Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SGRTV12BX-60L35K-WD-DO101-AR12BX-MWWF

Nom. 12" Diam x 10" H open aperture

Test Number

SP-00686_2_M-60L

Test Date

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

Summary of Results

Power

Input Watts	44 W

Lumen Output

Output Lumens	4927
Efficacy	111.97 lm/W

Luminous Dimensions

0° - 180° Size	-0.97
90° - 270° Size	-0.97
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.91
Two luminaires, plane 90°	0.93
Four luminaires	0.91

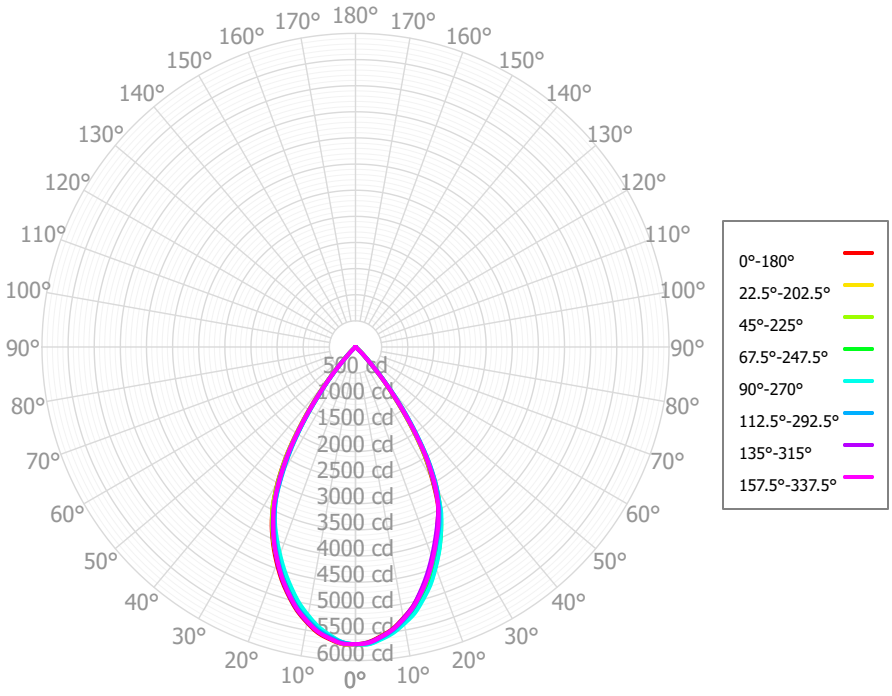
Full Beam Angle

0° - 180°	61°
90° - 270°	61°

IES File Header Contents

Keyword	Value
TEST	SP-00686_2_M-60L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	6/7/2018
UPDATE	6/12/2018
LUMCAT	SGRTV12BX-60L35K-WD-DO101-AR12BX-MWWF
LUMINAIRE	Nom. 12" Diam x 10" H open aperture
OTHER	Matte White reflector trim
OTHER	Deep regressed retrofit high output LED downlight
OTHER	BX Series, Wide Beam
OTHER	60.9 Deg Beam Angle
LAMPCAT	N/A
LAMP	N/A, Bridgelux Vero 29
OTHER	Dimmable driver tested at 100% output
OTHER	Tested CCT: 3500K
OTHER	CCT Output: 27K x 0.932, 30K x 1.00, 40K x 1.01
OTHER	This report prepared by Spectrum Lighting, scaled from 80L

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture
0.00° - 10.00°	531.56	10.79%
10.00° - 20.00°	1361.79	27.64%
20.00° - 30.00°	1700.68	34.52%
30.00° - 40.00°	1134.43	23.03%
40.00° - 50.00°	189.06	3.84%
50.00° - 60.00°	5.81	0.12%
60.00° - 70.00°	1.24	0.03%
70.00° - 80.00°	0.96	0.02%
80.00° - 90.00°	0.98	0.02%
0.00° - 90.00°	4926.54	100.00%

Zone	Lumens	% Fixture
90.00° - 100.00°	0.10	0.00%
100.00° - 110.00°	0.00	0.00%
100.00° - 120.00°	0.00	0.00%
120.00° - 130.00°	0.00	0.00%
130.00° - 140.00°	0.00	0.00%
140.00° - 150.00°	0.00	0.00%
150.00° - 160.00°	0.00	0.00%
160.00° - 170.00°	0.00	0.00%
170.00° - 180.00°	0.00	0.00%
0.00° - 180.00°	4926.64	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°	5687.46	5687.46	5687.46	5687.46	5687.46	5687.46	5687.46	5687.46	5687.46	5687.46	5687.46	5687.46	5687.46	5687.46	5687.46	5687.46	5687.46
2.50°	5652.70	5674.77	5676.00	5689.52	5695.36	5656.84	5678.02	5683.50	5692.27	5684.61	5688.05	5659.95	5654.58	5673.77	5658.21	5669.73	5652.70
5.00°	5554.61	5573.67	5570.41	5603.28	5618.66	5569.47	5601.90	5602.19	5616.97	5589.81	5587.06	5551.42	5537.35	5588.14	5566.18	5573.19	5554.61
7.50°	5439.61	5459.80	5457.35	5499.74	5521.49	5455.89	5497.97	5497.72	5517.93	5478.07	5474.65	5419.04	5401.51	5473.85	5448.71	5456.12	5439.61
10.00°	5266.77	5302.33	5292.32	5355.35	5377.42	5291.78	5340.12	5326.80	5354.37	5303.28	5290.56	5228.47	5213.20	5311.23	5273.40	5291.40	5266.77
12.50°	5081.62	5126.77	5125.10	5190.39	5224.10	5108.50	5153.87	5138.87	5169.70	5119.15	5098.57	5023.33	5006.94	5117.59	5079.53	5102.45	5081.62
15.00°	4837.88	4898.77	4890.06	4983.85	5003.87	4871.49	4919.29	4898.15	4936.38	4880.47	4868.29	4779.58	4757.13	4877.86	4825.27	4865.31	4837.88
17.50°	4584.46	4653.21	4653.31	4751.70	4773.53	4617.39	4663.89	4646.32	4686.94	4636.04	4630.50	4527.90	4498.69	4618.98	4555.01	4609.36	4584.46
20.00°	4301.83	4364.64	4374.58	4474.92	4489.73	4326.12	4377.77	4356.91	4405.67	4355.66	4362.85	4257.61	4222.35	4335.31	4270.47	4320.61	4301.83
22.50°	4015.67	4076.06	4094.13	4186.17	4199.92	4025.11	4074.13	4061.38	4111.86	4072.75	4086.65	3984.38	3942.31	4059.06	3982.80	4034.25	4015.67
25.00°	3716.11	3787.43	3785.27	3879.06	3875.69	3670.43	3747.95	3717.00	3796.35	3747.52	3782.53	3671.63	3655.55	3791.30	3706.59	3751.48	3716.11
27.50°	3415.41	3451.17	3461.03	3523.37	3548.96	3304.15	3361.74	3366.78	3425.48	3420.58	3432.87	3354.16	3301.53	3475.54	3432.34	3426.56	3415.41
30.00°	2940.88	3027.81	2975.14	3102.82	3073.90	2789.73	2907.11	2862.64	2971.49	2901.32	2956.66	2831.42	2841.97	3111.64	2989.55	3046.18	2940.88
32.50°	2458.22	2534.11	2475.52	2598.47	2593.63	2250.36	2374.81	2345.73	2451.05	2379.33	2437.80	2292.50	2316.95	2625.08	2525.45	2562.54	2458.22
35.00°	1858.73	1929.08	1875.70	1995.05	1993.46	1664.90	1765.13	1741.83	1842.48	1773.47	1818.58	1698.86	1702.56	2031.01	1928.30	1958.60	1858.73
37.50°	1260.60	1362.12	1294.07	1426.12	1395.72	1073.51	1203.90	1134.02	1272.01	1177.51	1243.19	1102.97	1149.20	1460.08	1319.23	1389.23	1260.60
40.00°	800.47	848.36	815.12	892.81	893.04	647.40	685.47	692.10	745.66	723.41	756.02	683.86	669.63	907.11	845.70	855.09	800.47
42.50°	356.53	460.28	391.31	498.25	410.62	235.79	346.69	259.00	378.37	299.58	376.14	273.57	335.42	514.48	379.09	470.77	356.53
45.00°	204.72	225.32	211.76	228.98	228.37	125.91	146.46	142.06	172.05	163.39	185.45	151.96	154.73	230.30	215.73	221.75	204.72
47.50°	62.98	82.56	64.33	82.59	60.50	30.91	48.04	30.68	56.19	42.12	57.34	36.01	52.15	89.70	60.04	84.21	62.98
50.00°	33.07	37.95	32.30	34.53	32.34	16.50	18.01	16.30	21.49	21.80	24.87	18.90	21.67	34.66	31.63	34.61	33.07
52.50°	6.37	12.58	7.43	11.23	7.38	3.69	5.86	3.07	5.28	4.55	5.36	3.23	6.29	11.35	4.55	10.58	6.37
55.00°	4.07	5.36	4.34	5.21	4.38	2.74	4.29	2.31	3.56	3.15	3.11	2.52	3.26	4.38	3.36	4.13	4.07
57.50°	2.13	1.82	2.02	2.30	1.78	1.82	3.19	1.65	2.32	1.99	1.79	1.86	1.83	2.01	2.24	1.59	2.13
60.00°	2.30	1.30	1.68	1.31	1.34	1.66	2.34	1.73	1.43	1.87	1.56	1.62	1.54	1.67	1.93	1.41	2.30
62.50°	2.31	1.14	1.34	1.10	0.98	1.47	2.08	1.79	1.36	1.67	1.23	1.37	1.23	1.39	1.60	1.33	2.31
65.00°	1.56	1.25	1.01	1.30	0.92	1.00	2.07	1.75	1.79	1.15	0.78	1.07	0.91	1.12	1.16	1.29	1.56
67.50°	0.97	1.21	0.81	1.03	0.88	0.69	1.43	1.61	1.71	0.85	0.60	0.77	0.82	1.00	0.83	1.21	0.97
70.00°	0.87	1.10	0.79	0.57	0.86	1.11	0.59	1.21	1.42	1.02	0.61	0.49	0.84	0.93	0.93	1.10	0.87
72.50°	0.83	0.99	0.74	0.60	0.82	1.28	1.02	0.90	1.17	1.14	0.84	0.53	0.71	1.08	1.00	1.02	0.83
75.00°	0.86	0.92	0.69	0.74	0.74	1.07	1.30	0.71	0.99	1.21	1.08	0.94	0.55	1.00	1.01	0.92	0.86
77.50°	1.15	1.00	0.81	1.04	0.85	1.15	1.07	0.97	0.93	0.81	1.02	0.82	0.33	0.44	1.04	0.78	1.15
80.00°	1.02	0.98	0.80	0.85	0.91	1.04	1.11	1.00	0.94	0.72	0.87	0.77	0.57	0.93	1.00	0.90	1.02
82.50°	0.63	1.00	0.87	0.75	0.92	0.89	1.30	0.88	1.03	0.84	0.70	0.91	0.68	0.96	1.00	1.02	0.63
85.00°	0.64	1.01	0.96	0.86	0.75	1.32	1.41	0.89	0.90	0.83	0.74	0.88	0.76	1.06	1.10	1.02	0.64
87.50°	0.88	1.01	0.53	1.00	0.41	1.02	1.94	0.66	0.94	1.12	0.92	0.73	1.02	0.63	0.61	1.57	0.88
90.00°	1.16	0.58	0.64	0.60	1.04	0.74	0.61	0.83	0.63	0.90	0.84	0.56	0.46	0.47	1.13	0.75	1.16
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

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%	30%
	0	5865	5865	5865	5865	5729	5729	5729	5729	5474	5474	5474	5241	5241	5241	5027	5027	5027	4927
	1	5600	5467	5348	5240	5479	5361	5254	5157	5162	5076	4998	4979	4912	4849	4810	4758	4709	4663
	2	5332	5099	4906	4744	5224	5014	4839	4690	4856	4712	4587	4709	4592	4489	4574	4480	4396	4392
	3	5072	4764	4526	4336	4975	4696	4477	4301	4567	4384	4232	4449	4295	4166	4338	4211	4102	4130
	4	4822	4460	4194	3992	4734	4404	4158	3968	4298	4088	3921	4201	4021	3875	4110	3957	3831	3883
RCR	5	4584	4182	3902	3695	4504	4136	3874	3678	4048	3820	3645	3967	3769	3613	3891	3720	3582	3652
	6	4358	3929	3641	3434	4286	3890	3619	3422	3817	3577	3399	3748	3537	3376	3684	3499	3353	3438
	7	4146	3698	3407	3204	4081	3665	3390	3195	3603	3357	3178	3544	3325	3161	3490	3294	3145	3239
	8	3946	3486	3197	2998	3887	3458	3183	2991	3405	3156	2979	3355	3130	2966	3308	3105	2954	3056
	9	3760	3293	3006	2813	3706	3269	2995	2808	3223	2973	2799	3179	2952	2789	3139	2932	2780	2887
	10	3586	3115	2834	2646	3537	3094	2824	2643	3054	2806	2635	3017	2789	2628	2981	2772	2621	2731

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	188.0 fc	6.5 ft
6.5 ft	134.6 fc	7.7 ft
7.5 ft	101.1 fc	8.8 ft
8.0 ft	88.9 fc	9.4 ft
10.0 ft	56.9 fc	11.8 ft
12.0 ft	39.5 fc	14.2 ft
14.0 ft	29.0 fc	16.5 ft
16.0 ft	22.2 fc	18.9 ft
20.0 ft	14.2 fc	23.6 ft
24.0 ft	9.9 fc	28.3 ft
28.0 ft	7.3 fc	33.0 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	82843	82843	82843
45.00°	4217	4362	4704
55.00°	103	110	111
65.00°	54	35	32
75.00°	48	39	42
85.00°	106	160	126

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	-19.6	-18.7	-19.2	-18.4	-18.1	-19.4	-18.5	-19.0	-18.2	-17.8
	3H	-18.0	-17.2	-17.6	-16.9	-16.5	-18.5	-17.7	-18.1	-17.3	-17.0
	4H	-17.1	-16.4	-16.7	-16.0	-15.6	-17.6	-16.9	-17.2	-16.5	-16.1
	6H	-15.4	-14.7	-14.9	-14.3	-13.9	-16.5	-15.8	-16.1	-15.4	-15.0
	8H	-14.8	-14.1	-14.3	-13.7	-13.3	-15.6	-15.0	-15.2	-14.6	-14.2
	12H	-14.2	-13.5	-13.7	-13.2	-12.7	-14.5	-13.9	-14.1	-13.5	-13.1
4H	2H	-19.3	-18.6	-18.9	-18.2	-17.8	-18.7	-17.9	-18.2	-17.6	-17.2
	3H	-17.3	-16.7	-16.9	-16.3	-15.9	-17.6	-16.9	-17.1	-16.5	-16.1
	4H	-16.2	-15.6	-15.7	-15.2	-14.8	-16.3	-15.8	-15.9	-15.3	-14.9
	6H	-14.2	-13.7	-13.7	-13.3	-12.8	-14.8	-14.4	-14.4	-13.9	-13.5
	8H	-13.4	-13.0	-12.9	-12.5	-12.1	-13.9	-13.5	-13.4	-13.0	-12.5
	12H	-12.6	-12.2	-12.1	-11.7	-11.3	-12.7	-12.3	-12.2	-11.8	-11.3
8H	4H	-15.7	-15.3	-15.2	-14.8	-14.3	-15.6	-15.2	-15.1	-14.7	-14.2
	6H	-13.4	-13.1	-12.9	-12.6	-12.1	-13.8	-13.4	-13.2	-12.9	-12.4
	8H	-12.3	-12.0	-11.8	-11.5	-11.0	-12.6	-12.3	-12.1	-11.8	-11.3
	12H	-11.1	-10.8	-10.6	-10.3	-9.7	-11.0	-10.8	-10.5	-10.3	-9.7
12H	4H	-15.6	-15.2	-15.1	-14.7	-14.2	-15.4	-15.1	-14.9	-14.6	-14.1
	6H	-13.2	-12.9	-12.6	-12.4	-11.8	-13.4	-13.1	-12.9	-12.6	-12.1
	8H	-11.9	-11.6	-11.4	-11.1	-10.5	-12.1	-11.8	-11.5	-11.3	-10.7

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0