Indoor Distribution Test Report

Spectrum Lighting Inc.

994 Jefferson Street
Fall River, MA 02721
+1.508.678.2303

Spectrum Lighting Photometric Lab

Luminaire

SGRTV12BX-60L35K-MD-DO101-AR12BX-SGWF

Nom. 12" Diam x 10" H, Open aperture

Test Number

SP-00686_4

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	4916
Efficacy	111.74 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.63
Two luminaires, plane 90°	0.63
Four luminaires	0.64

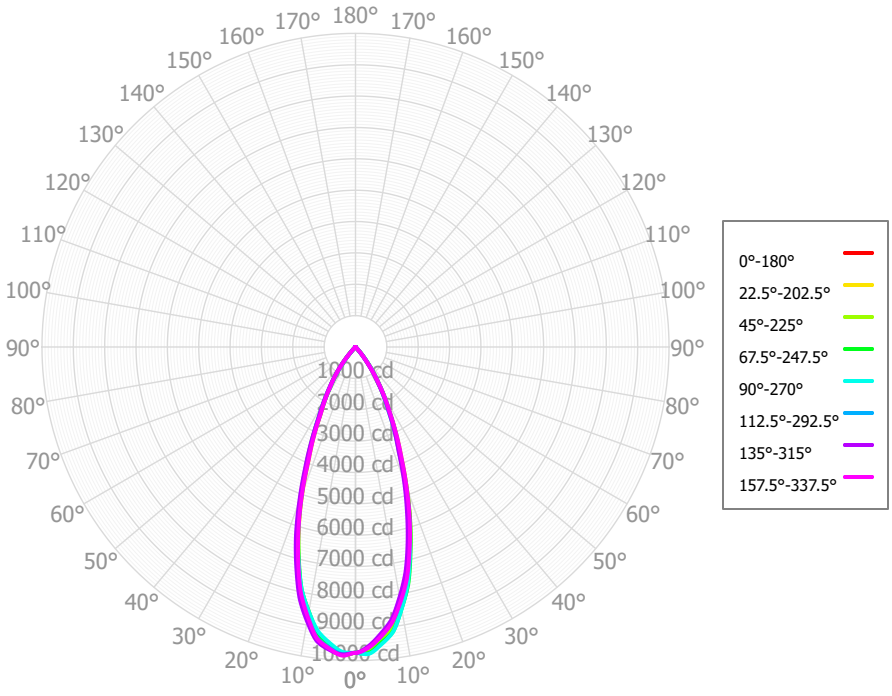
Full Beam Angle

0° - 180°	40°
90° - 270°	40°

IES File Header Contents

Keyword	Value
TEST	SP-00686_4
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	6/7/2018
UPDATE	6/29/2018
LUMCAT	SGRTV12BX-60L35K-MD-DO101-AR12BX-SGWF
LUMINAIRE	Nom. 12" Diam x 10" H, Open aperture
OTHER	Semi-diffuse clear anodized alum. reflector trim
OTHER	Deep regressed retrofit high output LED downlight
OTHER	BX Series, Medium Beam
OTHER	39.8 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

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	886.86	18.04%	90.00° - 100.00°	0.11	0.00%
10.00° - 20.00°	1868.19	38.00%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	1432.74	29.14%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	652.02	13.26%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	71.72	1.46%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	1.81	0.04%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	1.05	0.02%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	0.99	0.02%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	0.99	0.02%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	4916.36	100.00%	0.00° - 180.00°	4916.47	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°	9755.76	9755.76	9755.76	9755.76	9755.76	9755.76	9755.76	9755.76	9755.76	9755.76	9755.76	9755.76	9755.76	9755.76	9755.76	9755.76	9755.76
2.50°	9604.72	9671.21	9690.79	9772.26	9795.62	9807.03	9817.51	9849.00	9836.51	9834.93	9803.23	9775.53	9730.79	9592.51	9550.16	9597.83	9604.72
5.00°	9259.51	9359.28	9350.51	9475.41	9517.85	9624.80	9691.18	9650.99	9660.33	9598.94	9582.99	9492.09	9475.32	9272.93	9187.08	9271.77	9259.51
7.50°	8880.37	8995.57	8979.39	9155.45	9167.84	9362.73	9458.64	9382.65	9404.58	9322.68	9312.04	9202.54	9144.44	8868.10	8775.55	8878.97	8880.37
10.00°	8226.49	8351.72	8278.98	8469.28	8479.96	8762.11	8886.67	8749.56	8788.92	8679.48	8733.98	8570.29	8577.22	8237.50	8099.82	8259.68	8226.49
12.50°	7534.30	7657.14	7548.76	7759.26	7714.46	8068.54	8221.94	8042.35	8103.52	7995.10	8100.59	7932.69	7925.14	7523.61	7366.22	7569.88	7534.30
15.00°	6603.17	6726.29	6577.82	6775.37	6717.26	7122.55	7286.94	7062.65	7142.34	7014.60	7174.28	6990.02	7034.84	6610.54	6428.43	6666.67	6603.17
17.50°	5643.94	5781.06	5590.90	5786.68	5673.92	6114.14	6311.75	6035.57	6151.95	6008.31	6223.26	6044.01	6102.61	5664.93	5452.06	5742.08	5643.94
20.00°	4678.55	4777.36	4608.77	4753.45	4663.14	5079.04	5231.25	4982.85	5057.40	4959.56	5159.34	5011.39	5064.39	4647.57	4519.73	4758.34	4678.55
22.50°	3712.60	3829.85	3626.86	3757.07	3657.88	4038.18	4210.36	3926.26	4030.93	3908.14	4141.71	3993.79	4094.98	3731.34	3594.45	3840.32	3712.60
25.00°	3013.31	3087.84	2954.37	3035.92	2931.79	3230.31	3332.99	3146.53	3220.30	3143.89	3308.82	3219.96	3285.70	3017.85	2920.00	3086.12	3013.31
27.50°	2333.24	2398.41	2289.59	2347.01	2246.71	2466.91	2565.70	2401.09	2490.19	2392.29	2543.24	2465.88	2565.22	2372.85	2280.06	2402.18	2333.24
30.00°	1821.55	1879.74	1801.01	1858.16	1774.12	1957.14	2038.72	1930.84	1988.62	1918.21	2019.74	1954.63	2032.29	1853.06	1773.67	1879.47	1821.55
32.50°	1318.07	1393.14	1314.73	1387.24	1327.07	1488.49	1564.26	1488.82	1524.99	1450.22	1528.53	1456.07	1536.84	1371.93	1282.16	1390.37	1318.07
35.00°	934.24	999.66	950.70	1013.31	970.15	1118.00	1194.08	1119.96	1160.03	1091.41	1140.54	1076.99	1114.61	956.41	887.75	971.29	934.24
37.50°	553.58	634.91	590.10	653.26	621.77	760.74	834.16	756.80	803.97	734.05	771.82	707.45	732.31	593.23	502.12	600.32	553.58
40.00°	310.71	346.51	325.97	357.86	343.88	450.72	493.14	449.31	468.84	434.94	459.27	412.68	421.21	311.42	280.32	320.68	310.71
42.50°	71.56	122.11	73.55	108.35	71.26	146.03	228.39	144.85	202.88	144.30	201.52	147.02	185.81	116.24	69.38	116.90	71.56
45.00°	36.36	51.29	36.55	49.57	31.45	66.88	91.93	71.48	86.90	72.56	87.33	69.67	73.90	44.56	32.39	46.75	36.36
47.50°	2.31	2.50	2.25	3.28	3.55	7.56	7.32	6.33	8.75	4.66	6.46	4.09	5.73	3.23	2.92	3.08	2.31
50.00°	2.21	2.46	2.57	2.73	2.02	3.44	3.77	3.67	5.20	3.60	4.46	2.83	3.95	2.22	2.23	2.09	2.21
52.50°	2.10	2.21	2.79	2.23	1.34	2.85	1.83	1.88	2.65	2.59	2.81	1.88	2.68	1.92	2.27	1.53	2.10
55.00°	1.85	1.52	1.92	1.93	1.35	2.34	2.19	1.58	1.86	2.41	1.91	2.39	2.13	2.50	1.94	1.60	1.85
57.50°	1.60	1.19	1.13	1.61	1.37	1.84	2.11	1.27	1.38	2.19	1.35	2.62	1.66	2.39	1.61	1.68	1.60
60.00°	1.45	1.50	0.92	1.19	1.00	1.55	1.45	1.16	1.41	1.62	1.47	1.72	1.29	1.50	1.39	1.75	1.45
62.50°	1.28	1.56	0.75	0.86	0.64	1.28	1.12	1.04	1.34	1.09	1.43	1.03	1.07	1.10	1.18	1.63	1.28
65.00°	0.99	1.20	0.79	0.78	0.65	0.97	1.20	0.85	1.10	0.85	1.11	1.13	1.03	1.20	1.02	1.26	0.99
67.50°	0.72	0.97	0.85	0.73	0.65	0.70	1.18	0.69	0.98	0.73	1.03	1.14	0.95	1.39	0.91	1.05	0.72
70.00°	0.59	0.91	1.01	0.75	0.68	0.85	1.06	0.65	1.00	1.05	1.31	0.94	0.84	1.63	1.12	1.02	0.59
72.50°	0.64	0.87	1.04	0.62	0.74	1.03	0.91	0.70	1.18	1.13	1.10	0.82	0.64	1.42	1.23	0.89	0.64
75.00°	0.96	0.87	0.90	0.39	0.87	1.29	0.79	0.91	1.38	0.91	0.66	0.78	0.45	1.16	1.18	0.80	0.96
77.50°	0.89	1.15	0.75	0.91	1.01	0.91	1.09	1.16	0.93	0.78	0.73	0.68	0.63	1.49	1.25	1.27	0.89
80.00°	0.78	1.19	0.72	1.04	1.01	0.54	1.03	1.19	0.94	0.67	0.79	0.82	0.77	1.13	1.25	1.15	0.78
82.50°	0.70	1.02	0.72	1.01	0.88	0.57	0.88	1.00	0.87	0.73	0.91	1.28	0.87	0.80	1.08	0.89	0.70
85.00°	0.80	1.22	0.79	0.97	0.84	0.95	0.86	1.02	0.80	1.01	1.11	1.41	0.80	0.71	0.79	1.03	0.80
87.50°	1.05	0.81	0.97	0.66	0.97	1.02	0.99	0.69	0.82	0.87	1.27	1.01	0.89	0.83	1.06	0.95	1.05
90.00°	0.61	0.94	0.77	0.69	0.92	0.89	0.76	0.89	0.58	1.08	0.57	0.74	0.69	0.66	0.70	0.87	0.61
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	5853	5853	5853	5853	5717	5717	5717	5717	5463	5463	5463	5230	5230	5230	5017	5017	5017	4916
	1	5617	5496	5388	5291	5498	5391	5294	5207	5194	5117	5047	5012	4953	4897	4845	4799	4757	4704
	2	5385	5176	5004	4859	5280	5093	4937	4804	4937	4810	4700	4793	4690	4600	4660	4578	4505	4490
	3	5162	4889	4678	4510	5069	4823	4629	4474	4698	4536	4403	4582	4448	4335	4475	4364	4270	4282
	4	4950	4630	4396	4218	4867	4576	4360	4193	4475	4290	4144	4380	4224	4097	4292	4161	4052	4085
RCR	5	4747	4395	4148	3967	4673	4351	4121	3949	4267	4068	3915	4189	4017	3882	4116	3968	3849	3898
	6	4556	4180	3927	3746	4489	4143	3906	3734	4073	3865	3709	4008	3825	3685	3948	3787	3662	3723
	7	4374	3982	3728	3550	4315	3952	3712	3541	3893	3679	3523	3838	3648	3506	3787	3618	3489	3559
	8	4203	3801	3548	3374	4149	3775	3535	3368	3725	3509	3354	3678	3484	3341	3634	3459	3328	3406
	9	4042	3634	3384	3215	3993	3612	3373	3210	3569	3352	3200	3529	3331	3190	3491	3312	3180	3262
	10	3890	3479	3233	3070	3846	3460	3225	3066	3423	3207	3058	3388	3190	3050	3355	3174	3043	3129

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	322.5 fc	4.0 ft
6.5 ft	230.9 fc	4.7 ft
7.5 ft	173.4 fc	5.4 ft
8.0 ft	152.4 fc	5.8 ft
10.0 ft	97.6 fc	7.2 ft
12.0 ft	67.7 fc	8.7 ft
14.0 ft	49.8 fc	10.1 ft
16.0 ft	38.1 fc	11.5 ft
20.0 ft	24.4 fc	14.4 ft
24.0 ft	16.9 fc	17.3 ft
28.0 ft	12.4 fc	20.2 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	142101	142101	142101
45.00°	749	753	648
55.00°	47	49	34
65.00°	34	27	22
75.00°	54	51	49
85.00°	133	133	141

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	-20.7	-19.8	-20.4	-19.5	-19.2	-18.4	-17.5	-18.0	-17.2	-16.9
	3H	-19.3	-18.5	-18.9	-18.2	-17.8	-17.6	-16.8	-17.2	-16.5	-16.1
	4H	-18.1	-17.4	-17.7	-17.0	-16.6	-16.9	-16.2	-16.5	-15.9	-15.5
	6H	-16.3	-15.6	-15.8	-15.2	-14.8	-15.8	-15.1	-15.4	-14.8	-14.4
	8H	-15.5	-14.9	-15.1	-14.5	-14.1	-15.0	-14.3	-14.5	-14.0	-13.5
	12H	-14.5	-13.9	-14.0	-13.5	-13.1	-13.9	-13.3	-13.5	-13.0	-12.5
4H	2H	-20.5	-19.8	-20.1	-19.4	-19.0	-18.2	-17.5	-17.8	-17.2	-16.8
	3H	-18.4	-17.8	-18.0	-17.4	-17.0	-17.0	-16.4	-16.6	-16.0	-15.6
	4H	-16.9	-16.4	-16.5	-16.0	-15.5	-15.9	-15.4	-15.5	-15.0	-14.5
	6H	-14.6	-14.1	-14.1	-13.7	-13.2	-14.6	-14.2	-14.2	-13.7	-13.3
	8H	-13.7	-13.3	-13.2	-12.8	-12.4	-13.6	-13.2	-13.2	-12.8	-12.3
	12H	-12.5	-12.2	-12.0	-11.7	-11.2	-12.3	-12.0	-11.8	-11.5	-11.0
8H	4H	-16.0	-15.6	-15.5	-15.1	-14.7	-15.5	-15.1	-15.0	-14.6	-14.1
	6H	-13.4	-13.0	-12.9	-12.5	-12.1	-13.9	-13.6	-13.4	-13.1	-12.6
	8H	-12.3	-12.0	-11.7	-11.5	-11.0	-12.6	-12.3	-12.0	-11.8	-11.3
	12H	-10.8	-10.5	-10.3	-10.0	-9.4	-10.8	-10.6	-10.3	-10.1	-9.5
12H	4H	-15.8	-15.4	-15.3	-14.9	-14.4	-15.3	-15.0	-14.8	-14.5	-14.0
	6H	-13.1	-12.8	-12.5	-12.3	-11.8	-13.6	-13.3	-13.1	-12.8	-12.3
	8H	-11.8	-11.6	-11.3	-11.1	-10.5	-12.1	-11.9	-11.6	-11.4	-10.8

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0