

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

SGx5LEDFX-30L35KDX-AR5223FX-SG-SO

Nom 5" diam recessed downlight

### **Test Number**

SP-00748\_1

### **Test Date**

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

### Summary of Results

#### Power

Input Watts	25 W
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#### Lumen Output

Output Lumens	2208
Efficacy	88.33 lm/W

#### Luminous Dimensions

0° - 180° Size	-0.42
90° - 270° Size	-0.42
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	0.88
Two luminaires, plane 90°	0.88
Four luminaires	0.9

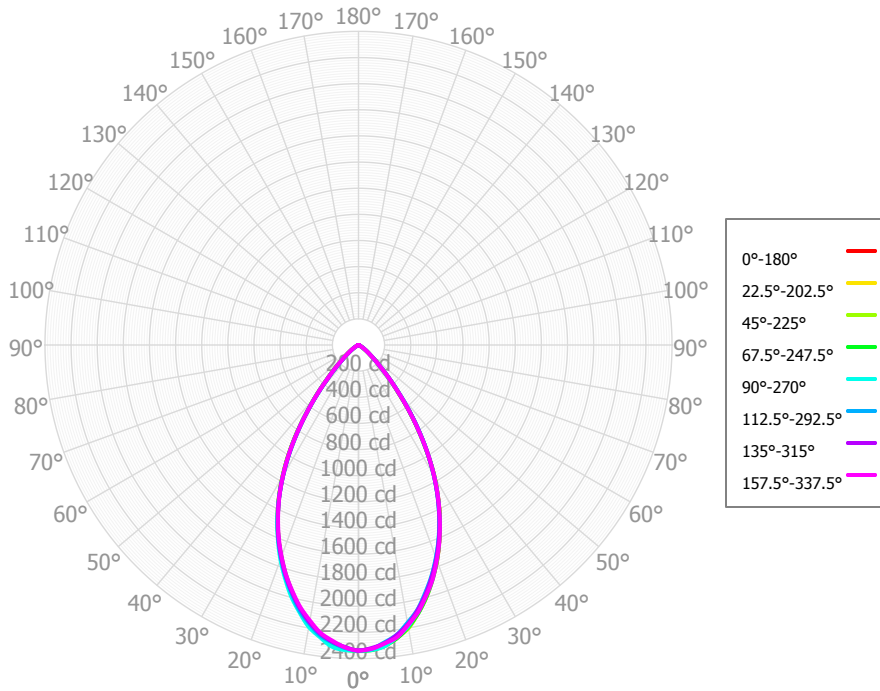
#### Full Beam Angle

0° - 180°	60°
90° - 270°	60°

### IES File Header Contents

Keyword	Value
TEST	SP-00748_1
TESTLAB	Spectrum Lighting Photometric Lab
MANUFAC	Spectrum Lighting
ISSUEDATE	1/2/2019
UPDATE	3/4/2019
LUMCAT	SGx5LEDFX-30L35KDX-AR5223FX-SG-SO
LUMINAIRE	Nom 5" diam recessed downlight
OTHER	Trim: AR5223FX, Matte White
OTHER	Regressed Integral Solite lens
OTHER	Data for New Construction: SGE5LEDFX-series w/AR5223FX-SG-SO
OTHER	Data for Retrofit: SGRTE5LEDFX-series w/AR5223FX-SG-SO
OTHER	Beam Angle: 59 deg
LAMPCAT	N/A
LAMP	N/A, Philips LED, Gen: 80G1
OTHER	CCT Tested: 3500K
OTHER	CCT Multipliers: 27K x 0.95, 30K x 1.0, 40K x 1.08
OTHER	This report prepared by Spectrum Lighting

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	218.28	9.88%	90.00° - 100.00°	0.07	0.00%
10.00° - 20.00°	550.65	24.94%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	666.08	30.16%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	502.99	22.78%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	202.84	9.19%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	57.42	2.60%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	7.80	0.35%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	1.14	0.05%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.05	0.05%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	2,208.25	100.00%	0.00° - 180.00°	2,208.25	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°	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88	2,338.88
2.50°	2,329.43	2,333.48	2,334.02	2,338.13	2,336.36	2,322.64	2,314.88	2,318.29	2,325.82	2,331.79	2,327.34	2,334.45	2,338.06	2,328.40	2,321.80	2,327.84	2,329.43
5.00°	2,308.66	2,301.61	2,313.34	2,308.21	2,314.80	2,286.73	2,280.75	2,273.38	2,298.66	2,293.21	2,296.48	2,292.43	2,319.09	2,284.82	2,291.46	2,293.58	2,308.66
7.50°	2,252.27	2,252.54	2,260.71	2,264.11	2,253.40	2,243.68	2,229.70	2,223.04	2,237.86	2,237.52	2,233.11	2,239.85	2,256.80	2,238.03	2,239.70	2,257.26	2,252.27
10.00°	2,191.46	2,184.30	2,201.54	2,191.72	2,187.21	2,166.48	2,155.90	2,141.66	2,167.47	2,157.47	2,159.45	2,156.86	2,191.76	2,158.87	2,172.04	2,178.80	2,191.46
12.50°	2,094.57	2,096.86	2,104.98	2,106.43	2,085.99	2,082.14	2,065.41	2,055.84	2,070.04	2,065.88	2,063.70	2,066.89	2,093.50	2,078.05	2,082.05	2,098.82	2,094.57
15.00°	1,995.47	1,991.81	2,003.28	2,000.35	1,981.38	1,972.26	1,962.63	1,952.02	1,967.49	1,960.45	1,961.87	1,958.11	1,992.30	1,967.71	1,978.77	1,992.81	1,995.47
17.50°	1,876.48	1,875.36	1,881.52	1,883.86	1,860.52	1,858.23	1,852.52	1,843.68	1,853.41	1,849.92	1,849.70	1,846.42	1,871.35	1,856.24	1,863.07	1,884.30	1,876.48
20.00°	1,756.55	1,750.35	1,758.29	1,753.89	1,736.45	1,733.08	1,730.25	1,721.55	1,733.95	1,727.31	1,729.90	1,724.67	1,747.76	1,732.34	1,741.33	1,753.37	1,756.55
22.50°	1,616.71	1,613.84	1,616.92	1,616.92	1,601.07	1,602.96	1,602.12	1,594.76	1,604.94	1,601.22	1,599.70	1,602.03	1,612.29	1,605.78	1,606.44	1,619.83	1,616.71
25.00°	1,475.52	1,470.40	1,474.74	1,472.52	1,462.25	1,462.32	1,461.21	1,457.08	1,468.37	1,461.59	1,462.25	1,460.35	1,472.44	1,461.29	1,466.56	1,471.80	1,475.52
27.50°	1,321.26	1,317.39	1,318.04	1,318.62	1,314.19	1,313.92	1,315.53	1,312.89	1,320.88	1,319.17	1,316.60	1,317.66	1,317.75	1,313.71	1,312.91	1,320.42	1,321.26
30.00°	1,163.58	1,159.72	1,159.51	1,156.44	1,158.30	1,152.24	1,154.67	1,156.54	1,164.14	1,159.32	1,160.56	1,156.55	1,158.41	1,152.26	1,155.33	1,156.16	1,163.58
32.50°	985.86	986.07	980.67	984.42	986.10	985.15	989.46	992.23	996.44	997.14	994.98	994.60	987.12	988.29	983.08	988.24	985.86
35.00°	809.06	806.28	802.94	805.49	814.08	810.64	816.83	815.88	825.80	821.43	824.63	821.30	816.35	816.10	807.68	809.42	809.06
37.50°	636.11	637.25	632.53	636.55	642.36	642.51	642.65	647.88	652.32	644.67	650.74	650.25	646.63	647.69	640.13	637.22	636.11
40.00°	474.51	471.34	470.08	473.35	484.77	481.55	491.51	490.04	499.01	496.60	497.90	496.43	488.98	489.01	473.68	480.13	474.51
42.50°	348.05	349.35	343.72	346.00	346.51	348.81	343.54	359.02	361.52	351.03	357.99	352.38	351.15	349.38	351.62	343.83	348.05
45.00°	239.21	236.75	232.08	235.13	240.70	242.06	253.36	254.82	260.06	261.69	258.26	256.73	242.17	247.96	232.97	244.95	239.21
47.50°	172.13	172.60	168.67	167.26	170.77	168.95	167.66	179.37	181.72	175.82	178.12	172.13	171.28	167.95	172.42	166.65	172.13
50.00°	117.02	115.49	114.19	114.66	119.38	120.88	125.58	127.53	129.95	130.78	127.61	126.55	117.58	122.04	114.23	118.85	117.02
52.50°	84.91	85.04	82.34	82.67	84.84	86.96	85.07	91.65	91.76	88.46	88.34	86.91	82.23	85.83	85.76	82.11	84.91
55.00°	58.23	56.73	55.12	56.26	59.14	61.62	62.48	66.34	66.36	64.23	63.04	63.61	56.35	62.42	58.15	58.61	58.23
57.50°	39.86	38.75	37.22	38.61	40.04	41.46	40.47	45.68	46.17	41.67	41.90	42.35	38.90	41.98	40.37	39.03	39.86
60.00°	24.30	21.27	22.01	22.68	24.73	23.82	25.41	27.53	29.18	26.59	26.69	25.42	24.49	24.70	23.45	23.25	24.30
62.50°	12.26	11.84	11.13	12.10	11.69	12.69	11.61	14.95	13.21	13.38	12.76	12.23	12.25	12.71	12.58	12.11	12.26
65.00°	4.90	3.11	4.13	2.18	5.05	4.02	5.89	4.77	6.55	6.41	6.54	5.34	5.63	5.34	3.45	4.72	4.90
67.50°	2.34	2.10	2.24	1.24	1.55	1.91	1.70	2.06	1.89	1.76	1.45	1.47	2.09	1.92	2.23	1.57	2.34
70.00°	1.26	1.36	1.22	0.84	0.71	1.22	1.35	1.24	1.33	1.46	1.28	1.00	1.20	1.19	1.34	1.01	1.26
72.50°	1.16	1.55	0.91	0.72	0.63	1.29	1.07	1.06	1.08	1.18	1.12	0.97	1.02	1.22	1.21	0.86	1.16
75.00°	1.19	1.43	1.00	0.83	0.84	1.21	0.89	1.06	1.25	0.94	0.99	1.09	1.12	1.43	1.11	0.85	1.19
77.50°	1.16	1.06	1.01	1.20	0.97	1.06	1.21	1.25	1.11	0.90	1.11	1.11	0.96	1.09	1.02	1.01	1.16
80.00°	0.91	1.01	0.64	0.95	1.03	1.34	1.13	1.33	1.03	0.85	1.18	0.67	0.75	1.03	0.91	1.12	0.91
82.50°	1.02	0.94	0.98	0.78	1.23	1.00	1.11	0.99	1.14	1.09	1.21	0.76	0.74	1.10	0.97	1.22	1.02
85.00°	1.02	0.98	0.86	0.82	0.84	1.05	0.87	1.09	1.22	1.37	1.27	0.90	0.88	1.09	1.04	1.22	1.02
87.50°	0.91	0.99	0.96	1.17	0.93	1.09	1.10	1.22	1.22	1.08	1.17	0.83	0.48	1.13	1.12	1.02	0.91
90.00°	0.95	0.93	1.10	1.19	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	1.29	0.93	0.95

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

<b>RCR</b>	<b>pfc</b>	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	<b>pcc</b>	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	<b>0</b>	2,629	2,629	2,629	2,629	2,568	2,568	2,568	2,568	2,454	2,454	2,454	2,349	2,349	2,349	2,253	2,253	2,208
	<b>1</b>	2,501	2,438	2,381	2,330	2,447	2,390	2,339	2,293	2,301	2,260	2,222	2,218	2,186	2,156	2,142	2,117	2,075
	<b>2</b>	2,371	2,259	2,166	2,088	2,321	2,220	2,136	2,065	2,149	2,079	2,019	2,082	2,026	1,976	2,021	1,975	1,934
	<b>3</b>	2,244	2,096	1,981	1,890	2,199	2,065	1,959	1,874	2,006	1,917	1,844	1,952	1,878	1,815	1,902	1,840	1,804
	<b>4</b>	2,123	1,948	1,821	1,724	2,082	1,923	1,805	1,713	1,875	1,773	1,693	1,830	1,743	1,673	1,788	1,714	1,653
	<b>5</b>	2,008	1,816	1,681	1,582	1,972	1,795	1,669	1,574	1,754	1,644	1,560	1,717	1,621	1,546	1,682	1,599	1,532
	<b>6</b>	1,902	1,696	1,558	1,459	1,868	1,678	1,548	1,454	1,644	1,529	1,444	1,613	1,511	1,434	1,583	1,494	1,424
	<b>7</b>	1,802	1,588	1,449	1,352	1,772	1,573	1,442	1,348	1,544	1,427	1,341	1,517	1,412	1,334	1,492	1,398	1,326
	<b>8</b>	1,709	1,490	1,353	1,258	1,682	1,477	1,346	1,255	1,453	1,334	1,250	1,430	1,323	1,244	1,408	1,311	1,239
	<b>9</b>	1,624	1,402	1,266	1,174	1,599	1,391	1,261	1,172	1,370	1,251	1,168	1,350	1,242	1,164	1,331	1,232	1,160
	<b>10</b>	1,545	1,322	1,189	1,100	1,522	1,312	1,185	1,098	1,294	1,176	1,095	1,276	1,168	1,092	1,260	1,161	1,089

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	77.3 fc	6.3 ft
6.5 ft	55.4 fc	7.5 ft
7.5 ft	41.6 fc	8.6 ft
8.0 ft	36.5 fc	9.2 ft
10.0 ft	23.4 fc	11.5 ft
12.0 ft	16.2 fc	13.8 ft
14.0 ft	11.9 fc	16.1 ft
16.0 ft	9.1 fc	18.4 ft
20.0 ft	5.8 fc	23.0 ft
24.0 ft	4.1 fc	27.6 ft
28.0 ft	3.0 fc	32.2 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	181,714	181,714	181,714
<b>45.00°</b>	26,283	25,499	26,447
<b>55.00°</b>	7,887	7,466	8,011
<b>65.00°</b>	901	760	929
<b>75.00°</b>	358	299	252
<b>85.00°</b>	912	768	745

### UGR CIE 190:2010

<b>Ceiling reflectance</b>		<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>	<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>
<b>Wall reflectance</b>		<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>
<b>Plane reflectance</b>		<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>
<b>Room dimensions</b>		<b>Viewed crosswise</b>					<b>Viewed endwise</b>				
<b>2H</b>	<b>2H</b>	10.2	11.2	10.5	11.5	11.8	10.6	11.6	10.9	11.9	12.2
	<b>3H</b>	10.0	10.9	10.4	11.2	11.6	10.4	11.3	10.8	11.6	12.0
	<b>4H</b>	9.9	10.7	10.3	11.1	11.5	10.3	11.2	10.7	11.5	11.9
	<b>6H</b>	9.8	10.6	10.2	10.9	11.3	10.2	11.0	10.6	11.4	11.8
	<b>8H</b>	9.8	10.5	10.2	10.9	11.3	10.2	10.9	10.6	11.3	11.7
	<b>12H</b>	9.7	10.4	10.1	10.8	11.2	10.1	10.8	10.6	11.2	11.6
<b>4H</b>	<b>2H</b>	9.9	10.7	10.3	11.1	11.5	10.3	11.2	10.7	11.5	11.9
	<b>3H</b>	9.7	10.4	10.1	10.8	11.2	10.2	10.8	10.6	11.2	11.7
	<b>4H</b>	9.6	10.2	10.1	10.6	11.1	10.0	10.7	10.5	11.1	11.5
	<b>6H</b>	9.5	10.0	10.0	10.5	11.0	10.0	10.5	10.4	10.9	11.4
	<b>8H</b>	9.5	10.0	10.0	10.4	10.9	9.9	10.4	10.4	10.8	11.3
	<b>12H</b>	9.4	9.9	9.9	10.4	10.8	9.9	10.3	10.4	10.8	11.2
<b>8H</b>	<b>4H</b>	9.4	9.9	9.9	10.4	10.8	9.9	10.4	10.4	10.8	11.3
	<b>6H</b>	9.3	9.7	9.9	10.2	10.7	9.8	10.2	10.3	10.7	11.2
	<b>8H</b>	9.3	9.7	9.8	10.2	10.7	9.7	10.1	10.3	10.6	11.1
	<b>12H</b>	9.3	9.6	9.8	10.1	10.7	9.7	10.0	10.2	10.5	11.1
<b>12H</b>	<b>4H</b>	9.4	9.8	9.9	10.3	10.8	9.8	10.2	10.3	10.7	11.2
	<b>6H</b>	9.3	9.6	9.8	10.1	10.7	9.7	10.1	10.3	10.5	11.1
	<b>8H</b>	9.3	9.6	9.8	10.1	10.6	9.7	10.0	10.2	10.5	11.1

Corrected UGR values based on total output lumens

SHR = 1.0