,415.32	2,434.89	2,377.20	2,279.45	2,169.58	2,045.98	2,149.92	2,272.54	2,370.22	2,399.81
40.00°	2,280.98	2,273.70	2,207.19	2,067.03	1,957.54	2,049.96	2,186.77	2,284.88	2,320.29	2,258.95	2,140.48	2,013.07	1,878.97	1,998.56	2,133.17	2,247.93	2,280.98
45.00°	2,147.48	2,142.75	2,062.72	1,903.13	1,777.70	1,869.84	2,046.00	2,152.23	2,195.46	2,120.85	1,996.93	1,839.28	1,698.91	1,836.84	1,987.00	2,113.56	2,147.48
50.00°	1,998.30	2,011.44	1,909.94	1,734.14	1,575.01	1,696.16	1,891.83	2,011.27	2,054.96	1,964.63	1,842.66	1,673.23	1,503.08	1,654.88	1,829.70	1,962.67	1,998.30
55.00°	1,861.27	1,850.76	1,741.36	1,541.21	1,372.90	1,515.10	1,723.99	1,848.44	1,901.84	1,810.21	1,664.67	1,493.42	1,296.50	1,462.48	1,659.63	1,805.95	1,861.27
60.00°	1,683.61	1,685.78	1,557.06	1,349.86	1,166.54	1,324.42	1,546.76	1,667.51	1,742.80	1,645.88	1,485.17	1,292.35	1,089.23	1,270.49	1,469.92	1,646.02	1,683.61
65.00°	1,511.24	1,499.06	1,371.01	1,154.29	951.06	1,123.11	1,356.01	1,483.53	1,568.29	1,464.88	1,302.17	1,091.14	869.05	1,074.64	1,289.70	1,463.56	1,511.24
70.00°	1,328.88	1,329.29	1,177.29	944.13	724.93	914.69	1,159.49	1,314.97	1,383.07	1,268.44	1,091.47	877.01	653.33	862.38	1,083.27	1,271.35	1,328.88
75.00°	1,136.67	1,124.75	981.24	727.97	514.23	703.85	955.84	1,128.43	1,194.60	1,070.85	893.51	666.40	423.29	657.41	891.71	1,068.69	1,136.67
80.00°	960.06	942.00	786.85	518.53	301.84	507.65	757.82	931.70	1,005.98	896.76	695.51	467.60	227.71	464.98	690.02	887.92	960.06
85.00°	805.56	788.65	612.07	360.54	127.01	332.27	583.80	764.88	846.15	726.21	533.30	301.04	80.06	290.67	532.08	728.44	805.56
90.00°	705.82	689.26	514.75	254.75	45.74	217.72	475.87	648.34	731.34	605.32	426.72	202.21	15.60	194.39	433.58	642.12	705.82
95.00°	682.81	661.15	487.95	232.88	32.54	187.15	432.95	623.90	681.33	569.97	404.06	174.83	15.39	173.59	414.87	597.64	682.81
100.00°	647.26	632.16	466.97	210.85	35.75	167.15	416.00	594.98	663.56	553.54	389.24	147.51	10.56	147.39	390.31	574.31	647.26
105.00°	604.73	592.47	410.75	151.36	27.33	125.24	370.80	556.43	617.06	518.62	337.53	80.33	9.75	90.53	336.64	549.88	604.73
110.00°	539.71	516.46	347.31	98.51	36.51	89.65	299.38	493.76	573.04	447.81	258.65	50.57	11.10	62.43	260.24	477.87	539.71
115.00°	454.03	421.58	245.86	85.61	34.79	79.92	214.49	404.64	492.18	367.14	164.06	47.22	12.71	55.11	173.71	374.23	454.03
120.00°	336.38	312.99	151.82	76.91	37.00	71.56	135.58	289.22	369.83	247.63	99.73	39.34	14.54	42.64	111.07	270.46	336.38
125.00°	219.30	212.05	131.37	69.13	30.31	64.43	120.92	197.10	250.26	150.12	83.17	31.74	15.69	34.18	93.00	165.36	219.30
130.00°	142.90	160.25	113.41	56.84	28.47	59.58	103.58	159.67	181.35	126.36	75.42	31.80	13.73	24.88	71.41	129.16	142.90
135.00°	122.37	142.89	92.63	50.30	31.29	53.62	73.89	134.24	155.40	107.74	60.10	32.01	12.33	25.63	56.87	106.04	122.37
140.00°	106.24	114.05	83.11	47.47	27.77	45.97	67.47	107.19	131.70	81.26	45.51	23.80	17.25	24.25	42.35	84.74	106.24
145.00°	81.36	81.66	57.24	35.72	28.82	41.05	58.94	88.66	105.54	58.16	35.49	25.53	16.77	23.67	36.80	68.13	81.36
150.00°	59.51	63.00	52.07	33.49	26.62	37.31	55.25	72.67	76.79	51.04	32.47	22.60	13.69	20.77	36.17	53.04	59.51
155.00°	46.80	56.69	43.26	35.10	24.03	31.63	44.28	58.05	61.25	41.60	30.94	22.21	14.89	17.20	32.98	41.32	46.80
160.00°	39.39	50.12	41.66	27.59	25.28	31.05	41.62	48.57	56.10	41.00	26.27	20.55	17.03	21.12	30.16	36.29	39.39
165.00°	39.42	34.34	34.11	29.95	24.06	23.63	33.59	39.71	48.99	30.77	28.20	20.11	15.29	21.98	27.72	31.40	39.42
170.00°	29.63	30.08	26.81	25.70	21.02	24.80	28.69	33.09	46.83	29.62	21.81	24.28	21.80	18.76	24.80	25.96	29.63
175.00°	25.53	23.92	23.49	21.03	19.84	22.45	23.22	26.35	27.59	24.14	24.42	20.60	20.99	17.55	21.81	28.12	25.53
180.00°	24.96	24.96	24.96	24.96	24.96	24.96	24.96	24.96	24.96	24.96	24.96	24.96	24.96	24.96	24.96	24.96	24.96

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%	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	12,382	12,382	12,382	12,382	11,949	11,949	11,949	11,949	11,140	11,140	11,140	10,400	10,400	10,400	9,720	9,720	9,720	9,4
	1	11,078	10,482	9,947	9,466	10,649	10,114	9,630	9,192	9,424	9,031	8,671	8,790	8,475	8,183	8,206	7,956	7,723	7,6
	2	9,985	9,013	8,210	7,536	9,576	8,700	7,968	7,347	8,112	7,506	6,984	7,570	7,073	6,637	7,068	6,665	6,305	6,4
	3	9,053	7,845	6,910	6,166	8,671	7,578	6,719	6,028	7,075	6,354	5,760	6,610	6,007	5,501	6,178	5,679	5,252	5,4
	4	8,256	6,905	5,916	5,161	7,905	6,677	5,763	5,056	6,246	5,467	4,850	5,845	5,185	4,650	5,473	4,916	4,455	4,7
	5	7,569	6,138	5,138	4,400	7,249	5,942	5,013	4,317	5,571	4,769	4,154	5,225	4,536	3,995	4,903	4,313	3,839	4,1
	6	6,974	5,504	4,517	3,809	6,683	5,334	4,412	3,741	5,013	4,209	3,609	4,713	4,014	3,479	4,432	3,826	3,352	3,6
	7	6,454	4,972	4,012	3,338	6,190	4,825	3,923	3,283	4,546	3,752	3,173	4,284	3,586	3,066	4,038	3,427	2,960	3,3
	8	5,998	4,523	3,595	2,958	5,758	4,395	3,520	2,911	4,150	3,374	2,819	3,920	3,232	2,729	3,704	3,095	2,639	2,9
	9	5,596	4,140	3,248	2,645	5,378	4,027	3,183	2,606	3,812	3,057	2,528	3,609	2,934	2,450	3,418	2,816	2,374	2,7
	10	5,240	3,811	2,955	2,386	5,041	3,711	2,899	2,352	3,520	2,789	2,284	3,340	2,682	2,217	3,170	2,578	2,151	2,4

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	89.5 fc	22.2 ft
6.5 ft	64.1 fc	26.2 ft
7.5 ft	48.1 fc	30.2 ft
8.0 ft	42.3 fc	32.3 ft
10.0 ft	27.1 fc	40.3 ft
12.0 ft	18.8 fc	48.4 ft
14.0 ft	13.8 fc	56.5 ft
16.0 ft	10.6 fc	64.5 ft
20.0 ft	6.8 fc	80.7 ft
24.0 ft	4.7 fc	96.8 ft
28.0 ft	3.5 fc	112.9 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	8,449	8,449	8,449
45.00°	6,793	7,033	7,684
55.00°	6,473	6,670	7,251
65.00°	6,040	6,206	6,719
75.00°	5,537	5,637	5,747
85.00°	5,227	5,020	3,661

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	19.0	20.5	19.6	21.0	21.6	16.4	17.9	16.9	18.4	19.0
	3H	21.6	22.9	22.1	23.4	24.1	17.9	19.2	18.4	19.8	20.4
	4H	22.7	24.0	23.3	24.6	25.2	18.4	19.6	18.9	20.2	20.8
	6H	24.0	25.2	24.6	25.7	26.4	18.6	19.8	19.2	20.4	21.1
	8H	24.6	25.7	25.2	26.3	27.0	18.7	19.8	19.3	20.4	21.1
	12H	25.3	26.4	25.9	27.0	27.7	18.7	19.8	19.3	20.4	21.1
4H	2H	19.5	20.7	20.0	21.3	21.9	17.5	18.7	18.0	19.3	19.9
	3H	22.2	23.3	22.8	23.9	24.6	19.2	20.3	19.8	20.9	21.6
	4H	23.6	24.6	24.2	25.2	25.9	19.8	20.8	20.4	21.4	22.1
	6H	25.0	25.9	25.6	26.5	27.2	20.2	21.1	20.8	21.7	22.4
	8H	25.7	26.5	26.3	27.2	27.9	20.3	21.1	20.9	21.8	22.5
	12H	26.5	27.3	27.2	27.9	28.7	20.4	21.1	21.0	21.8	22.5
8H	4H	23.8	24.6	24.4	25.2	26.0	20.6	21.4	21.2	22.0	22.8
	6H	25.4	26.1	26.0	26.7	27.5	21.2	21.9	21.8	22.6	23.3
	8H	26.2	26.9	26.9	27.5	28.3	21.4	22.0	22.0	22.7	23.4
	12H	27.2	27.8	27.9	28.5	29.3	21.5	22.1	22.2	22.7	23.5
12H	4H	23.8	24.5	24.4	25.2	25.9	20.8	21.5	21.4	22.2	22.9
	6H	25.4	26.0	26.1	26.7	27.5	21.5	22.1	22.2	22.8	23.6
	8H	26.3	26.9	27.0	27.6	28.4	21.8	22.3	22.5	23.0	23.8

Corrected UGR values based on total output lumens

SHR = 1.0