

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

994 Jefferson Street  
Fall River, MA 02721  
+1.508.678.2303

## **Spectrum Lighting Photometric Lab**

### **Luminaire**

SGECS4SQFX 10L 35HK XX CA4FX FO SG  
Nom 4" square Chicago Plenum downlight, Fusion Optix lens, Soft glow finish

### **Test Number**

SP-01182\_M-10L

### **Test Date**

6/16/2020

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

### Summary of Results

#### Power

Input Watts	8.1 W
-------------	-------

#### Lumen Output

Output Lumens	798
Efficacy	98.47 lm/W

#### Luminous Dimensions

0° - 180° Size	0.3
90° - 270° Size	0.3
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	1.2
Two luminaires, plane 90°	1.21
Four luminaires	1.3

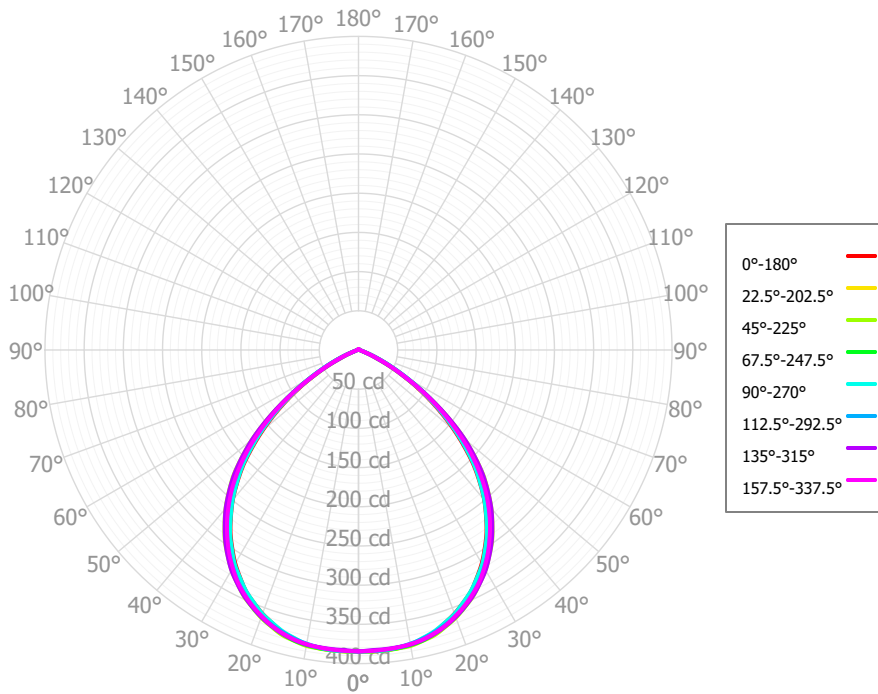
#### Full Beam Angle

0° - 180°	93°
90° - 270°	94°

### IES File Header Contents

Keyword	Value
TEST	SP-01182_M-10L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	6/16/2020
ISSUEDATE	7/20/2020
LUMCAT	SGECS4SQFX 10L 35HK XX CA4FX FO SG
LUMINAIRE	Nom 4" square Chicago Plenum downlight, Fusion Optix lens, Soft glow finish
OTHER	Beam angle: 93.2 deg
LAMPCAT	N/A
LAMP	N/A, 90CRI/35HK
OTHER	Total luminaire wattage is approximate
OTHER	CCT Output Multipliers: 27HK x 0.93, 30HK x 0.97, 35HK x 1.0, 40HK x 1.02
OTHER	This report prepared by Spectrum Lighting, scaled from 20L, 27HK

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	37.15	4.66%	90.00° - 100.00°	0.74	0.09%
10.00° - 20.00°	105.32	13.20%	100.00° - 110.00°	0.67	0.08%
20.00° - 30.00°	157.76	19.78%	100.00° - 120.00°	1.35	0.17%
30.00° - 40.00°	181.54	22.76%	120.00° - 130.00°	0.65	0.08%
40.00° - 50.00°	165.65	20.77%	130.00° - 140.00°	0.56	0.07%
50.00° - 60.00°	104.82	13.14%	140.00° - 150.00°	0.47	0.06%
60.00° - 70.00°	33.93	4.25%	150.00° - 160.00°	0.36	0.05%
70.00° - 80.00°	5.21	0.65%	160.00° - 170.00°	0.22	0.03%
80.00° - 90.00°	1.83	0.23%	170.00° - 180.00°	0.08	0.01%
0.00° - 90.00°	793.21	99.44%	0.00° - 180.00°	797.64	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°	384.49	384.49	384.49	384.49	384.49	384.49	384.49	384.49	384.49	384.49	384.49	384.49	384.49	384.49	384.49	384.49	384.49
2.50°	384.43	385.16	384.49	384.87	384.47	384.29	383.37	384.34	384.43	385.16	384.49	384.87	384.47	384.29	383.37	384.34	384.43
5.00°	384.35	384.69	384.47	384.45	384.51	383.86	383.17	383.72	384.35	384.69	384.47	384.45	384.51	383.86	383.17	383.72	384.35
7.50°	383.10	384.13	383.98	383.77	382.93	382.85	382.55	382.76	383.10	384.13	383.98	383.77	382.93	382.85	382.55	382.76	383.10
10.00°	381.62	381.65	383.33	382.05	381.24	380.51	381.76	381.05	381.62	381.65	383.33	382.05	381.24	380.51	381.76	381.05	381.62
12.50°	377.29	379.02	380.00	379.61	376.64	377.46	378.83	378.46	377.29	379.02	380.00	379.61	376.64	377.46	378.83	378.46	377.29
15.00°	372.71	373.76	376.45	374.47	371.88	372.92	375.01	374.05	372.71	373.76	376.45	374.47	371.88	372.92	375.01	374.05	372.71
17.50°	365.47	368.37	370.01	368.94	365.11	367.77	369.18	368.66	365.47	368.37	370.01	368.94	365.11	367.77	369.18	368.66	365.47
20.00°	358.06	361.21	363.41	362.11	358.26	361.39	362.56	361.30	358.06	361.21	363.41	362.11	358.26	361.39	362.56	361.30	358.06
22.50°	349.00	353.84	354.99	354.51	348.80	353.85	354.51	353.31	349.00	353.84	354.99	354.51	348.80	353.85	354.51	353.31	349.00
25.00°	339.59	343.84	346.34	344.35	339.26	344.03	345.94	344.08	339.59	343.84	346.34	344.35	339.26	344.03	345.94	344.08	339.59
27.50°	327.18	333.62	335.39	333.63	327.50	333.23	335.50	333.63	327.18	333.62	335.39	333.63	327.50	333.23	335.50	333.63	327.18
30.00°	314.50	321.03	324.19	321.17	315.68	320.63	324.38	320.92	314.50	321.03	324.19	321.17	315.68	320.63	324.38	320.92	314.50
32.50°	299.79	308.14	310.85	307.93	300.73	307.22	310.88	307.22	299.79	308.14	310.85	307.93	300.73	307.22	310.88	307.22	299.79
35.00°	284.75	292.34	297.17	292.41	285.74	292.37	296.56	291.79	284.75	292.34	297.17	292.41	285.74	292.37	296.56	291.79	284.75
37.50°	267.36	276.26	280.66	276.31	267.75	276.26	280.37	275.43	267.36	276.26	280.66	276.31	267.75	276.26	280.37	275.43	267.36
40.00°	249.53	257.59	263.83	258.51	249.75	257.99	263.58	257.50	249.53	257.59	263.83	258.51	249.75	257.99	263.58	257.50	249.53
42.50°	228.96	238.53	244.71	239.66	229.63	238.45	244.27	238.26	228.96	238.53	244.71	239.66	229.63	238.45	244.27	238.26	228.96
45.00°	207.87	216.44	224.96	218.02	209.44	216.86	224.19	216.89	207.87	216.44	224.96	218.02	209.44	216.86	224.19	216.89	207.87
47.50°	183.77	193.94	201.05	195.40	185.91	194.25	200.83	194.13	183.77	193.94	201.05	195.40	185.91	194.25	200.83	194.13	183.77
50.00°	159.63	168.70	176.60	170.32	162.37	170.02	176.54	169.17	159.63	168.70	176.60	170.32	162.37	170.02	176.54	169.17	159.63
52.50°	135.27	143.37	148.81	145.06	138.16	145.14	149.16	143.75	135.27	143.37	148.81	145.06	138.16	145.14	149.16	143.75	135.27
55.00°	111.07	117.41	120.92	119.33	114.00	119.30	120.95	117.64	111.07	117.41	120.92	119.33	114.00	119.30	120.95	117.64	111.07
57.50°	87.66	91.84	92.45	94.34	91.18	94.59	93.42	92.62	87.66	91.84	92.45	94.34	91.18	94.59	93.42	92.62	87.66
60.00°	65.38	68.59	65.20	71.07	68.64	71.48	66.06	69.15	65.38	68.59	65.20	71.07	68.64	71.48	66.06	69.15	65.38
62.50°	48.27	46.71	44.19	50.16	51.17	50.90	45.58	48.79	48.27	46.71	44.19	50.16	51.17	50.90	45.58	48.79	48.27
65.00°	32.20	32.16	25.16	34.34	34.00	33.86	26.74	32.76	32.20	32.16	25.16	34.34	34.00	33.86	26.74	32.76	32.20
67.50°	20.72	18.77	15.90	20.94	21.94	20.51	16.92	20.00	20.72	18.77	15.90	20.94	21.94	20.51	16.92	20.00	20.72
70.00°	10.74	11.35	7.89	12.68	10.46	12.05	9.07	11.58	10.74	11.35	7.89	12.68	10.46	12.05	9.07	11.58	10.74
72.50°	6.87	5.03	5.50	6.48	6.93	6.46	6.11	6.10	6.87	5.03	5.50	6.48	6.93	6.46	6.11	6.10	6.87
75.00°	3.66	3.85	3.49	4.41	3.63	4.47	4.18	4.32	3.66	3.85	3.49	4.41	3.63	4.47	4.18	4.32	3.66
77.50°	2.99	2.79	3.06	2.90	3.05	3.06	3.34	3.15	2.99	2.79	3.06	2.90	3.05	3.06	3.34	3.15	2.99
80.00°	2.37	2.24	2.62	2.44	2.47	2.37	2.70	2.75	2.37	2.24	2.62	2.44	2.47	2.37	2.70	2.75	2.37
82.50°	1.97	1.76	2.11	2.06	1.90	1.89	2.34	2.26	1.97	1.76	2.11	2.06	1.90	1.89	2.34	2.26	1.97
85.00°	1.59	1.54	1.64	1.80	1.36	1.66	2.02	1.65	1.59	1.54	1.64	1.80	1.36	1.66	2.02	1.65	1.59
87.50°	1.26	1.28	1.31	1.50	1.11	1.36	1.45	1.22	1.26	1.28	1.31	1.50	1.11	1.36	1.45	1.22	1.26
90.00°	0.95	0.92	1.02	1.12	0.87	0.98	0.84	0.98	0.95	0.92	1.02	1.12	0.87	0.98	0.84	0.98	0.95
92.50°	0.70	0.62	0.84	0.82	0.66	0.75	0.66	0.80	0.70	0.62	0.84	0.82	0.66	0.75	0.66	0.80	0.70
95.00°	0.51	0.61	0.69	0.67	0.48	0.70	0.54	0.68	0.51	0.61	0.69	0.67	0.48	0.70	0.54	0.68	0.51
97.50°	0.55	0.59	0.65	0.60	0.59	0.66	0.53	0.61	0.55	0.59	0.65	0.60	0.59	0.66	0.53	0.61	0.55
100.00°	0.58	0.59	0.61	0.67	0.69	0.62	0.54	0.61	0.58	0.59	0.61	0.67	0.69	0.62	0.54	0.61	0.58
102.50°	0.59	0.58	0.61	0.71	0.73	0.63	0.56	0.60	0.59	0.58	0.61	0.71	0.73	0.63	0.56	0.60	0.59
105.00°	0.60	0.57	0.61	0.71	0.76	0.69	0.58	0.56	0.60	0.57	0.61	0.71	0.76	0.69	0.58	0.56	0.60
107.50°	0.58	0.56	0.61	0.72	0.72	0.72	0.63	0.56	0.58	0.56	0.61	0.72	0.72	0.72	0.63	0.56	0.58
110.00°	0.58	0.52	0.61	0.74	0.69	0.73	0.69	0.61	0.58	0.52	0.61	0.74	0.69	0.73	0.69	0.61	0.58
112.50°	0.62	0.51	0.61	0.74	0.73	0.72	0.72	0.63	0.62	0.51	0.61	0.74	0.73	0.72	0.72	0.63	0.62

### 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>	949	949	949	949	926	926	926	926	884	884	884	845	845	845	810	810	793
	<b>1</b>	888	859	833	810	867	841	818	796	807	788	771	776	761	747	748	735	720
	<b>2</b>	824	772	729	693	805	757	718	685	730	697	669	704	677	653	680	658	644
	<b>3</b>	764	695	641	599	745	682	633	593	659	617	583	638	602	573	618	588	576
	<b>4</b>	707	627	568	522	690	616	561	519	597	549	512	579	538	505	562	527	516
	<b>5</b>	656	568	506	460	640	559	501	457	542	492	452	527	483	448	513	474	464
	<b>6</b>	610	516	454	409	596	509	450	407	495	442	403	482	435	400	470	428	420
	<b>7</b>	568	472	409	366	555	466	406	364	454	400	362	442	395	359	432	389	382
	<b>8</b>	531	433	372	330	519	428	369	329	417	364	327	408	360	325	399	355	349
	<b>9</b>	497	399	340	299	486	395	338	298	386	333	297	377	330	295	369	326	320
	<b>10</b>	467	370	312	273	457	366	310	272	358	307	271	351	303	270	344	300	295

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	12.7 fc	11.6 ft
6.5 ft	9.1 fc	13.7 ft
7.5 ft	6.8 fc	15.9 ft
8.0 ft	6.0 fc	16.9 ft
10.0 ft	3.8 fc	21.1 ft
12.0 ft	2.7 fc	25.4 ft
14.0 ft	2.0 fc	29.6 ft
16.0 ft	1.5 fc	33.8 ft
20.0 ft	1.0 fc	42.3 ft
24.0 ft	0.7 fc	50.7 ft
28.0 ft	0.5 fc	59.2 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	45,985	45,985	45,985
<b>45.00°</b>	35,159	38,049	35,424
<b>55.00°</b>	23,159	25,213	23,770
<b>65.00°</b>	9,114	7,119	9,623
<b>75.00°</b>	1,693	1,612	1,677
<b>85.00°</b>	2,187	2,247	1,867

### 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>	21.6	22.9	21.9	23.3	23.6	21.7	23.1	22.1	23.5	23.8
	<b>3H</b>	21.6	22.9	22.0	23.2	23.6	21.8	23.1	22.2	23.4	23.8
	<b>4H</b>	21.6	22.7	22.0	23.1	23.5	21.8	22.9	22.2	23.3	23.7
	<b>6H</b>	21.5	22.6	21.9	23.0	23.4	21.7	22.8	22.1	23.2	23.6
	<b>8H</b>	21.5	22.5	21.9	22.9	23.3	21.7	22.7	22.1	23.1	23.5
	<b>12H</b>	21.5	22.4	21.9	22.8	23.2	21.7	22.6	22.1	23.0	23.4
<b>4H</b>	<b>2H</b>	21.5	22.7	21.9	23.0	23.4	21.7	22.8	22.1	23.2	23.6
	<b>3H</b>	21.6	22.5	22.0	23.0	23.4	21.8	22.7	22.2	23.1	23.6
	<b>4H</b>	21.6	22.4	22.0	22.8	23.3	21.8	22.6	22.2	23.0	23.5
	<b>6H</b>	21.5	22.2	22.0	22.7	23.2	21.7	22.4	22.2	22.9	23.3
	<b>8H</b>	21.5	22.1	21.9	22.6	23.1	21.7	22.3	22.1	22.8	23.3
	<b>12H</b>	21.4	22.0	21.9	22.5	23.0	21.6	22.2	22.1	22.7	23.2
<b>8H</b>	<b>4H</b>	21.4	22.1	21.9	22.6	23.1	21.6	22.3	22.1	22.8	23.2
	<b>6H</b>	21.4	21.9	21.9	22.4	22.9	21.6	22.1	22.1	22.6	23.1
	<b>8H</b>	21.3	21.8	21.9	22.4	22.9	21.5	22.0	22.1	22.5	23.0
	<b>12H</b>	21.3	21.8	21.8	22.3	22.8	21.5	21.9	22.0	22.4	23.0
<b>12H</b>	<b>4H</b>	21.4	22.0	21.9	22.5	23.0	21.6	22.2	22.1	22.7	23.2
	<b>6H</b>	21.3	21.8	21.9	22.3	22.9	21.5	22.0	22.1	22.5	23.1
	<b>8H</b>	21.3	21.7	21.8	22.2	22.8	21.5	21.9	22.0	22.4	23.0

Corrected UGR values based on total output lumens

SHR = 1.0