

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 MW

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

Test Number

SP-01181_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	795
Efficacy	98.14 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	1.18

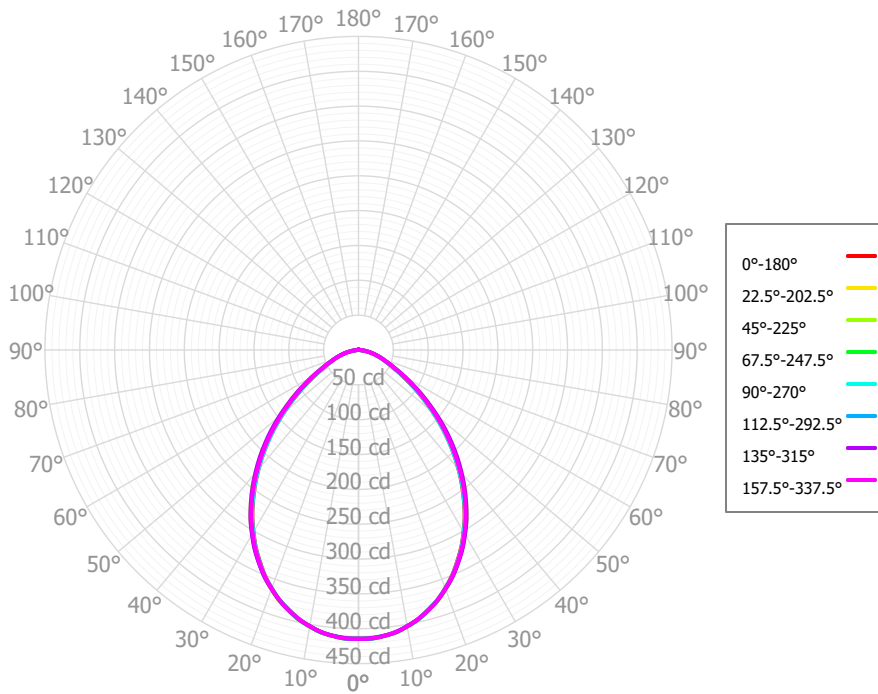
Full Beam Angle

0° - 180°	84°
90° - 270°	84°

IES File Header Contents

Keyword	Value
TEST	SP-01181_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 MW
LUMINAIRE	Nom 4" square Chicago Plenum downlight, Fusion Optix lens, Matte white finish
OTHER	Beam angle: 83.9 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°	39.63	4.99%	90.00° - 100.00°	0.93	0.12%
10.00° - 20.00°	108.66	13.67%	100.00° - 110.00°	0.79	0.10%
20.00° - 30.00°	154.49	19.43%	100.00° - 120.00°	1.52	0.19%
30.00° - 40.00°	166.16	20.90%	120.00° - 130.00°	0.67	0.08%
40.00° - 50.00°	142.47	17.92%	130.00° - 140.00°	0.58	0.07%
50.00° - 60.00°	95.37	12.00%	140.00° - 150.00°	0.47	0.06%
60.00° - 70.00°	51.47	6.47%	150.00° - 160.00°	0.38	0.05%
70.00° - 80.00°	25.17	3.17%	160.00° - 170.00°	0.22	0.03%
80.00° - 90.00°	6.62	0.83%	170.00° - 180.00°	0.08	0.01%
0.00° - 90.00°	790.04	99.39%	0.00° - 180.00°	794.90	100.00%

Candela Distribution

	0.00°	22.50°	45.00°	67.50°	90.00°	112.50°	135.00°	157.50°	180.00°	212.50°	225.00°	247.50°	270.00°	292.50°	315.00°	337.50°	360.00°
0.00°	414.46	414.46	414.46	414.46	414.46	414.46	414.46	414.46	414.46	414.46	414.46	414.46	414.46	414.46	414.46	414.46	414.46
2.50°	414.68	414.96	414.84	413.53	414.50	414.85	414.02	414.34	414.68	414.96	414.84	413.53	414.50	414.85	414.02	414.34	414.68
5.00°	412.04	412.39	412.39	411.97	411.88	412.04	411.96	412.19	412.04	412.39	412.39	411.97	411.88	412.04	411.96	412.19	412.04
7.50°	408.92	408.73	408.86	408.27	408.68	408.86	408.60	408.32	408.92	408.73	408.86	408.27	408.68	408.86	408.60	408.32	408.92
10.00°	402.57	402.78	403.13	402.88	402.66	402.58	402.74	402.54	402.57	402.78	403.13	402.88	402.66	402.58	402.74	402.54	402.57
12.50°	395.85	396.08	396.62	395.60	396.22	396.07	395.62	395.49	395.85	396.08	396.62	395.60	396.22	396.07	395.62	395.49	395.85
15.00°	386.50	386.71	387.53	386.69	386.61	386.26	386.67	386.57	386.50	386.71	387.53	386.69	386.61	386.26	386.67	386.57	386.50
17.50°	377.01	376.67	377.75	376.31	376.74	376.32	376.97	376.67	377.01	376.67	377.75	376.31	376.74	376.32	376.97	376.67	377.01
20.00°	363.91	364.43	365.42	364.54	364.13	364.32	365.08	364.53	363.91	364.43	365.42	364.54	364.13	364.32	365.08	364.53	363.91
22.50°	350.67	351.82	352.61	351.72	351.37	352.08	352.52	351.47	350.67	351.82	352.61	351.72	351.37	352.08	352.52	351.47	350.67
25.00°	335.10	336.70	337.55	337.17	335.81	337.23	337.83	336.56	335.10	336.70	337.55	337.17	335.81	337.23	337.83	336.56	335.10
27.50°	319.31	321.33	322.20	321.58	320.08	322.04	322.66	321.03	319.31	321.33	322.20	321.58	320.08	322.04	322.66	321.03	319.31
30.00°	301.57	303.67	305.43	304.22	302.25	304.68	305.74	303.83	301.57	303.67	305.43	304.22	302.25	304.68	305.74	303.83	301.57
32.50°	283.55	285.89	288.57	286.03	284.20	286.88	288.53	286.22	283.55	285.89	288.57	286.03	284.20	286.88	288.53	286.22	283.55
35.00°	263.78	266.57	269.62	266.96	264.55	267.18	269.37	266.99	263.78	266.57	269.62	266.96	264.55	267.18	269.37	266.99	263.78
37.50°	243.86	247.18	250.59	247.56	244.66	247.32	250.03	247.48	243.86	247.18	250.59	247.56	244.66	247.32	250.03	247.48	243.86
40.00°	223.31	226.42	230.00	227.10	223.60	226.99	230.05	226.71	223.31	226.42	230.00	227.10	223.60	226.99	230.05	226.71	223.31
42.50°	202.65	205.67	209.42	206.34	202.55	206.58	210.04	205.79	202.65	205.67	209.42	206.34	202.55	206.58	210.04	205.79	202.65
45.00°	181.64	185.02	188.91	185.44	181.56	185.97	189.58	185.11	181.64	185.02	188.91	185.44	181.56	185.97	189.58	185.11	181.64
47.50°	160.74	164.45	168.43	164.52	160.73	165.49	169.10	164.44	160.74	164.45	168.43	164.52	160.73	165.49	169.10	164.44	160.74
50.00°	140.09	144.27	148.13	144.22	140.36	145.26	148.42	144.33	140.09	144.27	148.13	144.22	140.36	145.26	148.42	144.33	140.09
52.50°	120.26	124.52	128.21	124.01	120.71	125.50	128.02	124.33	120.26	124.52	128.21	124.01	120.71	125.50	128.02	124.33	120.26
55.00°	101.97	106.41	109.93	106.31	102.55	106.49	109.76	106.47	101.97	106.41	109.93	106.31	102.55	106.49	109.76	106.47	101.97
57.50°	85.20	89.19	92.28	88.81	85.91	89.30	91.97	89.02	85.20	89.19	92.28	88.81	85.91	89.30	91.97	89.02	85.20
60.00°	70.72	74.62	76.60	74.60	71.75	74.47	76.58	75.01	70.72	74.62	76.60	74.60	71.75	74.47	76.58	75.01	70.72
62.50°	58.51	61.35	62.34	60.59	59.40	61.67	62.30	61.64	58.51	61.35	62.34	60.59	59.40	61.67	62.30	61.64	58.51
65.00°	49.11	51.02	51.48	51.31	49.50	51.00	52.04	51.65	49.11	51.02	51.48	51.31	49.50	51.00	52.04	51.65	49.11
67.50°	41.17	41.97	41.97	42.26	41.40	42.48	42.67	42.38	41.17	41.97	41.97	42.26	41.40	42.48	42.67	42.38	41.17
70.00°	34.71	35.18	35.06	35.92	35.26	35.82	35.71	35.86	34.71	35.18	35.06	35.92	35.26	35.82	35.71	35.86	34.71
72.50°	28.78	28.94	28.72	29.68	29.18	29.78	29.27	29.51	28.78	28.94	28.72	29.68	29.18	29.78	29.27	29.51	28.78
75.00°	23.28	23.48	23.28	24.18	23.14	24.18	23.96	23.68	23.28	23.48	23.28	24.18	23.14	24.18	23.96	23.68	23.28
77.50°	18.11	18.30	18.08	18.76	17.73	18.77	18.60	18.23	18.11	18.30	18.08	18.76	17.73	18.77	18.60	18.23	18.11
80.00°	13.17	13.44	13.19	13.73	12.80	13.45	13.16	13.63	13.17	13.44	13.19	13.73	12.80	13.45	13.16	13.63	13.17
82.50°	8.95	9.19	8.80	9.01	8.71	9.07	8.53	9.36	8.95	9.19	8.80	9.01	8.71	9.07	8.53	9.36	8.95
85.00°	5.12	5.53	4.92	5.35	5.12	5.11	5.03	5.68	5.12	5.53	4.92	5.35	5.12	5.11	5.03	5.68	5.12
87.50°	2.95	3.10	2.48	2.46	2.87	2.83	2.61	2.95	2.95	3.10	2.48	2.46	2.87	2.83	2.61	2.95	2.95
90.00°	1.48	1.66	1.24	1.54	1.26	1.14	1.46	1.61	1.48	1.66	1.24	1.54	1.26	1.14	1.46	1.61	1.48
92.50°	0.97	1.01	0.72	0.88	0.76	0.72	0.86	0.84	0.97	1.01	0.72	0.88	0.76	0.72	0.86	0.84	0.97
95.00°	0.78	0.86	0.68	0.76	0.69	0.65	0.80	0.74	0.78	0.86	0.68	0.76	0.69	0.65	0.80	0.74	0.78
97.50°	0.74	0.81	0.70	0.69	0.67	0.66	0.77	0.73	0.74	0.81	0.70	0.69	0.67	0.66	0.77	0.73	0.74
100.00°	0.73	0.81	0.74	0.71	0.67	0.69	0.76	0.80	0.73	0.81	0.74	0.71	0.67	0.69	0.76	0.80	0.73
102.50°	0.72	0.87	0.74	0.74	0.66	0.72	0.76	0.80	0.72	0.87	0.74	0.74	0.66	0.72	0.76	0.80	0.72
105.00°	0.70	0.94	0.73	0.77	0.65	0.74	0.77	0.74	0.70	0.94	0.73	0.77	0.65	0.74	0.77	0.74	0.70
107.50°	0.69	0.94	0.73	0.74	0.62	0.70	0.79	0.74	0.69	0.94	0.73	0.74	0.62	0.70	0.79	0.74	0.69
110.00°	0.68	0.91	0.74	0.66	0.59	0.66	0.81	0.79	0.68	0.91	0.74	0.66	0.59	0.66	0.81	0.79	0.68
112.50°	0.77	0.87	0.68	0.67	0.62	0.69	0.82	0.77	0.77	0.87	0.68	0.67	0.62	0.69	0.82	0.77	0.77

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%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	0	945	945	945	945	923	923	923	923	881	881	881	842	842	842	807	807	790
	1	879	847	819	794	857	829	804	780	795	774	755	764	747	731	735	722	706
	2	812	757	711	673	792	742	700	664	714	679	649	688	659	633	664	640	626
	3	751	679	623	579	732	666	615	573	643	599	563	621	584	553	601	570	558
	4	695	612	551	504	678	601	545	501	582	533	494	564	521	487	547	510	499
	5	645	555	491	445	629	546	487	442	529	477	437	514	468	432	499	460	450
	6	600	505	442	396	586	498	438	394	484	430	391	471	423	387	458	416	408
	7	560	463	400	356	547	457	397	354	445	391	352	433	385	349	423	379	372
	8	524	426	364	322	512	421	362	321	410	357	319	401	352	317	391	348	341
	9	492	394	334	293	481	389	332	292	380	328	291	372	324	289	364	320	314
	10	463	366	307	269	453	362	306	268	354	302	267	346	299	266	339	296	291

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	13.7 fc	9.9 ft
6.5 ft	9.8 fc	11.7 ft
7.5 ft	7.4 fc	13.5 ft
8.0 ft	6.5 fc	14.4 ft
10.0 ft	4.1 fc	18.0 ft
12.0 ft	2.9 fc	21.5 ft
14.0 ft	2.1 fc	25.1 ft
16.0 ft	1.6 fc	28.7 ft
20.0 ft	1.0 fc	35.9 ft
24.0 ft	0.7 fc	43.1 ft
28.0 ft	0.5 fc	50.3 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	49,570	49,570	49,570
45.00°	30,722	31,952	30,708
55.00°	21,261	22,921	21,384
65.00°	13,897	14,569	14,009
75.00°	10,758	10,756	10,691
85.00°	7,020	6,754	7,022

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	21.3	22.8	21.7	23.1	23.4	21.3	22.8	21.7	23.1	23.4
	3H	22.3	23.6	22.7	23.9	24.3	22.3	23.6	22.7	24.0	24.3
	4H	22.7	23.9	23.1	24.2	24.6	22.7	23.9	23.1	24.3	24.7
	6H	22.9	24.0	23.4	24.4	24.8	23.0	24.0	23.4	24.4	24.8
	8H	23.0	24.0	23.4	24.5	24.9	23.0	24.1	23.5	24.5	24.9
	12H	23.0	24.0	23.5	24.4	24.9	23.0	24.0	23.5	24.4	24.9
4H	2H	21.7	22.9	22.1	23.2	23.6	21.7	22.9	22.1	23.2	23.6
	3H	22.9	23.8	23.3	24.3	24.7	22.9	23.9	23.3	24.3	24.7
	4H	23.3	24.2	23.8	24.7	25.1	23.4	24.3	23.8	24.7	25.1
	6H	23.7	24.5	24.2	24.9	25.4	23.7	24.5	24.2	25.0	25.4
	8H	23.8	24.5	24.3	25.0	25.5	23.8	24.5	24.3	25.0	25.5
	12H	23.9	24.5	24.4	25.0	25.5	23.9	24.5	24.4	25.0	25.5
8H	4H	23.5	24.2	24.0	24.7	25.2	23.5	24.2	24.0	24.7	25.2
	6H	24.0	24.5	24.5	25.0	25.5	24.0	24.6	24.5	25.1	25.6
	8H	24.1	24.6	24.6	25.2	25.7	24.1	24.7	24.7	25.2	25.7
	12H	24.2	24.7	24.8	25.2	25.8	24.2	24.7	24.8	25.2	25.8
12H	4H	23.5	24.1	24.0	24.6	25.1	23.5	24.2	24.0	24.7	25.1
	6H	24.0	24.5	24.5	25.0	25.5	24.0	24.5	24.5	25.0	25.6
	8H	24.2	24.6	24.7	25.1	25.7	24.2	24.6	24.7	25.1	25.7

Corrected UGR values based on total output lumens

SHR = 1.0