Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SGECS4FX 20L 35K XX AR4FX60 FO MW

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

Test Number

SP-01170_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

Lumen Output

Output Lumens	1315
Efficacy	93.23 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

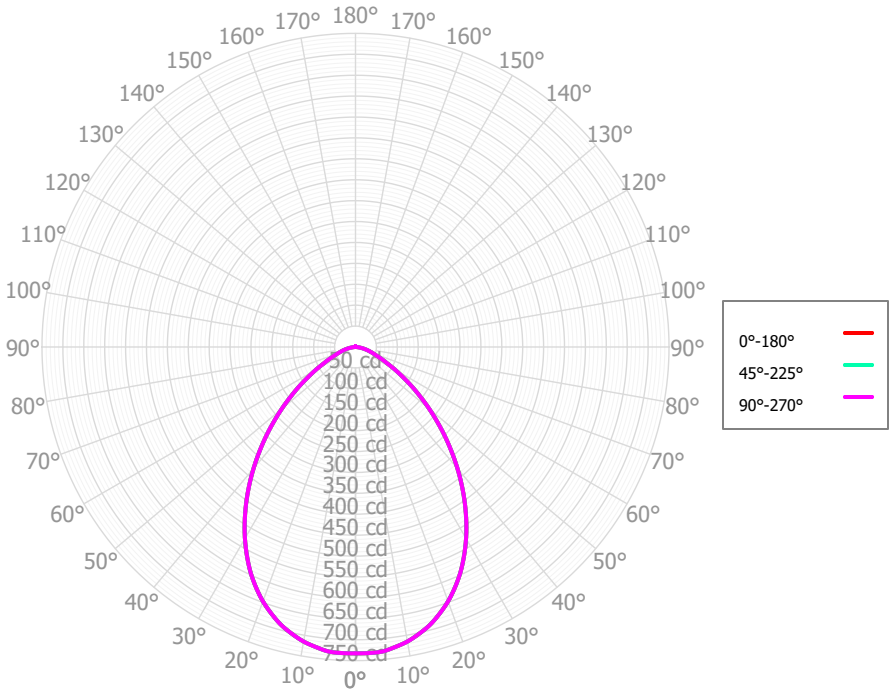
Full Beam Angle

0° - 180°	82°
90° - 270°	82°

IES File Header Contents

Keyword	Value
TEST	SP-01170_M-20L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	6/16/2020
ISSUEDATE	7/16/2020
LUMCAT	SGECS4FX 20L 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, scaled from 40L

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	72.10	5.48%	90.00° - 100.00°	0.68	0.05%
10.00° - 20.00°	193.05	14.67%	100.00° - 110.00°	0.56	0.04%
20.00° - 30.00°	271.96	20.66%	100.00° - 120.00°	1.10	0.08%
30.00° - 40.00°	283.75	21.56%	120.00° - 130.00°	0.50	0.04%
40.00° - 50.00°	233.16	17.71%	130.00° - 140.00°	0.49	0.04%
50.00° - 60.00°	148.11	11.25%	140.00° - 150.00°	0.42	0.03%
60.00° - 70.00°	71.55	5.44%	150.00° - 160.00°	0.33	0.03%
70.00° - 80.00°	31.54	2.40%	160.00° - 170.00°	0.20	0.02%
80.00° - 90.00°	7.33	0.56%	170.00° - 180.00°	0.07	0.01%
0.00° - 90.00°	1,312.54	99.71%	0.00° - 180.00°	1,316.34	100.00%

Candela Distribution

	0.00°	45.00°	90.00°
0.00°	732.90	732.90	732.90
2.50°	732.90	732.90	732.90
5.00°	731.40	731.40	731.40
7.50°	724.09	724.09	724.09
10.00°	715.43	715.43	715.43
12.50°	702.79	702.79	702.79
15.00°	688.14	688.14	688.14
17.50°	668.92	668.92	668.92
20.00°	647.53	647.53	647.53
22.50°	622.23	622.23	622.23
25.00°	594.33	594.33	594.33
27.50°	562.62	562.62	562.62
30.00°	528.99	528.99	528.99
32.50°	493.07	493.07	493.07
35.00°	456.02	456.02	456.02
37.50°	417.89	417.89	417.89
40.00°	379.46	379.46	379.46
42.50°	340.79	340.79	340.79
45.00°	302.97	302.97	302.97
47.50°	265.70	265.70	265.70
50.00°	230.31	230.31	230.31
52.50°	195.90	195.90	195.90
55.00°	164.80	164.80	164.80
57.50°	135.06	135.06	135.06
60.00°	110.25	110.25	110.25
62.50°	87.02	87.02	87.02
65.00°	70.32	70.32	70.32
67.50°	55.15	55.15	55.15
70.00°	45.50	45.50	45.50
72.50°	36.77	36.77	36.77
75.00°	29.59	29.59	29.59
77.50°	22.58	22.58	22.58
80.00°	16.23	16.23	16.23
82.50°	9.94	9.94	9.94
85.00°	6.00	6.00	6.00
87.50°	2.24	2.24	2.24
90.00°	1.32	1.32	1.32
92.50°	0.50	0.50	0.50
95.00°	0.52	0.52	0.52
97.50°	0.54	0.54	0.54
100.00°	0.53	0.53	0.53
102.50°	0.53	0.53	0.53
105.00°	0.52	0.52	0.52
107.50°	0.52	0.52	0.52
110.00°	0.55	0.55	0.55
112.50°	0.56	0.56	0.56

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

	ρfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	ρcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	ρw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	1,566	1,566	1,566	1,566	1,529	1,529	1,529	1,529	1,460	1,460	1,460	1,398	1,398	1,398	1,340	1,340	1,340	1,313
	1	1,462	1,412	1,368	1,328	1,428	1,383	1,343	1,306	1,328	1,295	1,265	1,277	1,250	1,226	1,230	1,209	1,189	1,184
	2	1,356	1,268	1,195	1,134	1,324	1,244	1,177	1,121	1,198	1,143	1,095	1,157	1,111	1,070	1,118	1,080	1,046	1,057
	3	1,257	1,142	1,053	982	1,227	1,122	1,040	974	1,084	1,014	957	1,049	990	940	1,017	967	925	947
	4	1,167	1,033	936	861	1,139	1,017	926	855	985	906	844	956	888	833	928	870	822	852
RCR	5	1,085	940	838	763	1,060	926	830	759	899	815	751	874	801	743	851	787	735	771
	6	1,012	859	756	682	988	847	750	679	824	738	673	803	726	668	783	715	662	701
	7	946	788	686	615	924	778	681	613	759	672	608	741	663	604	724	654	600	641
	8	886	727	627	558	867	718	623	556	701	615	553	686	607	550	671	600	547	589
	9	832	673	576	510	815	666	572	508	651	566	506	638	560	504	625	554	501	544
	10	784	626	531	468	768	619	528	467	607	523	465	595	518	463	584	513	462	504

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	24.2 fc	9.5 ft
6.5 ft	17.3 fc	11.2 ft
7.5 ft	13.0 fc	13.0 ft
8.0 ft	11.5 fc	13.8 ft
10.0 ft	7.3 fc	17.3 ft
12.0 ft	5.1 fc	20.7 ft
14.0 ft	3.7 fc	24.2 ft
16.0 ft	2.9 fc	27.7 ft
20.0 ft	1.8 fc	34.6 ft
24.0 ft	1.3 fc	41.5 ft
28.0 ft	0.9 fc	48.4 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	111,605	111,605	111,605
45.00°	65,245	65,245	65,245
55.00°	43,752	43,752	43,752
65.00°	25,337	25,337	25,337
75.00°	17,411	17,411	17,411
85.00°	10,486	10,486	10,486

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	22.6	24.0	23.0	24.3	24.6	22.6	24.0	23.0	24.3	24.6
	3H	23.3	24.5	23.7	24.9	25.3	23.3	24.5	23.7	24.9	25.3
	4H	23.6	24.7	24.0	25.1	25.5	23.6	24.7	24.0	25.1	25.5
	6H	23.7	24.8	24.2	25.2	25.6	23.7	24.8	24.2	25.2	25.6
	8H	23.8	24.8	24.2	25.2	25.6	23.8	24.8	24.2	25.2	25.6
	12H	23.8	24.7	24.2	25.1	25.6	23.8	24.7	24.2	25.1	25.6
4H	2H	22.8	24.0	23.2	24.3	24.7	22.8	24.0	23.2	24.3	24.7
	3H	23.7	24.7	24.1	25.1	25.5	23.7	24.7	24.1	25.1	25.5
	4H	24.1	24.9	24.5	25.3	25.8	24.1	24.9	24.5	25.3	25.8
	6H	24.3	25.1	24.8	25.5	26.0	24.3	25.1	24.8	25.5	26.0
	8H	24.4	25.1	24.9	25.5	26.0	24.4	25.1	24.9	25.5	26.0
	12H	24.4	25.0	24.9	25.5	26.0	24.4	25.0	24.9	25.5	26.0
8H	4H	24.2	24.9	24.6	25.3	25.8	24.2	24.9	24.6	25.3	25.8
	6H	24.5	25.1	25.0	25.6	26.0	24.5	25.1	25.0	25.6	26.0
	8H	24.6	25.1	25.1	25.6	26.1	24.6	25.1	25.1	25.6	26.1
	12H	24.6	25.1	25.2	25.6	26.2	24.6	25.1	25.2	25.6	26.2
12H	4H	24.2	24.8	24.6	25.2	25.7	24.2	24.8	24.6	25.2	25.7
	6H	24.5	25.0	25.0	25.5	26.0	24.5	25.0	25.0	25.5	26.0
	8H	24.6	25.0	25.1	25.5	26.1	24.6	25.0	25.1	25.5	26.1

Corrected UGR values based on total output lumens

SHR = 1.0