

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SGECS4SQFX 20L 35HK XX CA4FX SO SG
Nom 4" square Chicago Plenum downlight, Solite lens, Soft glow finish

Test Number

SP-01184

Test Date

6/16/2020

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

Summary of Results

Power

Input Watts	16.6 W
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Lumen Output

Output Lumens	1513
Efficacy	91.12 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	1.17
Two luminaires, plane 90°	1.17
Four luminaires	1.18

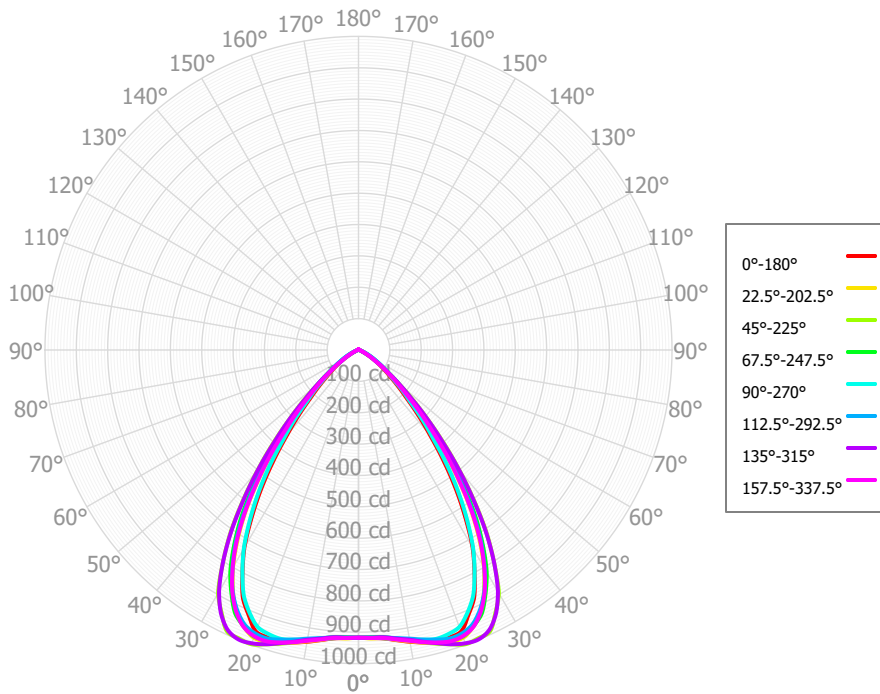
Full Beam Angle

0° - 180°	72°
90° - 270°	73°

IES File Header Contents

Keyword	Value
TEST	SP-01184
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	6/16/2020
ISSUEDATE	7/20/2020
LUMCAT	SGECS4SQFX 20L 35HK XX CA4FX SO SG
LUMINAIRE	Nom 4" square Chicago Plenum downlight, Solite lens, Soft glow finish
OTHER	Beam angle: 71.8 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 27HK
_CRI	90+
_CCTMULT	27HK x 0.93, 30HK x 0.97, 35HK x 1.00, 40HK x 1.02
_LAMPMULT	10L x 0.58

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	90.04	5.95%	90.00° - 100.00°	1.34	0.09%
10.00° - 20.00°	272.79	18.03%	100.00° - 110.00°	1.26	0.08%
20.00° - 30.00°	418.81	27.69%	100.00° - 120.00°	2.46	0.16%
30.00° - 40.00°	389.68	25.76%	120.00° - 130.00°	1.12	0.07%
40.00° - 50.00°	213.47	14.11%	130.00° - 140.00°	1.03	0.07%
50.00° - 60.00°	83.02	5.49%	140.00° - 150.00°	0.91	0.06%
60.00° - 70.00°	25.92	1.71%	150.00° - 160.00°	0.67	0.04%
70.00° - 80.00°	7.42	0.49%	160.00° - 170.00°	0.42	0.03%
80.00° - 90.00°	3.38	0.22%	170.00° - 180.00°	0.15	0.01%
0.00° - 90.00°	1,504.53	99.46%	0.00° - 180.00°	1,512.62	100.00%

Candela Distribution

	0.00°	22.50°	45.00°	67.50°	90.00°	112.50°	135.00°	157.50°	180.00°	202.50°	225.00°	247.50°	270.00°	292.50°	315.00°	337.50°	360.00°
0.00°	917.69	917.69	917.69	917.69	917.69	917.69	917.69	917.69	917.69	917.69	917.69	917.69	917.69	917.69	917.69	917.69	917.69
2.50°	919.44	921.08	918.54	916.83	918.80	918.61	918.56	919.53	919.44	921.08	918.54	916.83	918.80	918.61	918.56	919.53	919.44
5.00°	923.53	921.93	922.58	919.32	922.64	920.55	919.96	922.17	923.53	921.93	922.58	919.32	922.64	920.55	919.96	922.17	923.53
7.50°	933.47	932.70	930.96	928.63	929.11	926.88	928.59	931.49	933.47	932.70	930.96	928.63	929.11	926.88	928.59	931.49	933.47
10.00°	944.98	943.66	940.42	938.26	938.14	935.02	938.58	941.97	944.98	943.66	940.42	938.26	938.14	935.02	938.58	941.97	944.98
12.50°	955.59	955.76	954.82	949.77	946.43	946.22	953.21	954.62	955.59	955.76	954.82	949.77	946.43	946.22	953.21	954.62	955.59
15.00°	966.04	967.13	969.97	960.94	954.16	956.36	968.20	965.63	966.04	967.13	969.97	960.94	954.16	956.36	968.20	965.63	966.04
17.50°	961.77	975.78	984.33	968.68	950.53	965.16	984.08	974.31	961.77	975.78	984.33	968.68	950.53	965.16	984.08	974.31	961.77
20.00°	956.15	976.49	998.62	972.49	940.30	962.53	995.67	971.69	956.15	976.49	998.62	972.49	940.30	962.53	995.67	971.69	956.15
22.50°	915.34	955.66	996.06	954.41	907.69	948.36	999.43	956.52	915.34	955.66	996.06	954.41	907.69	948.36	999.43	956.52	915.34
25.00°	872.46	923.07	990.94	928.97	865.43	915.83	986.09	922.12	872.46	923.07	990.94	928.97	865.43	915.83	986.09	922.12	872.46
27.50°	801.44	867.22	945.73	877.19	801.78	869.10	949.17	871.34	801.44	867.22	945.73	877.19	801.78	869.10	949.17	871.34	801.44
30.00°	728.10	800.77	895.33	817.57	731.55	804.24	889.63	803.21	728.10	800.77	895.33	817.57	731.55	804.24	889.63	803.21	728.10
32.50°	635.27	718.53	805.37	738.24	646.17	728.73	805.51	723.80	635.27	718.53	805.37	738.24	646.17	728.73	805.51	723.80	635.27
35.00°	542.03	628.04	712.31	652.14	557.53	638.90	709.03	631.24	542.03	628.04	712.31	652.14	557.53	638.90	709.03	631.24	542.03
37.50°	446.75	527.89	605.26	553.11	466.08	542.60	602.23	532.06	446.75	527.89	605.26	553.11	466.08	542.60	602.23	532.06	446.75
40.00°	356.63	431.72	500.18	456.37	374.27	447.70	497.95	436.68	356.63	431.72	500.18	456.37	374.27	447.70	497.95	436.68	356.63
42.50°	282.98	339.11	401.09	362.95	303.14	353.25	395.27	342.69	282.98	339.11	401.09	362.95	303.14	353.25	395.27	342.69	282.98
45.00°	217.53	263.30	309.34	282.33	233.35	279.89	308.13	269.31	217.53	263.30	309.34	282.33	233.35	279.89	308.13	269.31	217.53
47.50°	171.45	199.02	234.15	215.80	188.01	211.13	228.63	201.15	171.45	199.02	234.15	215.80	188.01	211.13	228.63	201.15	171.45
50.00°	132.31	152.26	169.66	163.55	144.16	165.36	170.18	155.97	132.31	152.26	169.66	163.55	144.16	165.36	170.18	155.97	132.31
52.50°	105.34	114.84	123.15	123.70	117.15	122.72	119.26	114.63	105.34	114.84	123.15	123.70	117.15	122.72	119.26	114.63	105.34
55.00°	82.05	87.67	86.19	93.83	91.41	96.29	86.83	87.98	82.05	87.67	86.19	93.83	91.41	96.29	86.83	87.98	82.05
57.50°	63.65	64.53	61.43	70.59	73.08	70.89	58.96	62.57	63.65	64.53	61.43	70.59	73.08	70.89	58.96	62.57	63.65
60.00°	47.75	48.06	42.59	52.83	55.80	54.55	42.70	47.35	47.75	48.06	42.59	52.83	55.80	54.55	42.70	47.35	47.75
62.50°	34.45	33.42	29.72	37.80	42.59	38.61	28.31	32.53	34.45	33.42	29.72	37.80	42.59	38.61	28.31	32.53	34.45
65.00°	24.33	23.53	20.71	26.30	30.28	27.75	20.60	23.58	24.33	23.53	20.71	26.30	30.28	27.75	20.60	23.58	24.33
67.50°	16.76	14.54	14.69	16.13	20.41	17.70	13.42	15.17	16.76	14.54	14.69	16.13	20.41	17.70	13.42	15.17	16.76
70.00°	11.77	10.68	10.91	11.21	12.72	12.67	10.52	11.05	11.77	10.68	10.91	11.21	12.72	12.67	10.52	11.05	11.77
72.50°	8.35	7.33	8.45	7.68	9.30	8.35	7.72	7.48	8.35	7.33	8.45	7.68	9.30	8.35	7.72	7.48	8.35
75.00°	6.63	6.42	6.76	6.40	6.79	6.87	6.41	6.46	6.63	6.42	6.76	6.40	6.79	6.87	6.41	6.46	6.63
77.50°	5.71	5.57	5.42	5.50	5.64	5.51	5.20	5.44	5.71	5.57	5.42	5.50	5.64	5.51	5.20	5.44	5.71
80.00°	4.52	4.61	4.58	4.89	4.51	4.50	4.67	4.39	4.52	4.61	4.58	4.89	4.51	4.50	4.67	4.39	4.52
82.50°	3.24	3.70	3.89	4.31	3.41	3.67	4.10	3.60	3.24	3.70	3.89	4.31	3.41	3.67	4.10	3.60	3.24
85.00°	2.56	3.27	3.01	3.31	2.68	3.17	3.31	3.38	2.56	3.27	3.01	3.31	2.68	3.17	3.31	3.38	2.56
87.50°	2.01	2.74	2.08	2.32	2.29	2.52	2.51	2.91	2.01	2.74	2.08	2.32	2.29	2.52	2.51	2.91	2.01
90.00°	1.59	1.71	1.54	1.77	1.77	1.62	1.68	2.05	1.59	1.71	1.54	1.77	1.77	1.62	1.68	2.05	1.59
92.50°	1.18	0.97	1.04	1.27	1.15	1.10	1.12	1.43	1.18	0.97	1.04	1.27	1.15	1.10	1.12	1.43	1.18
95.00°	1.04	1.21	1.19	1.21	1.04	1.04	1.20	1.12	1.04	1.21	1.19	1.21	1.04	1.04	1.20	1.12	1.04
97.50°	0.91	1.34	1.38	1.18	1.19	1.03	1.23	1.04	0.91	1.34	1.38	1.18	1.19	1.03	1.23	1.04	0.91
100.00°	1.16	1.20	1.17	1.24	1.32	1.07	1.18	1.18	1.16	1.20	1.17	1.24	1.32	1.07	1.18	1.18	1.16
102.50°	1.38	1.09	0.97	1.25	1.44	1.14	1.17	1.22	1.38	1.09	0.97	1.25	1.44	1.14	1.17	1.22	1.38
105.00°	1.23	1.04	1.05	1.11	1.41	1.24	1.22	1.16	1.23	1.04	1.05	1.11	1.41	1.24	1.22	1.16	1.23
107.50°	1.13	1.01	1.12	1.08	1.34	1.28	1.23	1.17	1.13	1.01	1.12	1.08	1.34	1.28	1.23	1.17	1.13
110.00°	1.36	1.01	1.09	1.27	1.26	1.29	1.19	1.23	1.36	1.01	1.09	1.27	1.26	1.29	1.19	1.23	1.36
112.50°	1.53	1.04	1.07	1.33	1.18	1.36	1.11	1.19	1.53	1.04	1.07	1.33	1.18	1.36	1.11	1.19	1.53

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	1,799	1,799	1,799	1,799	1,756	1,756	1,756	1,756	1,676	1,676	1,676	1,603	1,603	1,603	1,536	1,536	1,536
	1	1,698	1,650	1,606	1,566	1,659	1,616	1,576	1,540	1,552	1,520	1,491	1,494	1,469	1,445	1,440	1,420	1,402
	2	1,595	1,508	1,436	1,376	1,559	1,481	1,415	1,359	1,429	1,375	1,328	1,382	1,337	1,298	1,338	1,301	1,269
	3	1,495	1,380	1,291	1,221	1,462	1,358	1,276	1,210	1,315	1,246	1,189	1,276	1,218	1,169	1,240	1,191	1,149
	4	1,401	1,266	1,168	1,092	1,371	1,248	1,156	1,085	1,212	1,133	1,071	1,179	1,112	1,057	1,149	1,091	1,043
	5	1,313	1,165	1,061	984	1,286	1,149	1,052	979	1,119	1,034	969	1,092	1,018	959	1,066	1,002	950
	6	1,233	1,075	969	892	1,207	1,061	961	889	1,036	948	882	1,013	934	874	991	922	867
	7	1,158	994	888	814	1,135	983	882	811	961	871	806	941	861	800	922	850	795
	8	1,090	923	818	745	1,069	913	813	743	894	804	739	877	795	735	861	787	731
	9	1,027	859	755	686	1,008	850	752	684	834	744	681	819	737	678	805	730	675
	10	970	802	701	633	953	794	697	632	780	691	630	767	685	627	754	679	625

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	30.3 fc	8.0 ft
6.5 ft	21.7 fc	9.5 ft
7.5 ft	16.3 fc	10.9 ft
8.0 ft	14.3 fc	11.7 ft
10.0 ft	9.2 fc	14.6 ft
12.0 ft	6.4 fc	17.5 ft
14.0 ft	4.7 fc	20.4 ft
16.0 ft	3.6 fc	23.3 ft
20.0 ft	2.3 fc	29.2 ft
24.0 ft	1.6 fc	35.0 ft
28.0 ft	1.2 fc	40.9 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	109,755	109,755	109,755
45.00°	36,793	52,321	39,468
55.00°	17,108	17,972	19,060
65.00°	6,885	5,860	8,569
75.00°	3,064	3,124	3,137
85.00°	3,512	4,128	3,678

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	17.1	18.3	17.5	18.6	18.9	17.9	19.0	18.2	19.4	19.7
	3H	17.2	18.3	17.6	18.6	19.0	18.0	19.1	18.4	19.4	19.8
	4H	17.2	18.2	17.7	18.6	19.0	18.0	19.0	18.4	19.4	19.8
	6H	17.2	18.1	17.7	18.5	18.9	18.0	18.9	18.4	19.3	19.7
	8H	17.2	18.1	17.7	18.5	18.9	18.0	18.8	18.4	19.2	19.7
	12H	17.2	18.0	17.7	18.4	18.9	18.0	18.8	18.4	19.2	19.6
4H	2H	17.0	18.0	17.4	18.3	18.7	17.8	18.7	18.2	19.1	19.5
	3H	17.2	18.0	17.7	18.4	18.8	18.0	18.8	18.4	19.2	19.6
	4H	17.3	18.0	17.7	18.4	18.8	18.0	18.7	18.5	19.1	19.6
	6H	17.3	17.9	17.8	18.4	18.8	18.0	18.6	18.5	19.1	19.6
	8H	17.3	17.9	17.8	18.3	18.8	18.0	18.6	18.5	19.0	19.5
	12H	17.3	17.8	17.8	18.3	18.8	18.0	18.5	18.5	19.0	19.5
8H	4H	17.2	17.7	17.7	18.2	18.7	17.9	18.5	18.4	18.9	19.4
	6H	17.3	17.7	17.8	18.2	18.7	18.0	18.4	18.5	18.9	19.4
	8H	17.3	17.7	17.9	18.2	18.8	18.0	18.4	18.5	18.9	19.4
	12H	17.4	17.8	17.9	18.3	18.8	18.1	18.4	18.6	18.9	19.5
12H	4H	17.1	17.6	17.6	18.1	18.6	17.9	18.3	18.4	18.8	19.3
	6H	17.2	17.6	17.8	18.1	18.7	17.9	18.3	18.5	18.8	19.4
	8H	17.3	17.7	17.9	18.2	18.8	18.0	18.4	18.5	18.9	19.4

Corrected UGR values based on total output lumens

SHR = 1.0