

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SGECS4SQFX 20L 35K XX CA4FX FO MW

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

Test Number

SP-01172_M-20L

Test Date

6/16/2020

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

Summary of Results

Power

Input Watts	14.1 W
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Lumen Output

Output Lumens	1526
Efficacy	108.22 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

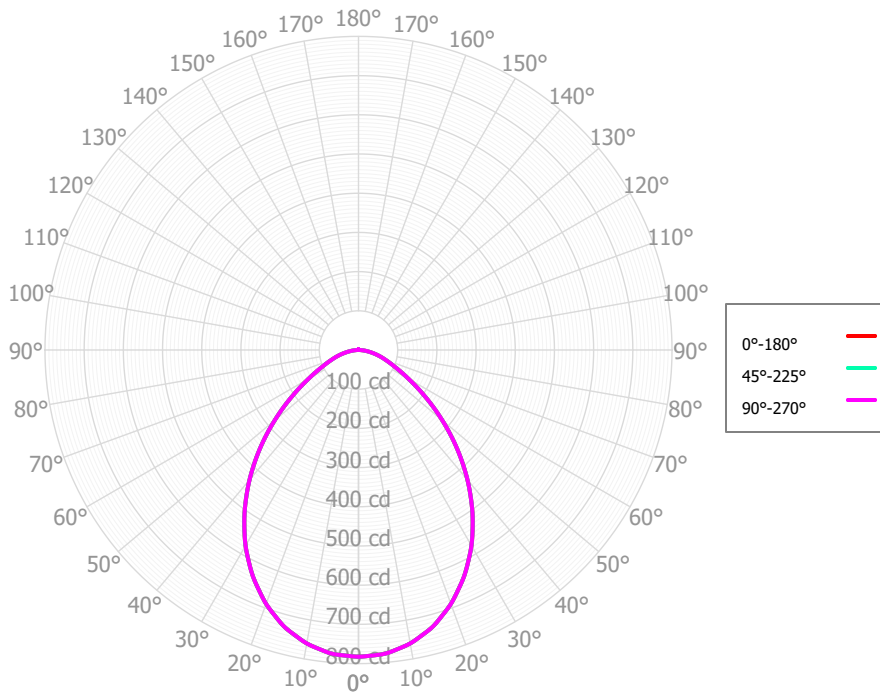
Full Beam Angle

0° - 180°	85°
90° - 270°	85°

IES File Header Contents

Keyword	Value
TEST	SP-01172_M-20L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	6/16/2020
ISSUEDATE	7/17/2020
LUMCAT	SGECS4SQFX 20L 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°	76.67	5.02%	90.00° - 100.00°	1.13	0.07%
10.00° - 20.00°	205.13	13.43%	100.00° - 110.00°	0.70	0.05%
20.00° - 30.00°	292.12	19.12%	100.00° - 120.00°	1.33	0.09%
30.00° - 40.00°	315.53	20.65%	120.00° - 130.00°	0.58	0.04%
40.00° - 50.00°	273.33	17.89%	130.00° - 140.00°	0.51	0.03%
50.00° - 60.00°	186.92	12.23%	140.00° - 150.00°	0.45	0.03%
60.00° - 70.00°	104.70	6.85%	150.00° - 160.00°	0.36	0.02%
70.00° - 80.00°	53.48	3.50%	160.00° - 170.00°	0.22	0.01%
80.00° - 90.00°	15.29	1.00%	170.00° - 180.00°	0.08	0.01%
0.00° - 90.00°	1,523.17	99.70%	0.00° - 180.00°	1,527.81	100.00%

Candela Distribution

	0.00°	45.00°	90.00°
0.00°	782.57	782.57	782.57
2.50°	780.48	780.48	780.48
5.00°	777.81	777.81	777.81
7.50°	769.58	769.58	769.58
10.00°	760.27	760.27	760.27
12.50°	746.03	746.03	746.03
15.00°	731.17	731.17	731.17
17.50°	710.50	710.50	710.50
20.00°	689.41	689.41	689.41
22.50°	663.50	663.50	663.50
25.00°	637.37	637.37	637.37
27.50°	607.09	607.09	607.09
30.00°	576.47	576.47	576.47
32.50°	541.81	541.81	541.81
35.00°	506.86	506.86	506.86
37.50°	469.85	469.85	469.85
40.00°	432.57	432.57	432.57
42.50°	394.05	394.05	394.05
45.00°	355.51	355.51	355.51
47.50°	316.89	316.89	316.89
50.00°	278.88	278.88	278.88
52.50°	242.51	242.51	242.51
55.00°	207.72	207.72	207.72
57.50°	176.22	176.22	176.22
60.00°	147.53	147.53	147.53
62.50°	123.68	123.68	123.68
65.00°	103.11	103.11	103.11
67.50°	87.14	87.14	87.14
70.00°	73.21	73.21	73.21
72.50°	61.63	61.63	61.63
75.00°	50.41	50.41	50.41
77.50°	39.52	39.52	39.52
80.00°	29.68	29.68	29.68
82.50°	20.66	20.66	20.66
85.00°	13.03	13.03	13.03
87.50°	6.29	6.29	6.29
90.00°	2.84	2.84	2.84
92.50°	1.12	1.12	1.12
95.00°	0.62	0.62	0.62
97.50°	0.63	0.63	0.63
100.00°	0.67	0.67	0.67
102.50°	0.72	0.72	0.72
105.00°	0.67	0.67	0.67
107.50°	0.60	0.60	0.60
110.00°	0.60	0.60	0.60
112.50°	0.62	0.62	0.62

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%	10%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%
	0	1,818	1,818	1,818	1,818	1,775	1,775	1,775	1,775	1,695	1,695	1,695	1,622	1,622	1,622	1,555	1,555	1,555
	1	1,688	1,626	1,571	1,521	1,647	1,591	1,541	1,496	1,527	1,486	1,448	1,467	1,434	1,404	1,413	1,386	1,362
	2	1,558	1,450	1,361	1,286	1,520	1,422	1,340	1,270	1,368	1,300	1,241	1,319	1,262	1,212	1,274	1,227	1,185
	3	1,439	1,299	1,190	1,104	1,403	1,275	1,175	1,094	1,231	1,145	1,075	1,190	1,117	1,056	1,151	1,090	1,038
	4	1,332	1,170	1,051	961	1,299	1,150	1,040	954	1,113	1,017	941	1,078	996	929	1,046	975	916
	5	1,236	1,060	937	847	1,205	1,043	928	842	1,012	911	833	982	894	824	955	878	815
	6	1,149	966	842	753	1,122	951	835	750	925	821	744	900	808	737	876	795	731
	7	1,072	884	762	676	1,047	872	756	674	849	745	669	828	734	664	808	724	660
	8	1,003	813	694	612	981	803	689	610	784	680	606	765	671	603	748	663	599
	9	942	752	636	557	921	743	632	556	726	624	553	710	617	550	695	610	548
	10	886	698	586	511	867	690	582	509	675	576	507	662	570	505	648	564	503

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	25.9 fc	10.1 ft
6.5 ft	18.5 fc	12.0 ft
7.5 ft	13.9 fc	13.8 ft
8.0 ft	12.2 fc	14.8 ft
10.0 ft	7.8 fc	18.4 ft
12.0 ft	5.4 fc	22.1 ft
14.0 ft	4.0 fc	25.8 ft
16.0 ft	3.1 fc	29.5 ft
20.0 ft	2.0 fc	36.9 ft
24.0 ft	1.4 fc	44.3 ft
28.0 ft	1.0 fc	51.6 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	93,595	93,595	93,595
45.00°	60,130	60,130	60,130
55.00°	43,312	43,312	43,312
65.00°	29,179	29,179	29,179
75.00°	23,294	23,294	23,294
85.00°	17,876	17,876	17,876

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	23.9	25.3	24.2	25.6	25.9	23.9	25.3	24.2	25.6	25.9
	3H	24.9	26.2	25.3	26.6	26.9	24.9	26.2	25.3	26.6	26.9
	4H	25.4	26.6	25.8	26.9	27.3	25.4	26.6	25.8	26.9	27.3
	6H	25.7	26.8	26.1	27.1	27.5	25.7	26.8	26.1	27.1	27.5
	8H	25.8	26.8	26.2	27.2	27.6	25.8	26.8	26.2	27.2	27.6
	12H	25.8	26.8	26.2	27.2	27.7	25.8	26.8	26.2	27.2	27.7
4H	2H	24.2	25.4	24.6	25.8	26.2	24.2	25.4	24.6	25.8	26.2
	3H	25.5	26.5	25.9	26.9	27.3	25.5	26.5	25.9	26.9	27.3
	4H	26.0	26.9	26.5	27.4	27.8	26.0	26.9	26.5	27.4	27.8
	6H	26.5	27.2	26.9	27.7	28.2	26.5	27.2	26.9	27.7	28.2
	8H	26.6	27.3	27.1	27.8	28.3	26.6	27.3	27.1	27.8	28.3
	12H	26.7	27.3	27.2	27.8	28.3	26.7	27.3	27.2	27.8	28.3
8H	4H	26.2	27.0	26.7	27.4	27.9	26.2	27.0	26.7	27.4	27.9
	6H	26.8	27.4	27.3	27.8	28.3	26.8	27.4	27.3	27.8	28.3
	8H	26.9	27.5	27.5	28.0	28.5	26.9	27.5	27.5	28.0	28.5
	12H	27.1	27.6	27.6	28.1	28.7	27.1	27.6	27.6	28.1	28.7
12H	4H	26.2	26.9	26.7	27.4	27.8	26.2	26.9	26.7	27.4	27.8
	6H	26.8	27.3	27.3	27.8	28.3	26.8	27.3	27.3	27.8	28.3
	8H	27.0	27.5	27.5	28.0	28.6	27.0	27.5	27.5	28.0	28.6

Corrected UGR values based on total output lumens

SHR = 1.0