

Indoor Distribution Test Report

Spectrum Lighting Inc.

994 Jefferson Street
Fall River, MA 02721
+1.508.678.2303

Spectrum Lighting Photometric Lab

Luminaire

SGE4SQLEDFX 50L 35K XX CA0244FX MW WF SO
Nom 4 inch square downlight with matte white finish and Solite lens

Test Number

SP-01220

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	3732
Efficacy	97.2 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.91
Two luminaires, plane 90°	0.95
Four luminaires	0.98

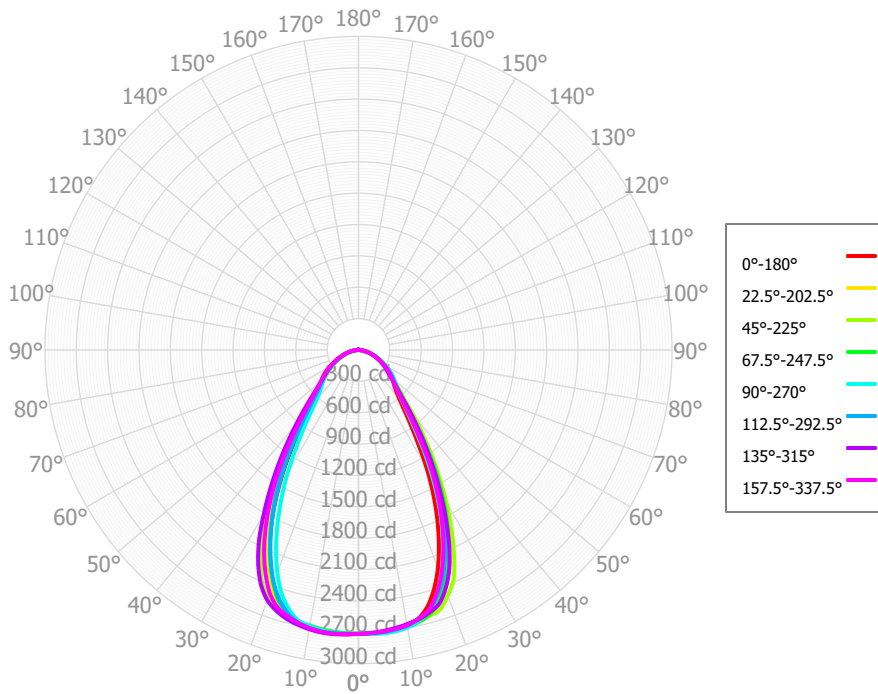
Full Beam Angle

0° - 180°	61°
90° - 270°	61°

IES File Header Contents

Keyword	Value
TEST	SP-01220
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 MW WF SO
LUMINAIRE	Nom 4 inch square downlight with matte white finish and Solite lens
OTHER	Beam Angle: 61 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°	262.18	7.02%	90.00° - 100.00°	2.61	0.07%
10.00° - 20.00°	726.92	19.48%	100.00° - 110.00°	1.80	0.05%
20.00° - 30.00°	912.29	24.44%	100.00° - 120.00°	3.43	0.09%
30.00° - 40.00°	689.08	18.46%	120.00° - 130.00°	1.48	0.04%
40.00° - 50.00°	430.33	11.53%	130.00° - 140.00°	1.38	0.04%
50.00° - 60.00°	325.64	8.72%	140.00° - 150.00°	1.24	0.03%
60.00° - 70.00°	221.64	5.94%	150.00° - 160.00°	0.96	0.03%
70.00° - 80.00°	119.02	3.19%	160.00° - 170.00°	0.58	0.02%
80.00° - 90.00°	33.46	0.90%	170.00° - 180.00°	0.20	0.01%
0.00° - 90.00°	3720.56	99.68%	0.00° - 180.00°	3732.45	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°	2716.84	2716.84	2716.84	2716.84	2716.84	2716.84	2716.84	2716.84	2716.84	2716.84	2716.84	2716.84	2716.84	2716.84	2716.84	2716.84	2716.84
2.50°	2719.41	2714.54	2716.19	2715.98	2719.42	2718.19	2723.17	2723.12	2722.83	2718.73	2714.84	2712.54	2718.68	2709.51	2710.89	2711.96	2719.41
5.00°	2710.83	2706.67	2707.85	2717.94	2722.09	2720.10	2729.21	2723.59	2724.38	2716.07	2712.32	2705.41	2713.74	2709.36	2699.42	2705.72	2710.83
7.50°	2695.02	2696.00	2696.77	2712.77	2714.43	2716.79	2726.53	2717.75	2718.01	2711.22	2706.21	2695.63	2704.50	2697.60	2684.21	2693.30	2695.02
10.00°	2669.70	2681.52	2680.54	2694.46	2695.34	2701.58	2712.68	2701.78	2704.79	2694.31	2689.69	2678.59	2683.41	2677.30	2664.75	2676.46	2669.70
12.50°	2634.78	2648.96	2662.80	2665.86	2656.14	2672.05	2691.88	2673.25	2674.65	2669.56	2669.31	2658.11	2652.82	2638.57	2642.36	2636.28	2634.78
15.00°	2545.34	2593.06	2633.85	2618.70	2595.17	2609.81	2662.36	2633.54	2630.40	2617.04	2638.44	2600.55	2569.40	2586.97	2603.41	2580.28	2545.34
17.50°	2402.03	2496.71	2601.78	2539.30	2482.14	2509.63	2615.92	2580.69	2536.15	2547.43	2595.61	2526.44	2445.83	2482.61	2553.63	2464.41	2402.03
20.00°	2222.80	2349.25	2499.19	2404.84	2315.50	2371.80	2549.35	2479.43	2402.28	2413.74	2522.40	2379.73	2271.43	2343.29	2433.75	2308.87	2222.80
22.50°	2009.82	2173.07	2377.99	2244.41	2120.56	2191.84	2436.08	2322.43	2222.73	2242.68	2410.67	2202.52	2060.34	2164.68	2270.39	2119.24	2009.82
25.00°	1783.30	1962.40	2162.63	2041.94	1897.90	1994.01	2269.95	2138.05	2008.78	2041.33	2203.50	1998.41	1832.77	1960.61	2053.08	1908.18	1783.30
27.50°	1544.71	1745.14	1924.28	1830.17	1665.24	1777.17	2063.25	1923.68	1777.67	1822.70	1980.56	1783.67	1593.57	1740.93	1803.55	1688.28	1544.71
30.00°	1303.61	1520.36	1677.19	1603.67	1422.99	1552.88	1811.57	1700.36	1533.92	1595.23	1720.86	1557.03	1352.63	1511.64	1561.59	1463.11	1303.61
32.50°	1060.33	1292.27	1428.14	1374.07	1189.30	1321.07	1567.71	1467.71	1295.49	1362.99	1471.80	1325.80	1110.52	1279.01	1323.98	1235.08	1060.33
35.00°	865.64	1060.48	1209.74	1139.79	963.43	1102.75	1332.08	1240.70	1060.79	1141.76	1246.13	1104.44	912.40	1044.42	1111.93	1005.45	865.64
37.50°	711.35	866.93	998.01	932.93	790.73	897.80	1116.82	1019.45	875.42	926.15	1034.47	886.66	742.26	857.89	913.80	826.70	711.35
40.00°	604.15	714.01	826.49	765.14	664.14	741.57	921.99	838.14	722.80	769.50	852.84	737.32	629.69	698.72	754.92	676.01	604.15
42.50°	534.16	601.16	662.97	632.91	575.57	631.20	760.33	695.57	619.07	642.24	695.20	611.15	552.93	594.07	616.26	576.85	534.16
45.00°	485.51	528.80	564.55	550.25	518.35	549.92	631.23	590.44	547.10	557.68	586.11	534.48	502.53	518.82	522.59	504.58	485.51
47.50°	453.35	473.20	477.90	485.17	476.90	494.68	534.08	519.82	499.16	493.22	494.76	474.09	467.68	468.19	451.53	455.53	453.35
50.00°	422.12	434.18	425.48	443.36	448.17	451.01	466.77	466.02	466.04	448.84	437.36	432.95	434.92	430.10	401.38	417.94	422.12
52.50°	391.56	397.24	379.00	405.75	414.96	417.48	412.98	427.40	432.10	413.36	387.31	397.71	403.34	394.61	361.15	383.62	391.56
55.00°	355.72	362.28	343.40	373.42	378.32	380.61	371.21	387.78	397.68	376.55	350.98	359.91	365.57	360.40	327.25	350.88	355.72
57.50°	316.18	325.62	309.50	338.12	339.37	340.97	333.75	347.29	358.34	339.15	316.12	321.38	324.43	322.76	296.20	314.95	316.18
60.00°	278.96	287.44	278.40	299.13	298.75	301.83	300.03	307.81	316.19	300.67	283.84	284.66	285.45	283.50	266.28	277.57	278.96
62.50°	243.32	252.51	247.70	262.50	261.83	263.08	266.78	269.16	277.21	261.75	251.76	248.46	247.57	248.57	236.87	244.39	243.32
65.00°	212.75	220.44	218.42	228.63	227.54	228.96	233.92	234.09	239.94	226.93	220.01	216.00	216.30	215.56	207.50	213.01	212.75
67.50°	185.44	190.76	189.34	197.47	196.51	198.44	202.73	201.87	206.40	193.70	189.93	184.51	188.24	186.75	178.16	184.78	185.44
70.00°	158.34	163.08	162.43	169.31	167.69	169.51	172.86	171.81	174.75	164.62	162.58	157.34	159.65	159.74	152.36	157.86	158.34
72.50°	131.36	137.48	135.77	141.83	140.53	141.74	145.59	143.38	146.71	137.09	136.07	131.20	130.81	133.19	127.92	132.63	131.36
75.00°	105.82	113.55	111.01	115.10	114.42	115.90	120.31	117.85	120.48	112.28	110.85	106.57	105.67	106.83	104.31	108.06	105.82
77.50°	81.13	90.41	86.44	90.93	90.61	91.39	96.62	94.39	95.53	88.42	87.26	82.29	82.20	83.77	81.01	84.83	81.13
80.00°	59.71	67.88	66.03	69.40	68.25	69.35	74.09	71.75	71.20	66.37	66.07	61.32	60.86	61.98	59.64	62.09	59.71
82.50°	40.14	47.61	46.03	49.44	47.94	49.00	53.32	49.68	51.14	44.92	46.01	41.04	40.41	42.50	38.95	42.54	40.14
85.00°	24.29	28.99	28.17	31.02	28.85	31.41	33.78	31.27	32.97	27.85	27.55	24.98	24.24	23.89	23.22	24.14	24.29
87.50°	10.44	15.65	10.49	16.81	15.54	15.61	19.06	15.31	19.10	12.17	13.77	9.72	9.76	12.81	9.14	12.80	10.44
90.00°	4.51	6.00	6.17	6.68	5.49	7.13	7.51	6.87	7.10	6.05	6.40	5.01	4.15	4.36	4.21	3.84	4.51
92.50°	2.75	2.09	2.73	1.73	1.70	3.15	2.76	3.21	2.78	2.78	2.07	2.25	1.98	2.04	2.22	1.91	2.75
95.00°	2.06	2.11	2.06	1.56	1.37	1.62	2.40	1.68	1.58	1.90	1.70	1.69	1.37	1.72	1.93	2.18	2.06
97.50°	1.91	2.08	1.55	1.59	1.21	1.56	2.08	1.43	1.24	1.68	1.53	1.49	1.33	1.70	2.15	2.11	1.91
100.00°	1.89	2.02	1.68	1.82	1.14	1.65	1.78	1.36	1.23	1.42	1.60	1.56	1.38	1.77	2.12	1.94	1.89
102.50°	1.94	1.79	1.83	1.84	1.21	1.83	1.80	1.40	1.52	1.14	1.67	1.67	1.46	1.88	2.01	1.73	1.94
105.00°	1.85	1.44	1.97	1.68	1.34	1.93	2.02	1.48	1.91	1.27	1.72	1.99	1.61	2.00	2.00	1.50	1.85
107.50°	1.69	1.23	2.11	1.73	1.35	2.00	1.79	1.60	1.77	1.50	1.72	2.34	1.79	2.18	2.02	1.41	1.69
110.00°	1.55	1.12	2.07	1.94	1.31	2.06	1.31	1.61	1.45	1.56	1.64	1.85	1.68	2.37	1.86	1.36	1.55
112.50°	1.42	1.46	2.01	2.01	1.24	2.13	1.11	1.58	1.50	1.58	1.65	1.25	1.47	2.33	1.67	1.52	1.42

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

RCR	pfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	pcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	0	4441	4441	4441	4441	4336	4336	4336	4336	4141	4141	4141	3962	3962	3962	3798	3798	3721
	1	4150	4011	3887	3775	4052	3927	3815	3713	3771	3679	3595	3626	3553	3484	3493	3435	3363
	2	3865	3623	3424	3256	3774	3555	3372	3217	3427	3274	3143	3308	3182	3072	3199	3096	3031
	3	3603	3291	3049	2856	3519	3234	3011	2831	3128	2938	2782	3030	2869	2734	2939	2804	2746
	4	3367	3006	2742	2540	3289	2959	2713	2523	2871	2658	2490	2789	2606	2457	2712	2556	2504
	5	3153	2761	2487	2285	3082	2721	2465	2273	2647	2422	2250	2578	2381	2227	2514	2342	2296
	6	2959	2548	2272	2074	2895	2515	2255	2065	2452	2221	2049	2394	2189	2032	2339	2158	2117
	7	2784	2362	2088	1897	2726	2334	2075	1890	2281	2048	1878	2230	2022	1866	2184	1997	1960
	8	2625	2199	1930	1746	2573	2175	1919	1741	2129	1897	1732	2086	1876	1723	2045	1855	1823
	9	2481	2054	1792	1616	2434	2033	1783	1612	1994	1765	1605	1956	1748	1598	1921	1731	1702
	10	2350	1925	1671	1502	2307	1907	1664	1499	1873	1649	1494	1840	1634	1488	1810	1620	1594

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	89.8 fc	6.4 ft
6.5 ft	64.3 fc	7.5 ft
7.5 ft	48.3 fc	8.7 ft
8.0 ft	42.5 fc	9.2 ft
10.0 ft	27.2 fc	11.5 ft
12.0 ft	18.9 fc	13.9 ft
14.0 ft	13.9 fc	16.2 ft
16.0 ft	10.6 fc	18.5 ft
20.0 ft	6.8 fc	23.1 ft
24.0 ft	4.7 fc	27.7 ft
28.0 ft	3.5 fc	32.3 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	268538	268538	268538
45.00°	67866	78914	72457
55.00°	61300	59176	65194
65.00°	49757	51085	53217
75.00°	40411	42394	43698
85.00°	27546	31952	32717

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	24.4	25.7	24.8	26.0	26.4	24.7	26.0	25.0	26.3	26.6
	3H	25.9	27.0	26.2	27.4	27.7	26.1	27.3	26.5	27.6	28.0
	4H	26.4	27.5	26.8	27.8	28.2	26.6	27.7	27.0	28.1	28.4
	6H	26.7	27.7	27.1	28.1	28.5	27.0	28.0	27.4	28.3	28.7
	8H	26.8	27.8	27.3	28.2	28.6	27.1	28.0	27.5	28.4	28.8
	12H	26.9	27.8	27.3	28.2	28.6	27.1	28.0	27.6	28.4	28.9
4H	2H	24.9	26.0	25.3	26.3	26.7	25.2	26.2	25.6	26.6	27.0
	3H	26.5	27.4	26.9	27.8	28.3	26.8	27.7	27.2	28.1	28.5
	4H	27.2	28.0	27.6	28.4	28.9	27.4	28.2	27.9	28.7	29.1
	6H	27.7	28.4	28.1	28.8	29.3	27.9	28.6	28.4	29.0	29.5
	8H	27.8	28.4	28.3	28.9	29.4	28.0	28.7	28.5	29.1	29.6
	12H	27.9	28.5	28.4	28.9	29.4	28.1	28.7	28.6	29.2	29.7
8H	4H	27.4	28.1	27.9	28.5	29.0	27.6	28.3	28.1	28.8	29.2
	6H	28.0	28.5	28.5	29.0	29.5	28.2	28.8	28.7	29.3	29.8
	8H	28.2	28.7	28.7	29.2	29.7	28.4	28.9	29.0	29.4	29.9
	12H	28.3	28.8	28.9	29.3	29.8	28.6	29.0	29.1	29.5	30.1
12H	4H	27.4	28.0	27.9	28.5	29.0	27.7	28.2	28.1	28.7	29.2
	6H	28.0	28.5	28.6	29.0	29.5	28.3	28.8	28.8	29.2	29.8
	8H	28.3	28.7	28.8	29.2	29.8	28.5	29.0	29.1	29.5	30.0

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0