

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

SGECS4FX 40L 35K XX AR4FX60 FO MW

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

### **Test Number**

SP-01170

### **Test Date**

6/16/2020

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

### Summary of Results

#### Power

Input Watts	30.3 W
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#### Lumen Output

Output Lumens	2629
Efficacy	86.77 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	1.1
Two luminaires, plane 90°	1.1
Four luminaires	1.15

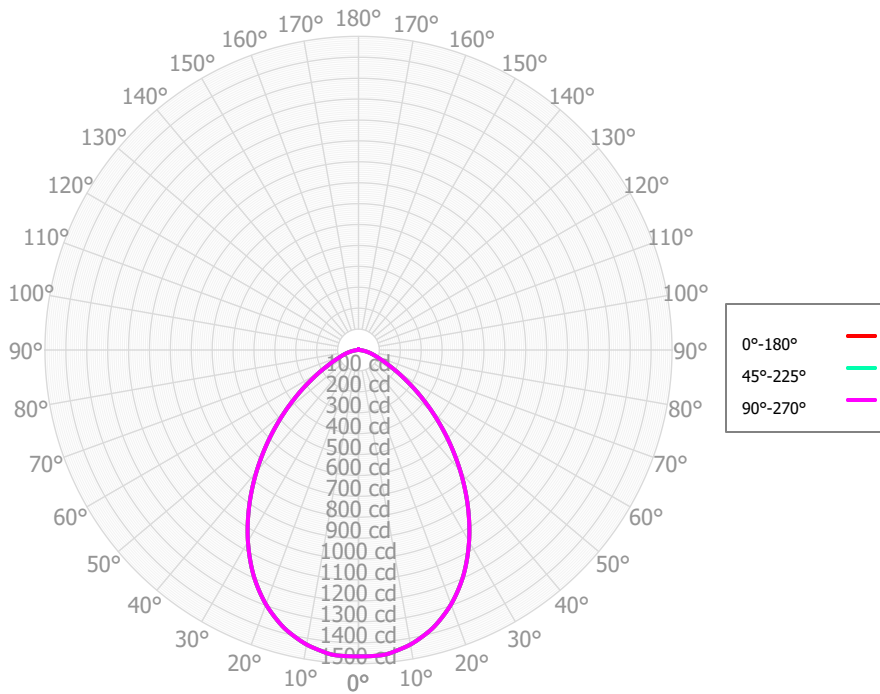
#### Full Beam Angle

0° - 180°	82°
90° - 270°	82°

### IES File Header Contents

Keyword	Value
TEST	SP-01170
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	6/16/2020
ISSUEDATE	7/15/2020
LUMCAT	SGECS4FX 40L 35K XX AR4FX60 FO MW
LUMINAIRE	Nom 4" diam Chicago Plenum downlight, Fusion Optix lens, Matte white finish
OTHER	Beam angle: 81.7 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
_CCT	80+
_CCTMULT	30K x 0.97, 40K x 1.03, 50K x 1.03
_LAMPMULT	10L x 0.24, 20L x 0.50, 30L x 0.75

**Candela Polar Plot**



**Zonal Lumen Summary**

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	144.20	5.48%	90.00° - 100.00°	1.36	0.05%
10.00° - 20.00°	386.10	14.67%	100.00° - 110.00°	1.12	0.04%
20.00° - 30.00°	543.91	20.66%	100.00° - 120.00°	2.21	0.08%
30.00° - 40.00°	567.51	21.56%	120.00° - 130.00°	1.00	0.04%
40.00° - 50.00°	466.32	17.71%	130.00° - 140.00°	0.97	0.04%
50.00° - 60.00°	296.22	11.25%	140.00° - 150.00°	0.85	0.03%
60.00° - 70.00°	143.09	5.44%	150.00° - 160.00°	0.66	0.03%
70.00° - 80.00°	63.08	2.40%	160.00° - 170.00°	0.41	0.02%
80.00° - 90.00°	14.65	0.56%	170.00° - 180.00°	0.14	0.01%
0.00° - 90.00°	2,625.08	99.71%	0.00° - 180.00°	2,632.68	100.00%

### Candela Distribution

	0.00°	45.00°	90.00°
0.00°	1,465.80	1,465.80	1,465.80
2.50°	1,465.80	1,465.80	1,465.80
5.00°	1,462.79	1,462.79	1,462.79
7.50°	1,448.18	1,448.18	1,448.18
10.00°	1,430.85	1,430.85	1,430.85
12.50°	1,405.57	1,405.57	1,405.57
15.00°	1,376.28	1,376.28	1,376.28
17.50°	1,337.84	1,337.84	1,337.84
20.00°	1,295.06	1,295.06	1,295.06
22.50°	1,244.46	1,244.46	1,244.46
25.00°	1,188.65	1,188.65	1,188.65
27.50°	1,125.24	1,125.24	1,125.24
30.00°	1,057.98	1,057.98	1,057.98
32.50°	986.14	986.14	986.14
35.00°	912.05	912.05	912.05
37.50°	835.78	835.78	835.78
40.00°	758.91	758.91	758.91
42.50°	681.57	681.57	681.57
45.00°	605.94	605.94	605.94
47.50°	531.40	531.40	531.40
50.00°	460.63	460.63	460.63
52.50°	391.80	391.80	391.80
55.00°	329.60	329.60	329.60
57.50°	270.13	270.13	270.13
60.00°	220.51	220.51	220.51
62.50°	174.04	174.04	174.04
65.00°	140.64	140.64	140.64
67.50°	110.30	110.30	110.30
70.00°	91.01	91.01	91.01
72.50°	73.53	73.53	73.53
75.00°	59.18	59.18	59.18
77.50°	45.15	45.15	45.15
80.00°	32.46	32.46	32.46
82.50°	19.88	19.88	19.88
85.00°	12.00	12.00	12.00
87.50°	4.49	4.49	4.49
90.00°	2.64	2.64	2.64
92.50°	1.01	1.01	1.01
95.00°	1.05	1.05	1.05
97.50°	1.08	1.08	1.08
100.00°	1.07	1.07	1.07
102.50°	1.06	1.06	1.06
105.00°	1.05	1.05	1.05
107.50°	1.05	1.05	1.05
110.00°	1.10	1.10	1.10
112.50°	1.13	1.13	1.13

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

	<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>RCR</b>	<b>0</b>	3,132	3,132	3,132	3,132	3,059	3,059	3,059	3,059	2,921	2,921	2,921	2,795	2,795	2,795	2,679	2,679	2,625
	<b>1</b>	2,924	2,825	2,736	2,656	2,855	2,766	2,685	2,612	2,655	2,589	2,529	2,553	2,500	2,452	2,460	2,418	2,367
	<b>2</b>	2,712	2,536	2,391	2,269	2,647	2,488	2,355	2,242	2,397	2,286	2,190	2,313	2,221	2,140	2,236	2,160	2,093
	<b>3</b>	2,514	2,284	2,106	1,965	2,454	2,244	2,080	1,947	2,169	2,029	1,913	2,099	1,980	1,881	2,034	1,934	1,849
	<b>4</b>	2,334	2,067	1,871	1,722	2,278	2,033	1,851	1,711	1,970	1,812	1,688	1,911	1,776	1,665	1,857	1,740	1,644
	<b>5</b>	2,171	1,879	1,676	1,526	2,120	1,851	1,660	1,518	1,798	1,630	1,502	1,748	1,601	1,486	1,702	1,574	1,471
	<b>6</b>	2,023	1,717	1,512	1,364	1,977	1,693	1,499	1,358	1,648	1,476	1,347	1,606	1,453	1,336	1,566	1,431	1,325
	<b>7</b>	1,891	1,576	1,372	1,230	1,849	1,556	1,363	1,225	1,517	1,344	1,217	1,481	1,325	1,209	1,447	1,307	1,201
	<b>8</b>	1,772	1,454	1,254	1,116	1,734	1,436	1,246	1,113	1,403	1,230	1,107	1,372	1,215	1,100	1,342	1,200	1,094
	<b>9</b>	1,665	1,346	1,151	1,019	1,630	1,331	1,145	1,017	1,302	1,132	1,012	1,275	1,119	1,007	1,250	1,107	1,003
	<b>10</b>	1,568	1,252	1,062	936	1,536	1,238	1,057	934	1,213	1,046	931	1,190	1,036	927	1,167	1,026	923

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	48.5 fc	9.5 ft
6.5 ft	34.7 fc	11.2 ft
7.5 ft	26.1 fc	13.0 ft
8.0 ft	22.9 fc	13.8 ft
10.0 ft	14.7 fc	17.3 ft
12.0 ft	10.2 fc	20.7 ft
14.0 ft	7.5 fc	24.2 ft
16.0 ft	5.7 fc	27.7 ft
20.0 ft	3.7 fc	34.6 ft
24.0 ft	2.5 fc	41.5 ft
28.0 ft	1.9 fc	48.4 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	223,210	223,210	223,210
<b>45.00°</b>	130,491	130,491	130,491
<b>55.00°</b>	87,504	87,504	87,504
<b>65.00°</b>	50,675	50,675	50,675
<b>75.00°</b>	34,822	34,822	34,822
<b>85.00°</b>	20,971	20,971	20,971

### 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>	25.0	26.4	25.4	26.7	27.0	25.0	26.4	25.4	26.7	27.0
	<b>3H</b>	25.7	27.0	26.1	27.3	27.7	25.7	27.0	26.1	27.3	27.7
	<b>4H</b>	26.0	27.1	26.4	27.5	27.9	26.0	27.1	26.4	27.5	27.9
	<b>6H</b>	26.1	27.2	26.6	27.6	28.0	26.1	27.2	26.6	27.6	28.0
	<b>8H</b>	26.2	27.2	26.6	27.6	28.0	26.2	27.2	26.6	27.6	28.0
	<b>12H</b>	26.2	27.1	26.6	27.5	28.0	26.2	27.1	26.6	27.5	28.0
<b>4H</b>	<b>2H</b>	25.2	26.4	25.6	26.7	27.1	25.2	26.4	25.6	26.7	27.1
	<b>3H</b>	26.1	27.1	26.6	27.5	27.9	26.1	27.1	26.6	27.5	27.9
	<b>4H</b>	26.5	27.3	26.9	27.8	28.2	26.5	27.3	26.9	27.8	28.2
	<b>6H</b>	26.7	27.5	27.2	27.9	28.4	26.7	27.5	27.2	27.9	28.4
	<b>8H</b>	26.8	27.5	27.3	27.9	28.4	26.8	27.5	27.3	27.9	28.4
	<b>12H</b>	26.8	27.4	27.3	27.9	28.4	26.8	27.4	27.3	27.9	28.4
<b>8H</b>	<b>4H</b>	26.6	27.3	27.0	27.7	28.2	26.6	27.3	27.0	27.7	28.2
	<b>6H</b>	26.9	27.5	27.4	28.0	28.4	26.9	27.5	27.4	28.0	28.4
	<b>8H</b>	27.0	27.5	27.5	28.0	28.5	27.0	27.5	27.5	28.0	28.5
	<b>12H</b>	27.0	27.5	27.6	28.0	28.6	27.0	27.5	27.6	28.0	28.6
<b>12H</b>	<b>4H</b>	26.6	27.2	27.1	27.7	28.1	26.6	27.2	27.1	27.7	28.1
	<b>6H</b>	26.9	27.4	27.4	27.9	28.4	26.9	27.4	27.4	27.9	28.4
	<b>8H</b>	27.0	27.5	27.5	28.0	28.5	27.0	27.5	27.5	28.0	28.5

Corrected UGR values based on total output lumens

SHR = 1.0