

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

SGECS4SQFX 30L 35K XX CA4FX FO MW

Nom 4" square Chicago Plenum downlight, Fusion Optix lens, Matte white finish

### **Test Number**

SP-01172\_M-30L

### **Test Date**

6/16/2020

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

### Summary of Results

#### Power

Input Watts	21.9 W
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#### Lumen Output

Output Lumens	2289
Efficacy	104.51 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	1.11
Two luminaires, plane 90°	1.11
Four luminaires	1.18

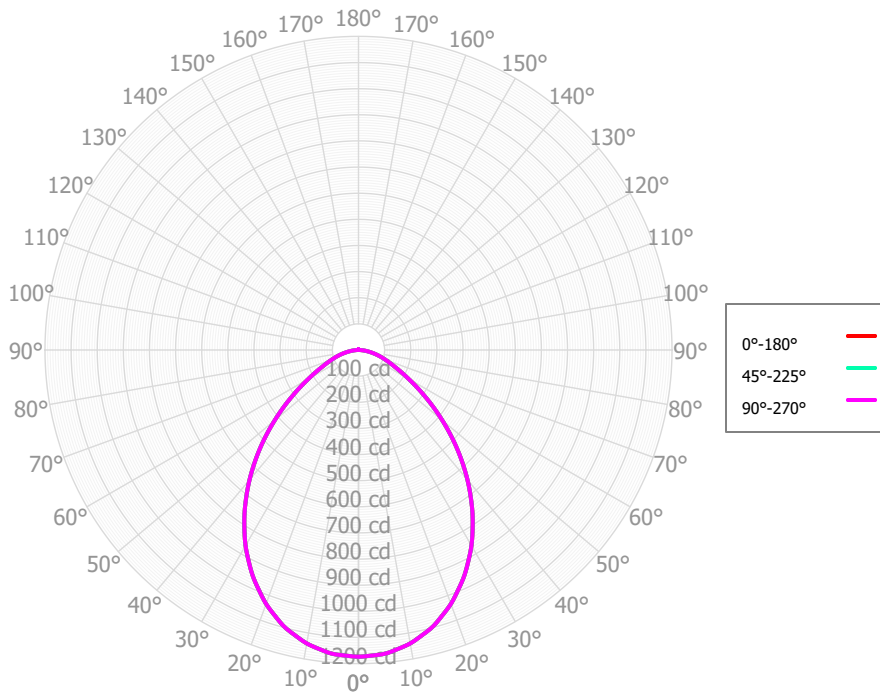
#### Full Beam Angle

0° - 180°	85°
90° - 270°	85°

### IES File Header Contents

Keyword	Value
TEST	SP-01172_M-30L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	6/16/2020
ISSUEDATE	7/17/2020
LUMCAT	SGECS4SQFX 30L 35K XX CA4FX FO MW
LUMINAIRE	Nom 4" square Chicago Plenum downlight, Fusion Optix lens, Matte white finish
OTHER	Beam angle: 85.4 deg
LAMPCAT	N/A
LAMP	N/A
OTHER	Total luminaire wattage is approximate
OTHER	CCT Output Multipliers: 30K x 0.97, 40K x 1.03, 50K x 1.03
OTHER	This report prepared by Spectrum Lighting, scaled from 40L

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	115.00	5.02%	90.00° - 100.00°	1.70	0.07%
10.00° - 20.00°	307.69	13.43%	100.00° - 110.00°	1.05	0.05%
20.00° - 30.00°	438.18	19.12%	100.00° - 120.00°	1.99	0.09%
30.00° - 40.00°	473.30	20.65%	120.00° - 130.00°	0.87	0.04%
40.00° - 50.00°	410.00	17.89%	130.00° - 140.00°	0.76	0.03%
50.00° - 60.00°	280.39	12.23%	140.00° - 150.00°	0.67	0.03%
60.00° - 70.00°	157.05	6.85%	150.00° - 160.00°	0.54	0.02%
70.00° - 80.00°	80.21	3.50%	160.00° - 170.00°	0.33	0.01%
80.00° - 90.00°	22.93	1.00%	170.00° - 180.00°	0.12	0.01%
0.00° - 90.00°	2,284.75	99.70%	0.00° - 180.00°	2,291.72	100.00%

### Candela Distribution

	0.00°	45.00°	90.00°
0.00°	1,173.86	1,173.86	1,173.86
2.50°	1,170.71	1,170.71	1,170.71
5.00°	1,166.72	1,166.72	1,166.72
7.50°	1,154.38	1,154.38	1,154.38
10.00°	1,140.40	1,140.40	1,140.40
12.50°	1,119.05	1,119.05	1,119.05
15.00°	1,096.75	1,096.75	1,096.75
17.50°	1,065.75	1,065.75	1,065.75
20.00°	1,034.11	1,034.11	1,034.11
22.50°	995.25	995.25	995.25
25.00°	956.06	956.06	956.06
27.50°	910.63	910.63	910.63
30.00°	864.70	864.70	864.70
32.50°	812.72	812.72	812.72
35.00°	760.30	760.30	760.30
37.50°	704.77	704.77	704.77
40.00°	648.85	648.85	648.85
42.50°	591.08	591.08	591.08
45.00°	533.26	533.26	533.26
47.50°	475.33	475.33	475.33
50.00°	418.31	418.31	418.31
52.50°	363.77	363.77	363.77
55.00°	311.57	311.57	311.57
57.50°	264.33	264.33	264.33
60.00°	221.29	221.29	221.29
62.50°	185.52	185.52	185.52
65.00°	154.66	154.66	154.66
67.50°	130.71	130.71	130.71
70.00°	109.82	109.82	109.82
72.50°	92.45	92.45	92.45
75.00°	75.61	75.61	75.61
77.50°	59.29	59.29	59.29
80.00°	44.52	44.52	44.52
82.50°	30.98	30.98	30.98
85.00°	19.54	19.54	19.54
87.50°	9.43	9.43	9.43
90.00°	4.26	4.26	4.26
92.50°	1.68	1.68	1.68
95.00°	0.94	0.94	0.94
97.50°	0.95	0.95	0.95
100.00°	1.01	1.01	1.01
102.50°	1.08	1.08	1.08
105.00°	1.01	1.01	1.01
107.50°	0.91	0.91	0.91
110.00°	0.91	0.91	0.91
112.50°	0.92	0.92	0.92

### 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>	2,727	2,727	2,727	2,727	2,662	2,662	2,662	2,662	2,542	2,542	2,542	2,433	2,433	2,433	2,332	2,332	2,285
	<b>1</b>	2,531	2,439	2,356	2,282	2,470	2,387	2,312	2,244	2,290	2,229	2,173	2,201	2,151	2,106	2,119	2,079	2,036
	<b>2</b>	2,337	2,175	2,041	1,929	2,279	2,132	2,010	1,906	2,052	1,950	1,861	1,979	1,893	1,819	1,910	1,840	1,778
	<b>3</b>	2,159	1,948	1,786	1,656	2,105	1,913	1,762	1,641	1,846	1,718	1,612	1,784	1,676	1,584	1,727	1,636	1,557
	<b>4</b>	1,998	1,755	1,577	1,442	1,948	1,725	1,560	1,432	1,669	1,526	1,412	1,617	1,493	1,393	1,569	1,463	1,375
	<b>5</b>	1,853	1,590	1,406	1,270	1,808	1,565	1,392	1,263	1,518	1,366	1,249	1,474	1,341	1,236	1,433	1,316	1,223
	<b>6</b>	1,724	1,448	1,263	1,130	1,683	1,427	1,252	1,125	1,387	1,231	1,115	1,350	1,211	1,106	1,315	1,192	1,096
	<b>7</b>	1,609	1,326	1,143	1,015	1,571	1,308	1,134	1,011	1,274	1,118	1,004	1,242	1,101	997	1,212	1,086	990
	<b>8</b>	1,505	1,220	1,041	918	1,471	1,205	1,034	915	1,175	1,020	910	1,148	1,007	904	1,122	994	899
	<b>9</b>	1,412	1,128	954	836	1,381	1,115	948	834	1,089	937	830	1,065	926	825	1,042	915	821
	<b>10</b>	1,329	1,047	878	766	1,301	1,035	873	764	1,013	864	761	992	855	758	973	846	755

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	38.8 fc	10.1 ft
6.5 ft	27.8 fc	12.0 ft
7.5 ft	20.9 fc	13.8 ft
8.0 ft	18.3 fc	14.8 ft
10.0 ft	11.7 fc	18.4 ft
12.0 ft	8.2 fc	22.1 ft
14.0 ft	6.0 fc	25.8 ft
16.0 ft	4.6 fc	29.5 ft
20.0 ft	2.9 fc	36.9 ft
24.0 ft	2.0 fc	44.3 ft
28.0 ft	1.5 fc	51.6 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	140,392	140,392	140,392
<b>45.00°</b>	90,195	90,195	90,195
<b>55.00°</b>	64,967	64,967	64,967
<b>65.00°</b>	43,768	43,768	43,768
<b>75.00°</b>	34,940	34,940	34,940
<b>85.00°</b>	26,814	26,814	26,814

### 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>	25.3	26.7	25.6	27.0	27.4	25.3	26.7	25.6	27.0	27.4
	<b>3H</b>	26.3	27.6	26.7	28.0	28.3	26.3	27.6	26.7	28.0	28.3
	<b>4H</b>	26.8	28.0	27.2	28.3	28.7	26.8	28.0	27.2	28.3	28.7
	<b>6H</b>	27.1	28.2	27.5	28.6	29.0	27.1	28.2	27.5	28.6	29.0
	<b>8H</b>	27.2	28.2	27.6	28.6	29.0	27.2	28.2	27.6	28.6	29.0
	<b>12H</b>	27.2	28.2	27.7	28.6	29.1	27.2	28.2	27.7	28.6	29.1
<b>4H</b>	<b>2H</b>	25.6	26.8	26.0	27.2	27.6	25.6	26.8	26.0	27.2	27.6
	<b>3H</b>	26.9	27.9	27.3	28.3	28.7	26.9	27.9	27.3	28.3	28.7
	<b>4H</b>	27.4	28.3	27.9	28.8	29.2	27.4	28.3	27.9	28.8	29.2
	<b>6H</b>	27.9	28.7	28.3	29.1	29.6	27.9	28.7	28.3	29.1	29.6
	<b>8H</b>	28.0	28.7	28.5	29.2	29.7	28.0	28.7	28.5	29.2	29.7
	<b>12H</b>	28.1	28.8	28.6	29.2	29.7	28.1	28.8	28.6	29.2	29.7
<b>8H</b>	<b>4H</b>	27.6	28.4	28.1	28.8	29.3	27.6	28.4	28.1	28.8	29.3
	<b>6H</b>	28.2	28.8	28.7	29.3	29.7	28.2	28.8	28.7	29.3	29.7
	<b>8H</b>	28.4	28.9	28.9	29.4	29.9	28.4	28.9	28.9	29.4	29.9
	<b>12H</b>	28.5	29.0	29.0	29.5	30.1	28.5	29.0	29.0	29.5	30.1
<b>12H</b>	<b>4H</b>	27.6	28.3	28.1	28.8	29.3	27.6	28.3	28.1	28.8	29.3
	<b>6H</b>	28.2	28.7	28.7	29.2	29.8	28.2	28.7	28.7	29.2	29.8
	<b>8H</b>	28.4	28.9	28.9	29.4	30.0	28.4	28.9	28.9	29.4	30.0

Corrected UGR values based on total output lumens

SHR = 1.0