

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SGECS4SQFX 20L 35HK XX CA4FX SO MW
Nom 4" square Chicago Plenum downlight, Solite lens, Matte white finish

Test Number

SP-01183

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	1518
Efficacy	91.48 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	1.04
Two luminaires, plane 90°	1.05
Four luminaires	1.09

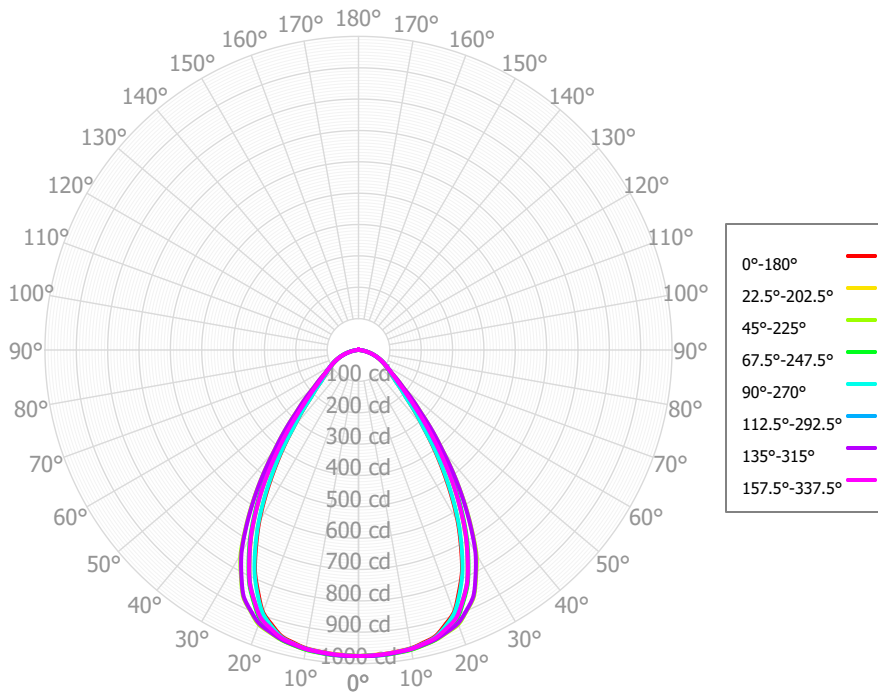
Full Beam Angle

0° - 180°	69°
90° - 270°	69°

IES File Header Contents

Keyword	Value
TEST	SP-01183
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 MW
LUMINAIRE	Nom 4" square Chicago Plenum downlight, Solite lens, Matte white finish
OTHER	Beam angle: 69.3 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°	94.22	6.20%	90.00° - 100.00°	1.41	0.09%
10.00° - 20.00°	267.21	17.60%	100.00° - 110.00°	1.19	0.08%
20.00° - 30.00°	372.39	24.52%	100.00° - 120.00°	2.33	0.15%
30.00° - 40.00°	328.31	21.62%	120.00° - 130.00°	1.08	0.07%
40.00° - 50.00°	197.93	13.03%	130.00° - 140.00°	0.96	0.06%
50.00° - 60.00°	116.86	7.70%	140.00° - 150.00°	0.84	0.06%
60.00° - 70.00°	79.77	5.25%	150.00° - 160.00°	0.61	0.04%
70.00° - 80.00°	42.99	2.83%	160.00° - 170.00°	0.39	0.03%
80.00° - 90.00°	11.05	0.73%	170.00° - 180.00°	0.13	0.01%
0.00° - 90.00°	1,510.73	99.49%	0.00° - 180.00°	1,518.49	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°	976.08	976.08	976.08	976.08	976.08	976.08	976.08	976.08	976.08	976.08	976.08	976.08	976.08	976.08	976.08	976.08	976.08
2.50°	974.93	973.78	974.97	975.62	975.36	976.79	976.70	975.03	974.93	973.78	974.97	975.62	975.36	976.79	976.70	975.03	974.93
5.00°	973.06	972.93	975.13	976.33	974.23	974.37	975.07	973.24	973.06	972.93	975.13	976.33	974.23	974.37	975.07	973.24	973.06
7.50°	969.75	970.77	973.20	973.51	971.47	971.31	972.22	970.72	969.75	970.77	973.20	973.51	971.47	971.31	972.22	970.72	969.75
10.00°	965.95	968.36	970.65	970.46	967.49	967.85	968.48	968.15	965.95	968.36	970.65	970.46	967.49	967.85	968.48	968.15	965.95
12.50°	956.41	960.24	964.05	963.51	959.08	960.68	962.19	959.58	956.41	960.24	964.05	963.51	959.08	960.68	962.19	959.58	956.41
15.00°	945.44	951.57	956.66	955.55	948.14	951.78	954.52	950.42	945.44	951.57	956.66	955.55	948.14	951.78	954.52	950.42	945.44
17.50°	918.97	932.90	944.20	937.57	923.59	932.57	942.12	931.81	918.97	932.90	944.20	937.57	923.59	932.57	942.12	931.81	918.97
20.00°	890.13	912.97	931.16	915.60	893.31	909.92	927.76	910.38	890.13	912.97	931.16	915.60	893.31	909.92	927.76	910.38	890.13
22.50°	836.38	867.00	901.14	872.14	842.10	866.91	899.35	867.56	836.38	867.00	901.14	872.14	842.10	866.91	899.35	867.56	836.38
25.00°	780.86	818.80	869.71	824.03	784.39	819.08	866.83	820.65	780.86	818.80	869.71	824.03	784.39	819.08	866.83	820.65	780.86
27.50°	707.64	751.55	812.11	758.97	712.99	753.48	809.00	754.52	707.64	751.55	812.11	758.97	712.99	753.48	809.00	754.52	707.64
30.00°	633.78	682.68	752.25	690.80	638.77	685.34	746.34	685.69	633.78	682.68	752.25	690.80	638.77	685.34	746.34	685.69	633.78
32.50°	551.70	605.89	668.51	614.70	558.01	608.58	664.99	608.39	551.70	605.89	668.51	614.70	558.01	608.58	664.99	608.39	551.70
35.00°	470.38	528.22	584.56	537.15	476.48	531.28	581.53	530.43	470.38	528.22	584.56	537.15	476.48	531.28	581.53	530.43	470.38
37.50°	394.44	447.56	499.40	456.87	398.83	451.94	498.13	450.99	394.44	447.56	499.40	456.87	398.83	451.94	498.13	450.99	394.44
40.00°	322.24	371.46	417.39	380.88	321.82	373.59	415.18	376.00	322.24	371.46	417.39	380.88	321.82	373.59	415.18	376.00	322.24
42.50°	266.71	306.19	346.58	311.15	267.00	309.33	346.41	308.66	266.71	306.19	346.58	311.15	267.00	309.33	346.41	308.66	266.71
45.00°	216.87	249.08	281.51	252.38	214.21	248.17	279.51	251.45	216.87	249.08	281.51	252.38	214.21	248.17	279.51	251.45	216.87
47.50°	184.14	206.30	231.36	205.85	182.93	207.41	231.48	207.50	184.14	206.30	231.36	205.85	182.93	207.41	231.48	207.50	184.14
50.00°	155.81	171.32	187.88	171.29	153.84	170.15	186.44	172.94	155.81	171.32	187.88	171.29	153.84	170.15	186.44	172.94	155.81
52.50°	136.98	147.02	157.11	146.96	137.64	147.79	157.53	147.83	136.98	147.02	157.11	146.96	137.64	147.79	157.53	147.83	136.98
55.00°	121.22	127.59	137.12	128.28	122.54	127.91	131.47	128.48	121.22	127.59	137.12	128.28	122.54	127.91	131.47	128.48	121.22
57.50°	110.57	113.27	114.07	113.40	111.48	115.16	115.34	113.69	110.57	113.27	114.07	113.40	111.48	115.16	115.34	113.69	110.57
60.00°	100.21	101.65	99.29	102.18	100.64	103.15	100.52	102.11	100.21	101.65	99.29	102.18	100.64	103.15	100.52	102.11	100.21
62.50°	90.21	92.20	87.76	92.82	90.33	92.68	89.02	92.46	90.21	92.20	87.76	92.82	90.33	92.68	89.02	92.46	90.21
65.00°	80.17	82.36	77.47	82.23	80.16	82.11	78.16	82.20	80.17	82.36	77.47	82.23	80.16	82.11	78.16	82.20	80.17
67.50°	70.08	72.26	68.28	71.17	70.26	71.38	68.53	71.66	70.08	72.26	68.28	71.17	70.26	71.38	68.53	71.66	70.08
70.00°	60.05	61.87	58.97	60.96	60.09	60.85	58.76	61.05	60.05	61.87	58.97	60.96	60.09	60.85	58.76	61.05	60.05
72.50°	50.09	51.33	49.59	50.98	49.53	50.57	48.80	50.41	50.09	51.33	49.59	50.98	49.53	50.57	48.80	50.41	50.09
75.00°	40.48	41.45	40.37	41.04	39.89	40.76	39.37	40.27	40.48	41.45	40.37	41.04	39.89	40.76	39.37	40.27	40.48
77.50°	31.09	31.80	31.25	31.11	31.30	31.39	30.54	30.24	31.09	31.80	31.25	31.11	31.30	31.39	30.54	30.24	31.09
80.00°	22.42	22.98	23.38	22.83	23.16	22.81	22.46	22.08	22.42	22.98	23.38	22.83	23.16	22.81	22.46	22.08	22.42
82.50°	14.08	14.37	15.99	14.68	15.42	14.82	15.03	14.18	14.08	14.37	15.99	14.68	15.42	14.82	15.03	14.18	14.08
85.00°	8.60	9.04	9.85	9.10	9.54	8.91	9.02	8.98	8.60	9.04	9.85	9.10	9.54	8.91	9.02	8.98	8.60
87.50°	4.05	4.20	4.03	3.75	4.94	4.17	3.95	3.98	4.05	4.20	4.03	3.75	4.94	4.17	3.95	3.98	4.05
90.00°	2.37	2.55	2.30	2.33	2.59	2.11	1.78	2.58	2.37	2.55	2.30	2.33	2.59	2.11	1.78	2.58	2.37
92.50°	1.31	1.12	1.29	1.06	1.41	1.19	1.08	1.26	1.31	1.12	1.29	1.06	1.41	1.19	1.08	1.26	1.31
95.00°	1.15	1.19	1.28	0.99	1.13	1.01	1.00	1.10	1.15	1.19	1.28	0.99	1.13	1.01	1.00	1.10	1.15
97.50°	1.11	1.27	1.37	0.96	1.20	1.06	1.15	0.96	1.11	1.27	1.37	0.96	1.20	1.06	1.15	0.96	1.11
100.00°	1.02	1.26	1.17	1.07	1.13	1.09	1.24	0.95	1.02	1.26	1.17	1.07	1.13	1.09	1.24	0.95	1.02
102.50°	0.92	1.25	0.97	1.15	1.03	1.12	1.31	0.97	0.92	1.25	0.97	1.15	1.03	1.12	1.31	0.97	0.92
105.00°	1.04	1.28	1.00	1.15	0.91	1.13	1.35	1.18	1.04	1.28	1.00	1.15	0.91	1.13	1.35	1.18	1.04
107.50°	1.15	1.28	1.03	1.16	0.78	1.15	1.39	1.33	1.15	1.28	1.03	1.16	0.78	1.15	1.39	1.33	1.15
110.00°	1.20	1.15	1.15	1.16	0.81	1.20	1.19	1.32	1.20	1.15	1.15	1.16	0.81	1.20	1.19	1.32	1.20
112.50°	1.24	1.07	1.25	1.18	0.84	1.24	0.98	1.29	1.24	1.07	1.25	1.18	0.84	1.24	0.98	1.29	1.24

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	1,806	1,806	1,806	1,806	1,763	1,763	1,763	1,763	1,683	1,683	1,683	1,610	1,610	1,610	1,542	1,542	1,511
	1	1,689	1,634	1,584	1,539	1,649	1,599	1,554	1,513	1,535	1,498	1,465	1,476	1,446	1,419	1,422	1,398	1,369
	2	1,574	1,476	1,396	1,328	1,536	1,448	1,375	1,312	1,396	1,334	1,281	1,347	1,296	1,252	1,302	1,261	1,234
	3	1,467	1,340	1,242	1,164	1,432	1,317	1,226	1,153	1,273	1,196	1,133	1,233	1,168	1,113	1,196	1,141	1,095
	4	1,369	1,222	1,115	1,033	1,337	1,203	1,103	1,026	1,167	1,080	1,012	1,133	1,059	999	1,102	1,038	985
	5	1,280	1,120	1,009	926	1,252	1,104	1,000	921	1,074	982	912	1,045	965	902	1,019	949	893
	6	1,200	1,032	919	838	1,174	1,018	912	834	992	898	827	968	884	820	945	871	814
	7	1,127	954	842	763	1,103	942	836	760	920	825	755	899	814	750	880	804	745
	8	1,060	885	775	699	1,039	875	770	697	856	761	693	838	752	689	822	744	686
	9	1,000	824	717	644	980	816	713	643	799	705	640	784	698	637	769	691	634
	10	945	770	666	596	927	763	662	595	748	656	593	735	650	590	722	644	588

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	32.3 fc	7.5 ft
6.5 ft	23.1 fc	8.9 ft
7.5 ft	17.4 fc	10.3 ft
8.0 ft	15.3 fc	11.0 ft
10.0 ft	9.8 fc	13.7 ft
12.0 ft	6.8 fc	16.5 ft
14.0 ft	5.0 fc	19.2 ft
16.0 ft	3.8 fc	21.9 ft
20.0 ft	2.4 fc	27.4 ft
24.0 ft	1.7 fc	32.9 ft
28.0 ft	1.2 fc	38.4 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	116,738	116,738	116,738
45.00°	36,680	47,613	36,231
55.00°	25,276	27,466	25,550
65.00°	22,687	21,924	22,685
75.00°	18,707	18,656	18,433
85.00°	11,807	13,510	13,097

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	21.0	22.3	21.4	22.6	22.9	21.0	22.3	21.4	22.7	23.0
	3H	22.6	23.8	23.0	24.1	24.5	22.7	23.8	23.0	24.1	24.5
	4H	23.2	24.3	23.6	24.6	25.0	23.2	24.3	23.6	24.6	25.0
	6H	23.6	24.5	24.0	24.9	25.3	23.6	24.6	24.0	24.9	25.3
	8H	23.6	24.6	24.1	25.0	25.4	23.7	24.6	24.1	25.0	25.4
	12H	23.7	24.6	24.1	25.0	25.4	23.7	24.6	24.2	25.0	25.5
4H	2H	21.5	22.6	21.9	22.9	23.3	21.5	22.6	21.9	23.0	23.4
	3H	23.3	24.2	23.8	24.6	25.1	23.4	24.2	23.8	24.7	25.1
	4H	24.0	24.8	24.5	25.2	25.7	24.0	24.8	24.5	25.2	25.7
	6H	24.5	25.2	25.0	25.6	26.1	24.5	25.2	25.0	25.6	26.1
	8H	24.6	25.2	25.1	25.7	26.2	24.6	25.3	25.1	25.7	26.2
	12H	24.7	25.2	25.2	25.7	26.2	24.7	25.3	25.2	25.8	26.3
8H	4H	24.2	24.9	24.7	25.3	25.8	24.2	24.9	24.7	25.3	25.8
	6H	24.8	25.3	25.3	25.8	26.3	24.8	25.3	25.3	25.8	26.3
	8H	25.0	25.4	25.5	26.0	26.5	25.0	25.5	25.5	26.0	26.5
	12H	25.1	25.5	25.6	26.0	26.6	25.1	25.6	25.7	26.1	26.6
12H	4H	24.2	24.8	24.7	25.3	25.8	24.2	24.8	24.7	25.3	25.8
	6H	24.8	25.3	25.4	25.8	26.3	24.8	25.3	25.4	25.8	26.3
	8H	25.0	25.4	25.6	25.9	26.5	25.1	25.5	25.6	26.0	26.6

Corrected UGR values based on total output lumens

SHR = 1.0