

## Indoor Distribution Test Report

# Spectrum Lighting Inc.

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## Spectrum Lighting Photometric Lab

### Luminaire

SGW4SQLEDFX 50L 35K XX CA0294FX MW WF SK  
Nom 4 inch square downlight with matte white finish and Skytex lens

### Test Number

SP-01221

### Test Date

5/25/2021

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

### Summary of Results

#### Power

Input Watts	38.3 W
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#### Lumen Output

Output Lumens	3259
Efficacy	85.08 lm/W

#### Luminous Dimensions

0° - 180° Size	0.2
90° - 270° Size	0.2
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	1.01
Two luminaires, plane 90°	0.82
Four luminaires	0.88

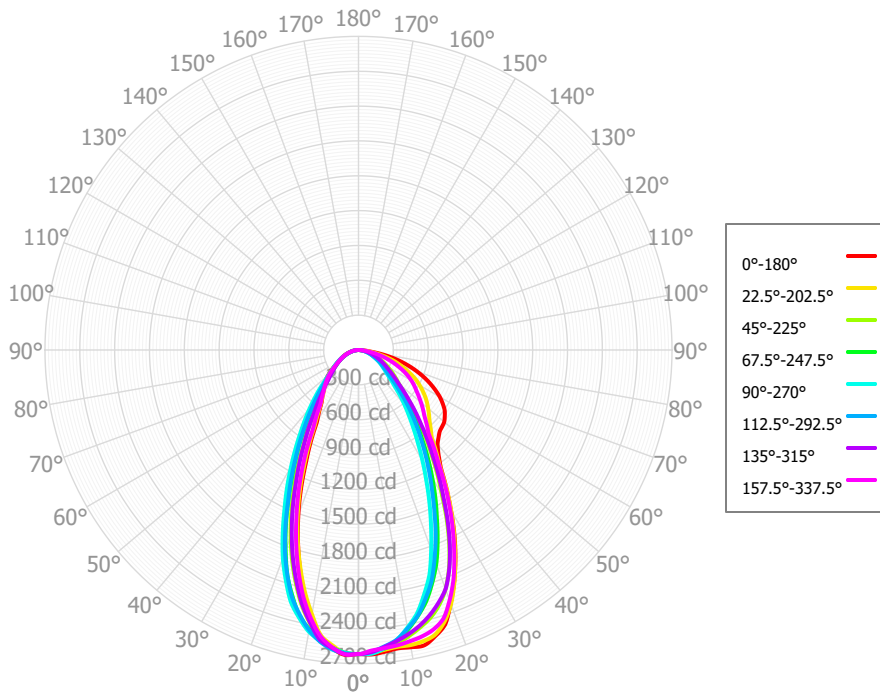
#### Full Beam Angle

0° - 180°	56°
90° - 270°	55°

### IES File Header Contents

Keyword	Value
TEST	SP-01221
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	5/25/2021
ISSUEDATE	6/7/2021
LUMCAT	SGW4SQLEDFX 50L 35K XX CA0294FX MW WF SK
LUMINAIRE	Nom 4 inch square downlight with matte white finish and Skytex lens
OTHER	Beam Angle: 56 deg x 55 deg
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°	245.48	7.53%	90.00° - 100.00°	0.00	0.00%
10.00° - 20.00°	617.53	18.95%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	699.15	21.46%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	559.57	17.17%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	421.74	12.94%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	322.24	9.89%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	231.72	7.11%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	128.41	3.94%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	32.69	1.00%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	3258.52	100.00%	0.00° - 180.00°	3258.52	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°	2618.88	2618.88	2618.88	2618.88	2618.88	2618.88	2618.88	2618.88	2618.88	2618.88	2618.88	2618.88	2618.88	2618.88	2618.88	2618.88	2618.88
2.50°	2624.25	2610.64	2606.30	2608.19	2617.61	2614.97	2621.93	2624.08	2628.55	2616.61	2619.05	2610.53	2610.71	2600.42	2603.95	2591.03	2624.25
5.00°	2608.59	2591.35	2581.44	2580.08	2577.83	2589.14	2577.61	2571.69	2579.87	2554.63	2575.29	2574.88	2577.56	2562.56	2566.58	2577.65	2608.59
7.50°	2592.10	2578.26	2551.72	2526.36	2519.15	2533.74	2521.23	2490.32	2484.71	2480.33	2516.33	2529.49	2526.06	2517.14	2527.65	2565.02	2592.10
10.00°	2599.46	2580.49	2501.35	2446.24	2427.41	2448.67	2387.87	2351.52	2336.09	2310.06	2393.43	2442.40	2463.08	2435.03	2483.95	2547.14	2599.46
12.50°	2606.01	2569.57	2448.03	2350.41	2325.62	2336.16	2242.63	2185.43	2153.69	2133.97	2254.47	2348.96	2362.05	2347.58	2431.81	2526.32	2606.01
15.00°	2552.15	2540.27	2388.40	2245.04	2181.48	2207.44	2064.44	1987.93	1947.61	1936.94	2081.62	2196.29	2247.98	2222.02	2365.69	2491.81	2552.15
17.50°	2479.71	2479.21	2305.22	2107.39	2031.27	2035.69	1878.78	1781.03	1733.03	1737.37	1900.13	2036.66	2080.42	2089.73	2285.57	2427.66	2479.71
20.00°	2320.48	2329.59	2192.39	1958.67	1830.52	1849.71	1681.34	1567.53	1515.10	1532.99	1707.82	1835.06	1904.71	1914.55	2191.40	2294.07	2320.48
22.50°	2155.08	2159.13	2037.02	1779.99	1631.73	1642.50	1482.20	1361.35	1294.00	1325.24	1511.39	1632.94	1704.00	1736.46	2042.58	2137.91	2155.08
25.00°	1975.22	1967.52	1849.85	1597.09	1444.18	1432.81	1281.48	1158.04	1072.32	1113.78	1311.89	1429.42	1506.40	1550.30	1861.49	1951.67	1975.22
27.50°	1787.80	1781.10	1646.42	1426.67	1263.88	1257.91	1104.17	969.49	889.80	926.96	1126.33	1242.67	1330.67	1376.14	1664.46	1763.60	1787.80
30.00°	1590.31	1595.99	1436.08	1269.79	1102.35	1087.20	939.62	783.59	717.95	756.61	946.64	1080.94	1160.99	1276.14	1462.33	1574.08	1590.31
32.50°	1407.11	1407.08	1261.61	1117.49	954.69	943.62	802.00	674.91	631.68	649.62	804.12	934.15	1009.48	1075.16	1287.86	1390.36	1407.11
35.00°	1235.22	1221.17	1094.78	971.02	827.46	808.42	672.43	573.71	555.24	566.17	669.41	800.92	871.59	939.60	1117.44	1209.30	1235.22
37.50°	1131.20	1095.50	955.90	841.48	715.57	696.66	578.95	518.51	511.82	512.28	578.63	690.27	755.98	819.06	977.03	1070.01	1131.20
40.00°	1058.96	981.52	820.58	721.68	617.26	594.94	490.34	467.94	474.92	463.26	492.90	591.57	650.85	706.71	840.45	940.48	1058.96
42.50°	1020.58	920.29	709.61	617.37	526.16	508.70	429.48	432.96	450.02	434.25	439.39	509.20	555.82	604.27	727.33	869.31	1020.58
45.00°	990.11	865.07	604.82	522.65	438.77	433.34	371.65	398.02	419.56	404.68	387.88	431.33	470.83	504.67	620.08	802.95	990.11
47.50°	976.77	823.17	523.74	437.18	376.38	368.18	330.67	363.16	383.10	367.55	343.95	367.19	391.69	428.11	529.26	752.25	976.77
50.00°	963.59	782.54	454.82	370.01	320.76	317.79	293.53	325.94	344.19	329.88	306.04	305.49	337.80	354.88	451.38	701.99	963.59
52.50°	936.61	743.60	409.91	313.20	286.26	275.51	266.17	286.16	303.71	290.45	279.89	271.40	291.82	309.71	393.49	653.54	936.61
55.00°	906.00	700.86	367.93	273.51	254.06	245.84	239.88	252.48	265.62	254.16	253.25	238.99	262.77	267.43	344.02	607.93	906.00
57.50°	860.15	655.18	329.31	238.99	228.46	219.83	215.15	222.67	228.40	223.37	226.02	214.99	235.81	240.51	302.25	568.30	860.15
60.00°	808.74	608.24	292.68	212.72	202.53	196.67	191.90	197.45	202.57	197.10	201.20	191.90	209.33	213.05	266.92	525.40	808.74
62.50°	745.64	560.73	257.44	187.47	175.03	173.85	169.97	173.88	178.54	175.48	178.04	171.02	182.96	184.24	235.14	478.50	745.64
65.00°	679.02	502.99	224.75	162.72	149.61	151.82	149.62	154.20	159.62	155.65	156.41	150.11	157.26	157.91	204.76	426.64	679.02
67.50°	608.01	442.93	193.06	138.83	129.15	130.27	130.09	135.13	140.85	136.91	135.39	129.15	133.52	135.12	174.78	371.12	608.01
70.00°	532.68	385.39	163.29	119.80	109.80	111.32	112.03	116.99	122.96	117.91	116.43	110.63	114.97	115.17	148.23	317.51	532.68
72.50°	454.18	327.39	133.87	101.35	91.94	93.15	94.35	99.09	105.06	98.82	97.84	94.12	97.36	97.61	122.13	264.70	454.18
75.00°	370.88	261.91	107.29	84.47	75.88	77.00	78.86	83.03	87.14	83.08	82.76	77.67	81.21	80.65	98.75	212.25	370.88
77.50°	285.58	197.61	81.27	67.87	61.25	61.94	63.60	67.17	70.01	67.82	67.81	61.25	65.34	63.99	76.02	159.87	285.58
80.00°	196.18	138.08	59.41	51.67	46.98	48.43	48.92	51.93	54.22	51.64	53.22	46.99	49.74	49.28	56.84	112.81	196.18
82.50°	105.91	83.75	38.81	36.04	32.88	35.00	34.34	37.00	39.09	35.68	38.72	33.28	35.64	35.09	38.95	67.35	105.91
85.00°	54.38	40.06	22.42	20.91	19.98	21.64	20.27	22.59	24.63	21.20	24.56	22.64	22.33	21.94	24.29	36.27	54.38
87.50°	8.56	12.76	10.01	11.07	7.38	12.78	9.07	11.96	13.43	9.36	12.93	12.53	12.63	9.35	12.84	10.77	8.56
90.00°	4.59	4.90	4.90	4.00	4.57	6.21	4.63	5.12	4.16	5.15	5.89	7.98	3.95	5.47	6.00	5.47	4.59

### 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>	3879	3879	3879	3879	3789	3789	3789	3789	3621	3621	3621	3467	3467	3467	3325	3325	3325
	<b>1</b>	3614	3487	3374	3272	3528	3415	3312	3219	3279	3195	3119	3154	3087	3024	3040	2986	2936
	<b>2</b>	3354	3134	2953	2801	3274	3075	2909	2768	2964	2825	2705	2861	2746	2645	2767	2672	2588
	<b>3</b>	3118	2835	2616	2441	3044	2786	2583	2420	2694	2521	2379	2609	2462	2340	2530	2407	2301
	<b>4</b>	2907	2581	2343	2161	2839	2541	2318	2147	2464	2271	2119	2393	2227	2092	2326	2184	2066
	<b>5</b>	2717	2365	2119	1937	2656	2331	2100	1927	2267	2064	1908	2207	2029	1889	2151	1996	1871
	<b>6</b>	2548	2179	1931	1754	2492	2150	1917	1747	2096	1888	1733	2045	1861	1720	1998	1834	1707
	<b>7</b>	2395	2018	1773	1602	2344	1993	1761	1597	1947	1739	1587	1904	1717	1577	1863	1695	1567
	<b>8</b>	2257	1877	1638	1473	2212	1856	1628	1469	1816	1610	1462	1779	1592	1455	1744	1574	1447
	<b>9</b>	2133	1753	1520	1363	2092	1735	1513	1360	1701	1497	1355	1669	1483	1349	1638	1468	1343
	<b>10</b>	2020	1644	1418	1268	1983	1628	1411	1266	1598	1399	1261	1570	1387	1257	1544	1375	1252

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	86.6 fc	6.5 ft
6.5 ft	62.0 fc	7.6 ft
7.5 ft	46.6 fc	8.8 ft
8.0 ft	40.9 fc	9.4 ft
10.0 ft	26.2 fc	11.8 ft
12.0 ft	18.2 fc	14.1 ft
14.0 ft	13.4 fc	16.5 ft
16.0 ft	10.2 fc	18.8 ft
20.0 ft	6.5 fc	23.5 ft
24.0 ft	4.5 fc	28.2 ft
28.0 ft	3.3 fc	32.9 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	704734	704734	704734
<b>45.00°</b>	376799	230171	166979
<b>55.00°</b>	425054	172616	119193
<b>65.00°</b>	432358	143105	95260
<b>75.00°</b>	385610	111555	78889
<b>85.00°</b>	167901	69232	61702

### 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>	33.3	34.7	33.7	35.0	35.4	25.7	27.1	26.1	27.4	27.7
	<b>3H</b>	35.7	36.9	36.0	37.2	37.6	27.2	28.4	27.6	28.8	29.1
	<b>4H</b>	36.5	37.7	36.9	38.0	38.4	27.8	28.9	28.2	29.3	29.7
	<b>6H</b>	37.1	38.1	37.5	38.5	38.9	28.2	29.3	28.6	29.6	30.0
	<b>8H</b>	37.2	38.2	37.6	38.6	39.0	28.3	29.4	28.8	29.8	30.2
	<b>12H</b>	37.2	38.2	37.7	38.6	39.0	28.4	29.4	28.9	29.8	30.2
<b>4H</b>	<b>2H</b>	33.3	34.4	33.7	34.8	35.2	26.2	27.4	26.6	27.7	28.1
	<b>3H</b>	35.8	36.8	36.2	37.2	37.6	27.9	28.9	28.3	29.3	29.7
	<b>4H</b>	36.8	37.7	37.2	38.1	38.5	28.6	29.5	29.1	29.9	30.3
	<b>6H</b>	37.5	38.3	38.0	38.7	39.2	29.2	29.9	29.6	30.4	30.8
	<b>8H</b>	37.7	38.4	38.1	38.8	39.3	29.4	30.1	29.8	30.5	31.0
	<b>12H</b>	37.7	38.3	38.2	38.8	39.3	29.5	30.1	30.0	30.6	31.1
<b>8H</b>	<b>4H</b>	36.8	37.5	37.2	37.9	38.4	28.9	29.6	29.4	30.0	30.5
	<b>6H</b>	37.5	38.1	38.0	38.6	39.1	29.6	30.1	30.1	30.6	31.1
	<b>8H</b>	37.7	38.2	38.2	38.7	39.2	29.8	30.3	30.4	30.9	31.4
	<b>12H</b>	37.8	38.3	38.3	38.8	39.3	30.1	30.5	30.6	31.0	31.6
<b>12H</b>	<b>4H</b>	36.7	37.3	37.2	37.8	38.3	28.9	29.5	29.4	30.0	30.5
	<b>6H</b>	37.5	38.0	38.0	38.5	39.0	29.6	30.2	30.2	30.6	31.2
	<b>8H</b>	37.7	38.2	38.2	38.7	39.2	30.0	30.4	30.5	30.9	31.5

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0