Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SGRTV12BX-80L35K-MD-DO101-AR12BX-MWWF

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

Test Number

SP-00686

Test Date

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

Summary of Results

Power

Input Watts	60 W

Lumen Output

Output Lumens	6510
Efficacy	108.5 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.64
Two luminaires, plane 90°	0.66
Four luminaires	0.64

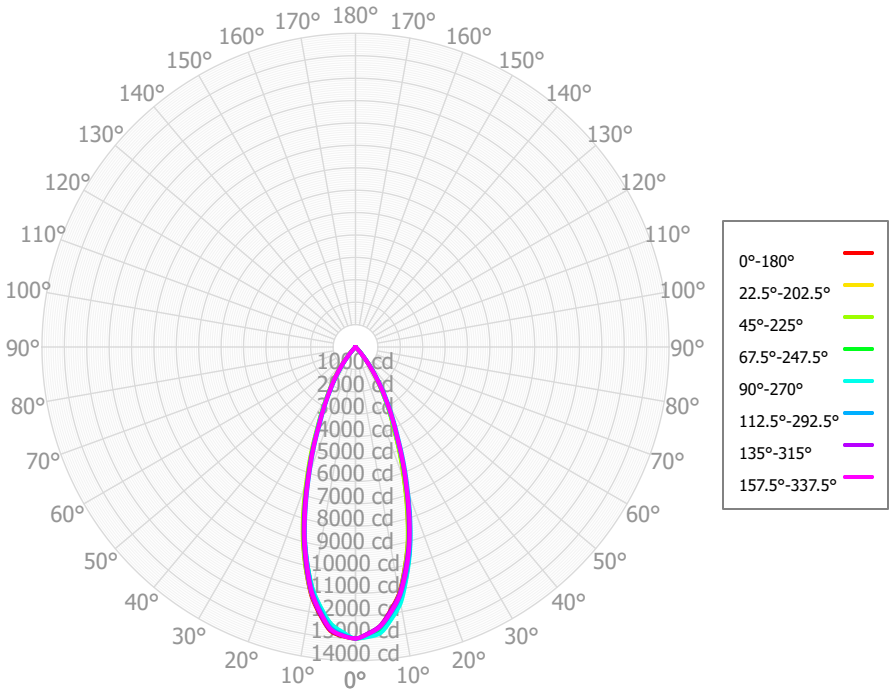
Full Beam Angle

0° - 180°	39°
90° - 270°	40°

IES File Header Contents

Keyword	Value
TEST	SP-00686
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	6/7/2018
UPDATE	6/19/2018
LUMCAT	SGRTV12BX-80L35K-MD-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, Medium Beam
OTHER	39.5 Deg Beam Angle
LAMPCAT	N/A
LAMP	N/A, Bridgelux Vero 29
OTHER	Dimmable driver tested at 100% output
OTHER	Tested CCT: 3500K
OTHER	This report prepared by Spectrum Lighting
_CCTMULT	CCT Output: 27K x 0.932, 30K x 1.00, 40K x 1.01

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	1170.94	17.99%	90.00° - 100.00°	0.07	0.00%
10.00° - 20.00°	2450.61	37.64%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	1910.61	29.35%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	874.55	13.43%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	98.76	1.52%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	1.77	0.03%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	0.98	0.02%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	0.92	0.01%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	0.84	0.01%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	6509.98	100.00%	0.00° - 180.00°	6510.06	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°	360.0
0.00°	13015.33	13015.33	13015.33	13015.33	13015.33	13015.33	13015.33	13015.33	13015.33	13015.33	13015.33	13015.33	13015.33	13015.33	13015.33	13015.33	13015.
2.50°	12811.42	12864.56	12869.62	12934.08	12962.61	12857.00	12904.28	12906.11	12928.46	12893.20	12872.35	12783.21	12747.99	12838.90	12801.09	12832.94	12811.4
5.00°	12512.43	12599.01	12592.09	12743.19	12823.70	12580.75	12696.89	12649.39	12736.86	12635.87	12606.26	12435.96	12418.35	12580.87	12507.22	12542.62	12512.
7.50°	11884.98	12001.87	11973.73	12212.47	12270.26	11880.80	12034.86	11959.31	12077.52	11973.21	12000.89	11787.47	11745.78	12031.48	11913.89	11980.50	11884.
10.00°	11191.42	11295.07	11232.26	11507.34	11621.57	11075.55	11238.87	11154.95	11304.02	11212.44	11249.56	11011.57	10976.13	11372.72	11240.13	11312.72	11191.4
12.50°	10135.74	10267.29	10144.88	10503.96	10545.68	9926.72	10130.95	9991.75	10196.20	10082.94	10216.54	9939.58	9917.24	10432.65	10221.80	10352.50	10135.
15.00°	9041.21	9126.68	8994.51	9336.96	9422.23	8728.73	8923.06	8780.93	9000.68	8907.38	9055.53	8795.19	8770.86	9380.72	9155.85	9269.91	9041.2
17.50°	7713.38	7836.93	7652.53	8032.58	8061.89	7355.92	7596.63	7410.59	7668.16	7541.81	7768.74	7469.82	7482.87	8143.03	7864.05	8023.63	7713.3
20.00°	6406.78	6490.54	6346.56	6648.95	6717.39	6023.14	6229.78	6082.56	6297.13	6209.60	6420.68	6185.43	6148.36	6825.88	6593.29	6704.98	6406.
22.50°	5240.75	5316.38	5157.29	5425.02	5458.94	4842.88	5041.26	4909.13	5122.95	5025.91	5225.35	5009.58	5027.84	5642.61	5430.86	5522.69	5240.7
25.00°	4118.36	4211.48	4058.50	4297.93	4258.04	3742.29	3917.34	3818.81	4009.10	3910.97	4108.37	3933.80	3982.10	4519.84	4320.18	4405.07	4118.3
27.50°	3328.24	3364.55	3279.23	3408.78	3409.26	2975.29	3097.83	3054.29	3199.72	3135.58	3246.63	3139.20	3171.58	3640.12	3500.51	3518.85	3328.3
30.00°	2556.28	2627.36	2538.37	2673.42	2595.40	2252.21	2397.29	2337.36	2489.77	2399.03	2524.89	2397.79	2449.83	2876.28	2704.32	2748.31	2556.
32.50°	1940.07	2004.71	1942.87	2047.74	2017.47	1727.64	1835.67	1825.83	1935.17	1871.41	1929.13	1818.14	1840.04	2199.24	2057.51	2083.26	1940.0
35.00°	1338.82	1434.38	1375.69	1496.46	1453.75	1215.53	1331.52	1322.53	1435.50	1356.47	1406.05	1270.78	1275.00	1566.50	1429.67	1473.75	1338.8
37.50°	890.00	959.16	923.63	1017.69	996.97	764.46	872.69	857.65	973.11	918.41	948.20	828.02	820.15	1046.44	935.57	966.98	890.0
40.00°	458.16	529.77	507.22	591.27	558.47	354.20	434.02	432.53	524.71	504.14	529.90	432.47	411.91	586.93	470.05	517.99	458.16
42.50°	227.64	260.63	250.57	295.48	280.56	167.36	196.43	208.77	260.98	249.01	257.80	203.57	189.27	290.67	237.86	243.84	227.64
45.00°	11.32	74.12	34.75	98.58	26.65	6.89	53.16	17.36	70.67	22.90	80.17	20.51	50.95	88.08	27.06	73.10	11.32
47.50°	7.43	6.63	17.20	8.66	13.76	4.63	5.01	9.51	10.08	12.71	6.65	10.83	4.74	8.91	14.18	5.45	7.43
50.00°	3.68	3.77	2.31	3.65	1.86	2.56	3.89	2.70	4.97	3.50	3.75	2.88	2.67	4.18	2.39	2.81	3.68
52.50°	2.59	2.66	1.89	1.47	1.99	1.88	3.08	2.38	3.18	2.77	2.51	1.99	1.80	2.22	2.12	1.71	2.59
55.00°	1.51	2.55	1.48	1.69	2.08	1.25	2.44	2.06	2.89	2.07	2.46	1.28	1.55	2.04	1.83	1.62	1.51
57.50°	0.99	2.18	1.15	1.59	1.56	1.12	1.81	1.69	2.32	1.66	2.05	1.33	1.53	1.64	1.43	1.38	0.99
60.00°	0.49	1.66	0.88	1.21	1.07	0.99	1.19	1.33	1.60	1.25	1.35	1.33	1.64	1.07	1.03	1.03	0.49
62.50°	0.63	1.36	1.00	1.04	1.12	0.93	1.07	1.04	1.20	0.95	0.97	1.07	1.39	0.90	0.72	0.89	0.63
65.00°	0.77	1.21	1.09	1.08	1.17	0.87	1.26	0.76	0.95	0.67	0.85	0.91	0.93	1.02	0.43	0.91	0.77
67.50°	0.75	1.12	1.06	1.10	1.15	0.90	1.20	0.68	0.67	0.74	0.87	1.20	0.97	0.90	0.73	0.96	0.75
70.00°	0.76	1.06	0.98	1.10	1.15	0.89	1.01	0.63	0.38	0.78	1.01	1.32	1.28	0.62	1.00	1.02	0.76
72.50°	1.05	0.99	0.74	1.04	1.21	0.76	0.97	0.75	0.56	0.66	0.79	0.92	1.10	0.92	1.09	0.87	1.05
75.00°	1.11	0.91	0.64	0.95	1.13	0.69	0.98	0.78	0.83	0.56	0.44	0.66	0.80	1.42	0.98	0.67	1.11
77.50°	0.86	0.76	0.70	0.53	0.85	0.69	0.95	0.71	0.86	0.47	0.87	0.52	0.87	1.56	0.63	1.28	0.86
80.00°	0.70	0.52	1.05	0.57	1.35	0.66	0.97	0.80	0.79	0.37	0.97	1.05	0.83	1.43	0.59	1.29	0.70
82.50°	0.84	0.66	0.70	0.84	1.15	0.71	0.96	0.94	0.64	0.48	0.87	0.88	0.61	1.10	0.61	1.10	0.84
85.00°	0.85	1.23	0.75	0.66	0.84	0.73	0.85	0.92	0.57	0.85	0.89	0.65	0.34	0.84	0.61	1.11	0.85
87.50°	0.70	0.65	1.01	0.68	1.02	0.97	0.84	0.99	0.67	0.60	0.87	0.69	0.40	0.82	0.52	0.78	0.70
90.00°	0.98	0.25	0.72	0.45	0.51	0.85	0.38	0.84	0.28	0.90	0.29	0.32	0.67	0.28	0.56	0.46	0.98
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	7750	7750	7750	7750	7570	7570	7570	7570	7233	7233	7233	6926	6926	6926	6643	6643	6643	6510
	1	7437	7277	7134	7005	7280	7138	7010	6894	6876	6775	6682	6636	6557	6484	6415	6354	6298	6229
	2	7130	6853	6624	6431	6991	6743	6535	6360	6536	6367	6221	6345	6209	6089	6169	6060	5963	5943
	3	6834	6472	6191	5968	6711	6384	6127	5920	6218	6004	5827	6065	5887	5738	5922	5776	5651	5667
	4	6551	6128	5817	5580	6442	6056	5769	5548	5922	5677	5483	5797	5589	5421	5680	5505	5360	5405
RCR	5	6283	5815	5488	5247	6185	5756	5452	5224	5645	5381	5179	5542	5314	5134	5446	5249	5091	5157
	6	6028	5529	5194	4954	5940	5481	5166	4938	5388	5112	4905	5302	5059	4873	5221	5009	4842	4924
	7	5787	5267	4930	4694	5708	5226	4908	4682	5149	4865	4658	5076	4823	4635	5008	4783	4612	4706
	8	5560	5026	4691	4460	5488	4992	4673	4451	4926	4639	4434	4864	4605	4416	4805	4573	4399	4502
	9	5346	4804	4472	4248	5281	4775	4458	4242	4718	4430	4228	4665	4403	4215	4615	4377	4202	4312
	10	5145	4599	4273	4056	5086	4574	4261	4050	4525	4238	4040	4478	4216	4030	4435	4194	4020	4134

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	430.3 fc	3.9 ft
6.5 ft	308.1 fc	4.7 ft
7.5 ft	231.4 fc	5.4 ft
8.0 ft	203.4 fc	5.7 ft
10.0 ft	130.2 fc	7.2 ft
12.0 ft	90.4 fc	8.6 ft
14.0 ft	66.4 fc	10.0 ft
16.0 ft	50.8 fc	11.5 ft
20.0 ft	32.5 fc	14.3 ft
24.0 ft	22.6 fc	17.2 ft
28.0 ft	16.6 fc	20.1 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	189580	189580	189580
45.00°	233	716	549
55.00°	38	38	53
65.00°	26	38	40
75.00°	63	36	64
85.00°	142	125	140

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	-21.0	-20.2	-20.7	-19.8	-19.5	-22.8	-21.9	-22.4	-21.6	-21.2
	3H	-19.7	-18.9	-19.3	-18.6	-18.2	-19.9	-19.1	-19.5	-18.8	-18.4
	4H	-18.3	-17.6	-17.9	-17.2	-16.8	-18.7	-17.9	-18.2	-17.6	-17.2
	6H	-17.0	-16.4	-16.6	-16.0	-15.6	-17.0	-16.4	-16.6	-16.0	-15.6
	8H	-16.2	-15.6	-15.8	-15.2	-14.8	-16.0	-15.4	-15.6	-15.0	-14.6
	12H	-15.1	-14.5	-14.7	-14.1	-13.7	-15.3	-14.7	-14.8	-14.3	-13.9
4H	2H	-21.0	-20.2	-20.6	-19.9	-19.5	-22.1	-21.4	-21.7	-21.0	-20.6
	3H	-19.0	-18.4	-18.6	-18.0	-17.6	-19.0	-18.4	-18.6	-18.0	-17.6
	4H	-17.5	-17.0	-17.1	-16.6	-16.1	-17.8	-17.3	-17.4	-16.9	-16.4
	6H	-15.7	-15.3	-15.3	-14.8	-14.4	-16.0	-15.5	-15.5	-15.1	-14.6
	8H	-14.8	-14.4	-14.3	-13.9	-13.4	-14.8	-14.4	-14.3	-13.9	-13.5
	12H	-13.4	-13.1	-12.9	-12.6	-12.1	-13.9	-13.6	-13.4	-13.1	-12.6
8H	4H	-17.0	-16.6	-16.5	-16.2	-15.7	-17.3	-16.9	-16.9	-16.5	-16.0
	6H	-14.9	-14.6	-14.4	-14.1	-13.6	-15.1	-14.8	-14.6	-14.3	-13.8
	8H	-13.7	-13.4	-13.1	-12.9	-12.4	-13.8	-13.6	-13.3	-13.0	-12.5
	12H	-11.9	-11.7	-11.4	-11.2	-10.6	-12.7	-12.5	-12.2	-12.0	-11.4
12H	4H	-16.8	-16.5	-16.3	-16.0	-15.5	-17.2	-16.9	-16.7	-16.4	-15.9
	6H	-14.7	-14.4	-14.1	-13.9	-13.4	-14.8	-14.6	-14.3	-14.1	-13.5
	8H	-13.3	-13.1	-12.8	-12.6	-12.0	-13.4	-13.2	-12.9	-12.7	-12.1

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0