Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SGRTV12BX-70L35K-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	51 W

Lumen Output

Output Lumens	5563
Efficacy	109.09 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

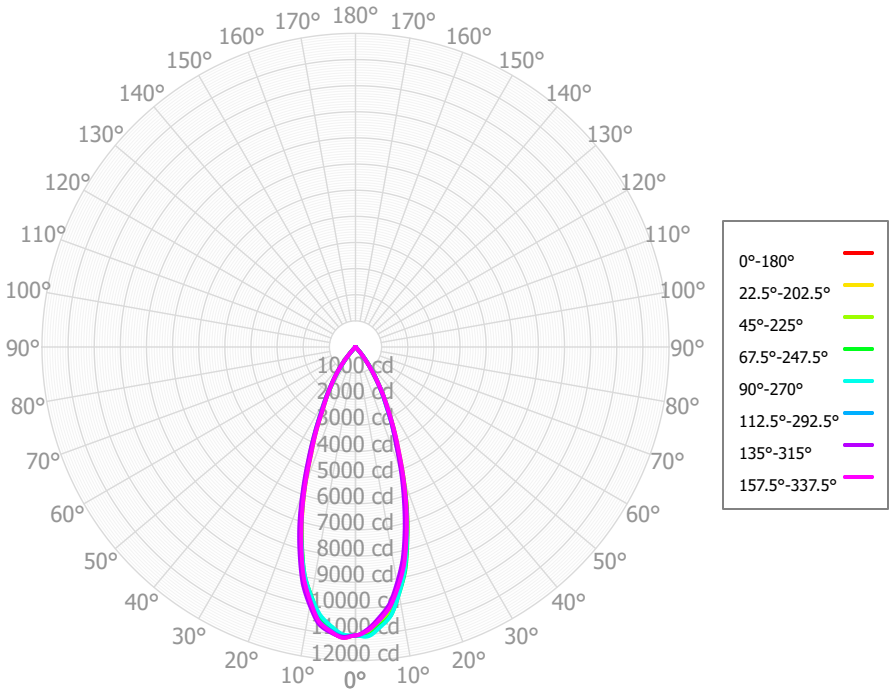
Full Beam Angle

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-70L35K-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
0.00° - 10.00°	1003.55	18.04%
10.00° - 20.00°	2114.01	38.00%
20.00° - 30.00°	1621.25	29.14%
30.00° - 40.00°	737.81	13.26%
40.00° - 50.00°	81.16	1.46%
50.00° - 60.00°	2.04	0.04%
60.00° - 70.00°	1.19	0.02%
70.00° - 80.00°	1.12	0.02%
80.00° - 90.00°	1.12	0.02%
0.00° - 90.00°	5563.25	100.00%

Zone	Lumens	% Fixture
90.00° - 100.00°	0.12	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°	5563.37	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°	11039.41	11039.41	11039.41	11039.41	11039.41	11039.41	11039.41	11039.41	11039.41	11039.41	11039.41	11039.41	11039.41	11039.41	11039.41	11039.41	11039.4
2.50°	10868.50	10943.74	10965.90	11058.08	11084.51	11097.43	11109.29	11144.93	11130.79	11129.00	11093.13	11061.78	11011.16	10854.69	10806.76	10860.70	10868.5
5.00°	10477.87	10590.76	10580.84	10722.18	10770.20	10891.22	10966.34	10920.86	10931.43	10861.95	10843.91	10741.05	10722.08	10493.06	10395.90	10491.74	10477.8
7.50°	10048.83	10179.20	10160.89	10360.12	10374.14	10594.67	10703.19	10617.21	10642.03	10549.35	10537.31	10413.40	10347.66	10034.95	9930.23	10047.25	10048.8
10.00°	9308.92	9450.63	9368.32	9583.66	9595.74	9915.02	10055.97	9900.82	9945.36	9821.52	9883.19	9697.96	9705.81	9321.38	9165.58	9346.48	9308.92
12.50°	8525.66	8664.66	8542.02	8780.22	8729.52	9130.19	9303.78	9100.55	9169.78	9047.09	9166.46	8976.46	8967.93	8513.55	8335.46	8565.91	8525.66
15.00°	7472.00	7611.33	7443.32	7666.86	7601.10	8059.73	8245.75	7991.95	8082.12	7937.58	8118.27	7909.76	7960.48	7480.35	7274.27	7543.87	7472.00
17.50°	6386.56	6541.73	6326.55	6548.08	6420.49	6918.64	7142.24	6829.72	6961.41	6798.87	7042.11	6839.27	6905.59	6410.31	6169.44	6497.62	6386.5
20.00°	5294.15	5405.96	5215.18	5378.90	5276.71	5747.34	5919.58	5638.48	5722.85	5612.14	5838.20	5670.78	5730.75	5259.09	5114.43	5384.44	5294.15
22.50°	4201.10	4333.78	4104.08	4251.42	4139.18	4569.52	4764.36	4442.87	4561.31	4422.37	4686.67	4519.29	4633.80	4222.31	4067.41	4345.62	4201.10
25.00°	3409.79	3494.13	3343.11	3435.38	3317.55	3655.35	3771.54	3560.54	3644.02	3557.56	3744.19	3643.64	3718.03	3414.94	3304.21	3492.19	3409.79
27.50°	2640.24	2713.99	2590.86	2655.83	2542.33	2791.51	2903.29	2717.02	2817.85	2707.07	2877.88	2790.33	2902.75	2685.07	2580.06	2718.25	2640.24
30.00°	2061.23	2127.07	2037.98	2102.66	2007.55	2214.65	2306.97	2184.90	2250.28	2170.61	2285.49	2211.82	2299.70	2096.89	2007.05	2126.77	2061.23
32.50°	1491.50	1576.45	1487.73	1569.77	1501.69	1684.35	1770.08	1684.72	1725.65	1641.04	1729.65	1647.66	1739.05	1552.45	1450.87	1573.31	1491.50
35.00°	1057.17	1131.20	1075.79	1146.64	1097.80	1265.11	1351.19	1267.32	1312.67	1235.02	1290.61	1218.70	1261.27	1082.25	1004.56	1099.09	1057.17
37.50°	626.42	718.45	667.75	739.22	703.58	860.84	943.92	856.38	909.76	830.64	873.38	800.54	828.67	671.29	568.19	679.31	626.42
40.00°	351.60	392.10	368.86	404.95	389.13	510.02	558.02	508.43	530.53	492.17	519.70	466.98	476.63	352.39	317.20	362.87	351.60
42.50°	80.97	138.18	83.22	122.61	80.64	165.25	258.44	163.91	229.57	163.28	228.03	166.37	210.26	131.53	78.51	132.29	80.97
45.00°	41.14	58.04	41.36	56.09	35.59	75.68	104.03	80.88	98.33	82.10	98.82	78.84	83.62	50.42	36.65	52.90	41.14
47.50°	2.62	2.83	2.54	3.72	4.01	8.56	8.28	7.16	9.90	5.28	7.31	4.62	6.49	3.65	3.30	3.49	2.62
50.00°	2.50	2.78	2.91	3.08	2.28	3.89	4.27	4.16	5.89	4.07	5.05	3.20	4.47	2.51	2.53	2.37	2.50
52.50°	2.37	2.50	3.15	2.52	1.52	3.22	2.07	2.13	2.99	2.93	3.18	2.13	3.03	2.18	2.56	1.73	2.37
55.00°	2.09	1.73	2.18	2.19	1.53	2.65	2.48	1.78	2.10	2.73	2.16	2.70	2.41	2.83	2.19	1.81	2.09
57.50°	1.81	1.35	1.28	1.82	1.55	2.08	2.39	1.44	1.56	2.48	1.53	2.97	1.88	2.70	1.82	1.90	1.81
60.00°	1.64	1.70	1.05	1.35	1.13	1.76	1.64	1.31	1.60	1.83	1.66	1.95	1.46	1.70	1.57	1.98	1.64
62.50°	1.45	1.76	0.85	0.98	0.72	1.45	1.27	1.18	1.51	1.23	1.62	1.17	1.21	1.24	1.33	1.84	1.45
65.00°	1.12	1.36	0.89	0.88	0.73	1.10	1.36	0.97	1.24	0.97	1.25	1.28	1.17	1.36	1.16	1.42	1.12
67.50°	0.82	1.10	0.96	0.82	0.74	0.80	1.34	0.78	1.11	0.83	1.17	1.30	1.08	1.57	1.03	1.19	0.82
70.00°	0.66	1.03	1.15	0.85	0.77	0.96	1.20	0.74	1.13	1.19	1.48	1.07	0.95	1.85	1.27	1.15	0.66
72.50°	0.73	0.99	1.18	0.71	0.84	1.17	1.03	0.80	1.33	1.28	1.25	0.93	0.72	1.60	1.39	1.01	0.73
75.00°	1.09	0.98	1.02	0.44	0.99	1.46	0.90	1.02	1.56	1.03	0.74	0.88	0.51	1.31	1.33	0.90	1.09
77.50°	1.00	1.30	0.85	1.03	1.14	1.03	1.23	1.32	1.05	0.88	0.83	0.77	0.71	1.69	1.42	1.44	1.00
80.00°	0.89	1.35	0.81	1.18	1.15	0.61	1.17	1.35	1.07	0.76	0.89	0.93	0.87	1.28	1.42	1.30	0.89
82.50°	0.79	1.16	0.82	1.14	0.99	0.64	1.00	1.13	0.99	0.82	1.02	1.45	0.98	0.91	1.22	1.01	0.79
85.00°	0.90	1.38	0.90	1.10	0.95	1.07	0.97	1.16	0.90	1.14	1.26	1.60	0.91	0.81	0.89	1.17	0.90
87.50°	1.18	0.92	1.10	0.75	1.10	1.15	1.12	0.78	0.93	0.99	1.44	1.14	1.01	0.94	1.20	1.08	1.18
90.00°	0.69	1.06	0.87	0.78	1.04	1.00	0.86	1.00	0.65	1.22	0.65	0.84	0.78	0.75	0.79	0.98	0.69
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	6623	6623	6623	6623	6469	6469	6469	6469	6181	6181	6181	5918	5918	5918	5677	5677	5677	5563
	1	6356	6219	6097	5987	6221	6100	5991	5892	5877	5790	5711	5672	5604	5542	5483	5431	5382	5323
	2	6094	5857	5662	5498	5975	5763	5586	5437	5587	5443	5318	5424	5308	5206	5273	5181	5098	5080
	3	5842	5533	5294	5103	5737	5458	5239	5062	5316	5133	4983	5185	5033	4906	5063	4939	4832	4846
	4	5601	5240	4975	4773	5507	5179	4934	4745	5063	4855	4690	4957	4780	4636	4857	4708	4585	4622
RCR	5	5372	4973	4694	4488	5288	4923	4663	4469	4828	4603	4430	4740	4545	4393	4658	4490	4356	4411
	6	5155	4730	4444	4239	5080	4688	4420	4225	4609	4373	4198	4536	4329	4170	4467	4286	4144	4213
	7	4950	4506	4219	4018	4882	4472	4200	4007	4405	4163	3987	4343	4128	3967	4285	4094	3948	4027
	8	4756	4301	4015	3818	4695	4272	4000	3811	4215	3970	3796	4162	3942	3781	4113	3914	3766	3854
	9	4574	4112	3829	3638	4519	4087	3817	3632	4038	3793	3621	3993	3770	3610	3950	3747	3598	3692
	10	4402	3937	3659	3474	4352	3915	3649	3469	3874	3629	3460	3834	3610	3452	3797	3591	3443	3540

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	364.9 fc	4.0 ft
6.5 ft	261.3 fc	4.7 ft
7.5 ft	196.3 fc	5.4 ft
8.0 ft	172.5 fc	5.8 ft
10.0 ft	110.4 fc	7.2 ft
12.0 ft	76.7 fc	8.7 ft
14.0 ft	56.3 fc	10.1 ft
16.0 ft	43.1 fc	11.5 ft
20.0 ft	27.6 fc	14.4 ft
24.0 ft	19.2 fc	17.3 ft
28.0 ft	14.1 fc	20.2 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	160799	160799	160799
45.00°	847	852	733
55.00°	53	55	39
65.00°	39	31	25
75.00°	61	58	55
85.00°	151	150	159

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	-20.3	-19.4	-19.9	-19.1	-18.8	-18.0	-17.1	-17.6	-16.8	-16.4
	3H	-18.9	-18.1	-18.5	-17.8	-17.4	-17.2	-16.4	-16.8	-16.1	-15.7
	4H	-17.7	-16.9	-17.3	-16.6	-16.2	-16.5	-15.8	-16.1	-15.4	-15.0
	6H	-15.8	-15.2	-15.4	-14.8	-14.4	-15.4	-14.7	-14.9	-14.3	-13.9
	8H	-15.1	-14.5	-14.6	-14.1	-13.6	-14.5	-13.9	-14.1	-13.5	-13.1
	12H	-14.0	-13.5	-13.6	-13.1	-12.6	-13.5	-12.9	-13.1	-12.5	-12.1
4H	2H	-20.1	-19.3	-19.7	-19.0	-18.6	-17.8	-17.1	-17.4	-16.7	-16.3
	3H	-18.0	-17.4	-17.6	-17.0	-16.6	-16.6	-16.0	-16.2	-15.6	-15.2
	4H	-16.5	-16.0	-16.1	-15.6	-15.1	-15.5	-15.0	-15.1	-14.5	-14.1
	6H	-14.1	-13.7	-13.7	-13.2	-12.8	-14.2	-13.8	-13.7	-13.3	-12.8
	8H	-13.3	-12.9	-12.8	-12.4	-11.9	-13.2	-12.8	-12.7	-12.3	-11.9
	12H	-12.1	-11.8	-11.6	-11.3	-10.8	-11.9	-11.6	-11.4	-11.1	-10.6
8H	4H	-15.6	-15.2	-15.1	-14.7	-14.2	-15.1	-14.6	-14.6	-14.2	-13.7
	6H	-12.9	-12.6	-12.4	-12.1	-11.6	-13.5	-13.2	-13.0	-12.6	-12.2
	8H	-11.8	-11.6	-11.3	-11.0	-10.5	-12.1	-11.9	-11.6	-11.3	-10.8
	12H	-10.3	-10.1	-9.8	-9.6	-9.0	-10.4	-10.1	-9.8	-9.6	-9.0
12H	4H	-15.3	-15.0	-14.8	-14.5	-14.0	-14.9	-14.6	-14.4	-14.1	-13.6
	6H	-12.6	-12.4	-12.1	-11.9	-11.3	-13.2	-12.9	-12.6	-12.4	-11.9
	8H	-11.4	-11.2	-10.9	-10.7	-10.1	-11.7	-11.4	-11.1	-10.9	-10.3

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0