

## Indoor Distribution Test Report

# Spectrum Lighting Inc.

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## Spectrum Lighting Photometric Lab

### Luminaire

SGE4SQLEDFX 50L 35K XX CA0244FX PT WF SO  
Nom 4 inch square downlight with platinum silver finish and Solite lens

### Test Number

SP-01220\_1

### Test Date

5/26/2021

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

### Summary of Results

#### Power

Input Watts	38.4 W
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#### Lumen Output

Output Lumens	3109
Efficacy	80.96 lm/W

#### Luminous Dimensions

0° - 180° Size	0.33
90° - 270° Size	0.33
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	0.92
Two luminaires, plane 90°	0.93
Four luminaires	0.96

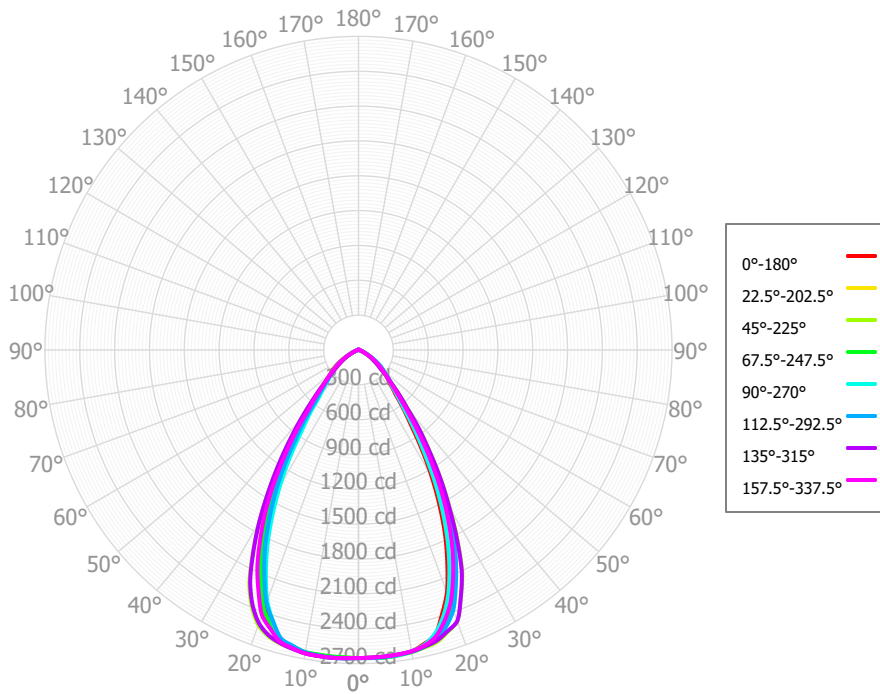
#### Full Beam Angle

0° - 180°	60°
90° - 270°	60°

### IES File Header Contents

Keyword	Value
TEST	SP-01220_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	5/26/2021
ISSUEDATE	6/11/2021
LUMCAT	SGE4SQLEDFX 50L 35K XX CA0244FX PT WF SO
LUMINAIRE	Nom 4 inch square downlight with platinum silver finish and Solite lens
OTHER	Beam Angle: 59 degrees
LAMPCAT	N/A
LAMP	FX Gen2
OTHER	CCT Output Multipliers: 27HK x 0.764, 30K x 0.96, 40K x 1.03, 50K x 1.04
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	80+
_CCTMULT	27HK x 0.77, 30K x 0.96, 40K x 1.03, 50K x 1.04
_LAMPMULT	10L x 0.18, 15L x 0.29, 20L x 0.39, 30L x 0.58, 40L x 0.78

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	256.85	8.26%	90.00° - 100.00°	1.66	0.05%
10.00° - 20.00°	718.41	23.11%	100.00° - 110.00°	1.47	0.05%
20.00° - 30.00°	894.77	28.78%	100.00° - 120.00°	2.83	0.09%
30.00° - 40.00°	630.50	20.28%	120.00° - 130.00°	1.31	0.04%
40.00° - 50.00°	320.25	10.30%	130.00° - 140.00°	1.25	0.04%
50.00° - 60.00°	179.22	5.76%	140.00° - 150.00°	1.09	0.04%
60.00° - 70.00°	70.96	2.28%	150.00° - 160.00°	0.85	0.03%
70.00° - 80.00°	21.97	0.71%	160.00° - 170.00°	0.54	0.02%
80.00° - 90.00°	6.33	0.20%	170.00° - 180.00°	0.18	0.01%
0.00° - 90.00°	3099.25	99.69%	0.00° - 180.00°	3108.96	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°	2653.29	2653.29	2653.29	2653.29	2653.29	2653.29	2653.29	2653.29	2653.29	2653.29	2653.29	2653.29	2653.29	2653.29	2653.29	2653.29	2653.29
2.50°	2654.42	2652.52	2651.72	2655.10	2655.64	2656.70	2657.49	2656.01	2656.35	2651.77	2656.04	2649.40	2658.11	2653.74	2650.98	2651.00	2654.42
5.00°	2656.21	2652.62	2647.65	2658.02	2653.63	2661.10	2660.06	2659.68	2659.60	2651.55	2655.47	2648.59	2659.40	2652.89	2649.58	2648.54	2656.21
7.50°	2647.10	2646.54	2644.32	2650.58	2650.18	2653.36	2657.90	2657.33	2656.91	2650.52	2650.15	2644.73	2655.98	2646.79	2643.46	2644.13	2647.10
10.00°	2636.62	2638.20	2641.13	2640.90	2635.13	2643.55	2651.45	2653.52	2652.04	2648.56	2643.44	2640.68	2650.59	2637.22	2636.08	2633.76	2636.62
12.50°	2594.99	2609.61	2623.83	2619.78	2602.72	2609.75	2635.68	2629.59	2627.47	2625.80	2632.84	2616.03	2618.33	2617.28	2616.06	2609.53	2594.99
15.00°	2544.36	2570.59	2604.50	2583.73	2533.75	2573.04	2612.49	2601.88	2592.03	2597.44	2615.85	2590.16	2576.69	2580.61	2593.39	2558.77	2544.36
17.50°	2389.49	2465.97	2547.56	2488.63	2416.49	2449.37	2575.23	2519.96	2483.89	2497.18	2584.09	2488.75	2450.13	2501.00	2541.69	2454.33	2389.49
20.00°	2226.68	2345.33	2486.78	2369.30	2255.66	2319.06	2505.15	2430.58	2358.86	2386.63	2521.19	2383.28	2299.43	2384.99	2485.44	2318.06	2226.68
22.50°	1999.46	2144.97	2304.02	2172.85	2045.36	2116.33	2382.04	2250.16	2149.88	2192.54	2397.66	2191.71	2085.14	2190.85	2302.55	2127.11	1999.46
25.00°	1768.32	1938.13	2114.14	1967.03	1817.34	1910.52	2207.83	2060.63	1932.73	1992.69	2224.93	1996.88	1855.82	1982.72	2104.76	1919.29	1768.32
27.50°	1514.38	1706.18	1843.71	1735.75	1571.98	1676.45	1962.92	1829.23	1683.77	1759.42	1968.24	1761.94	1606.66	1749.20	1835.79	1686.70	1514.38
30.00°	1261.72	1470.20	1571.79	1499.25	1321.26	1441.95	1707.83	1595.45	1432.85	1523.93	1706.98	1525.13	1353.91	1508.58	1561.63	1447.74	1261.72
32.50°	1014.67	1221.65	1321.00	1250.94	1065.88	1197.76	1440.29	1347.43	1175.49	1278.14	1439.08	1273.63	1104.65	1256.63	1312.52	1200.51	1014.67
35.00°	786.94	982.66	1072.19	1012.24	848.31	956.98	1190.40	1099.59	936.23	1039.26	1187.76	1027.69	855.86	1015.99	1064.20	969.15	786.94
37.50°	629.95	769.24	861.31	791.87	658.91	763.18	959.10	880.82	745.36	825.72	957.20	813.29	686.85	790.81	854.40	755.47	629.95
40.00°	493.97	587.47	656.41	609.10	528.55	578.94	757.33	666.89	583.63	635.97	753.99	616.67	525.38	612.50	647.34	589.65	493.97
42.50°	420.44	476.29	514.24	488.34	435.89	479.55	582.36	542.70	486.91	516.95	581.08	501.02	448.34	489.24	511.50	469.82	420.44
45.00°	357.67	383.36	380.25	391.40	373.04	386.54	450.42	423.78	406.93	413.88	447.20	397.69	375.65	395.79	380.50	381.99	357.67
47.50°	321.36	324.79	307.87	328.55	326.93	333.18	353.06	359.15	358.96	351.43	350.57	338.68	337.61	333.35	309.78	321.39	321.36
50.00°	284.30	273.61	240.17	276.64	290.52	282.80	281.67	297.07	314.93	296.20	278.67	284.65	299.89	283.13	242.18	273.30	284.30
52.50°	245.63	234.62	198.09	238.15	258.72	246.77	228.19	253.91	277.39	256.38	227.08	245.19	258.67	243.86	201.32	234.35	245.63
55.00°	205.72	195.73	158.63	200.01	219.81	209.87	186.33	211.21	237.02	215.78	185.07	205.34	217.35	203.55	161.97	195.92	205.72
57.50°	163.57	156.97	130.17	162.25	178.06	169.59	151.32	171.05	192.65	173.77	150.03	164.51	174.45	162.44	131.73	157.80	163.57
60.00°	125.35	120.83	102.49	126.47	138.32	130.76	120.03	132.28	150.89	134.54	118.61	126.01	132.40	125.69	102.39	122.32	125.35
62.50°	93.20	87.89	77.55	92.57	99.26	96.44	90.67	99.39	112.36	99.70	89.44	92.43	98.74	91.92	77.16	88.29	93.20
65.00°	67.79	62.90	55.30	66.45	73.62	66.78	67.51	69.76	81.97	71.06	66.99	64.95	67.47	66.58	54.29	64.92	67.79
67.50°	51.52	46.46	40.75	46.61	51.70	49.28	47.06	51.47	60.33	50.85	48.08	48.32	52.66	46.16	40.22	46.50	51.52
70.00°	37.92	33.99	28.61	33.55	40.32	34.88	35.05	35.74	44.06	35.51	35.16	34.76	38.86	33.88	27.99	35.14	37.92
72.50°	27.44	25.20	22.21	25.18	31.25	27.35	26.10	27.24	32.77	25.86	25.00	26.00	30.41	25.61	21.37	26.51	27.44
75.00°	19.36	18.63	16.55	18.38	22.86	20.60	19.89	19.99	23.63	19.31	18.94	18.89	22.36	19.69	15.83	19.43	19.36
77.50°	13.68	13.82	12.46	12.55	14.59	15.30	14.51	15.69	16.20	15.97	14.48	13.98	15.97	14.76	13.02	12.87	13.68
80.00°	9.41	10.32	9.03	9.33	10.07	10.86	10.98	11.67	11.39	12.33	10.88	10.37	10.35	11.06	10.20	9.56	9.41
82.50°	6.40	7.73	6.76	7.46	6.03	7.79	7.91	8.24	8.44	8.44	7.55	8.26	7.31	7.79	7.40	7.13	6.40
85.00°	4.29	5.39	4.93	5.88	4.73	5.38	6.27	5.46	6.21	5.59	5.75	6.10	4.75	5.55	4.99	5.20	4.29
87.50°	2.86	3.18	3.78	4.43	3.66	3.91	4.90	3.83	4.41	3.56	4.35	3.87	3.48	3.61	3.32	3.39	2.86
90.00°	1.85	2.00	2.81	3.12	2.41	2.67	3.15	2.51	3.07	2.18	2.92	2.36	2.39	2.42	2.21	2.50	1.85
92.50°	1.12	1.35	2.09	1.87	1.14	1.70	1.34	1.65	1.96	1.25	1.48	1.47	1.70	1.41	1.96	1.77	1.12
95.00°	0.98	1.23	1.56	1.46	1.01	1.16	1.31	1.17	1.48	1.06	1.13	1.23	1.21	1.51	1.68	1.64	0.98
97.50°	1.19	1.35	1.24	1.32	0.89	1.04	1.46	1.20	1.29	1.30	0.95	1.50	1.09	1.81	1.34	1.59	1.19
100.00°	1.29	1.31	1.23	1.38	1.09	1.09	1.61	1.26	1.17	1.27	1.17	1.52	1.02	1.77	1.21	1.52	1.29
102.50°	1.33	1.21	1.53	1.48	1.28	1.29	1.76	1.35	1.08	1.12	1.44	1.39	1.05	1.69	1.32	1.45	1.33
105.00°	1.36	1.25	1.57	1.50	1.24	1.44	1.75	1.36	1.17	1.10	1.46	1.30	1.22	1.65	1.44	1.53	1.36
107.50°	1.39	1.32	1.39	1.50	1.20	1.54	1.74	1.29	1.32	1.13	1.45	1.23	1.57	1.63	1.57	1.61	1.39
110.00°	1.38	1.32	1.36	1.68	1.17	1.51	1.53	1.27	1.20	1.16	1.48	1.38	1.67	1.57	1.61	1.35	1.38
112.50°	1.37	1.30	1.45	1.88	1.14	1.39	1.32	1.31	1.02	1.20	1.52	1.64	1.43	1.50	1.56	1.10	1.37

### 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>	3699	3699	3699	3699	3612	3612	3612	3612	3449	3449	3449	3300	3300	3300	3163	3163	3099
	<b>1</b>	3500	3402	3315	3236	3421	3333	3255	3184	3205	3141	3083	3086	3036	2989	2977	2938	2901
	<b>2</b>	3296	3124	2982	2862	3224	3069	2939	2829	2965	2857	2765	2869	2781	2703	2780	2708	2645
	<b>3</b>	3102	2876	2700	2561	3036	2830	2669	2539	2745	2609	2496	2666	2551	2455	2593	2497	2415
	<b>4</b>	2921	2655	2461	2313	2860	2618	2438	2298	2547	2392	2269	2482	2349	2241	2421	2307	2213
	<b>5</b>	2752	2460	2256	2106	2697	2429	2238	2096	2370	2203	2075	2315	2169	2055	2263	2137	2036
	<b>6</b>	2596	2287	2079	1930	2546	2261	2065	1923	2211	2037	1908	2164	2011	1894	2120	1985	1880
	<b>7</b>	2453	2132	1925	1779	2408	2110	1913	1774	2068	1891	1763	2028	1870	1752	1990	1850	1742
	<b>8</b>	2321	1994	1789	1648	2280	1975	1780	1644	1939	1762	1636	1904	1745	1628	1872	1728	1620
	<b>9</b>	2200	1871	1669	1533	2162	1854	1661	1530	1823	1647	1523	1793	1632	1517	1765	1619	1511
	<b>10</b>	2088	1759	1562	1431	2054	1745	1556	1429	1717	1544	1424	1692	1532	1419	1667	1520	1414

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	87.7 fc	6.3 ft
6.5 ft	62.8 fc	7.4 ft
7.5 ft	47.2 fc	8.5 ft
8.0 ft	41.5 fc	9.1 ft
10.0 ft	26.5 fc	11.4 ft
12.0 ft	18.4 fc	13.6 ft
14.0 ft	13.5 fc	15.9 ft
16.0 ft	10.4 fc	18.2 ft
20.0 ft	6.6 fc	22.7 ft
24.0 ft	4.6 fc	27.3 ft
28.0 ft	3.4 fc	31.8 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	262257	262257	262257
<b>45.00°</b>	49996	53152	52146
<b>55.00°</b>	35451	27336	37879
<b>65.00°</b>	15854	12934	17218
<b>75.00°</b>	7392	6321	8730
<b>85.00°</b>	4861	5596	5366

### 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>	20.3	21.5	20.7	21.8	22.1	20.8	21.9	21.1	22.2	22.6
	<b>3H</b>	20.6	21.7	21.0	22.0	22.4	21.0	22.1	21.4	22.4	22.8
	<b>4H</b>	20.7	21.6	21.1	22.0	22.4	21.1	22.0	21.5	22.4	22.8
	<b>6H</b>	20.7	21.5	21.1	21.9	22.3	21.1	21.9	21.5	22.3	22.7
	<b>8H</b>	20.6	21.4	21.1	21.8	22.3	21.1	21.9	21.5	22.3	22.7
	<b>12H</b>	20.6	21.4	21.0	21.8	22.2	21.0	21.8	21.5	22.2	22.6
<b>4H</b>	<b>2H</b>	20.3	21.2	20.7	21.6	22.0	20.8	21.7	21.2	22.1	22.5
	<b>3H</b>	20.7	21.4	21.1	21.8	22.3	21.1	21.9	21.6	22.3	22.7
	<b>4H</b>	20.7	21.4	21.2	21.9	22.3	21.2	21.9	21.7	22.3	22.8
	<b>6H</b>	20.8	21.3	21.2	21.8	22.3	21.2	21.8	21.7	22.3	22.8
	<b>8H</b>	20.7	21.3	21.2	21.7	22.2	21.2	21.8	21.7	22.2	22.7
	<b>12H</b>	20.7	21.2	21.2	21.7	22.2	21.2	21.7	21.7	22.2	22.7
<b>8H</b>	<b>4H</b>	20.7	21.2	21.1	21.7	22.1	21.1	21.7	21.6	22.1	22.6
	<b>6H</b>	20.7	21.1	21.2	21.6	22.1	21.2	21.6	21.7	22.1	22.6
	<b>8H</b>	20.7	21.1	21.2	21.6	22.1	21.2	21.6	21.7	22.1	22.6
	<b>12H</b>	20.7	21.1	21.2	21.6	22.1	21.2	21.5	21.7	22.1	22.6
<b>12H</b>	<b>4H</b>	20.6	21.1	21.1	21.6	22.1	21.1	21.6	21.6	22.1	22.5
	<b>6H</b>	20.7	21.1	21.2	21.5	22.1	21.1	21.5	21.7	22.0	22.6
	<b>8H</b>	20.7	21.0	21.2	21.5	22.1	21.2	21.5	21.7	22.0	22.6

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0