

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SDFO4PC50L35KNDE1-SD4FPCSGMF
4" Square aperture recessed LED downlight

Test Number

SP-R249

Test Date

8/7/2025

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

Summary of Results

Power

Input Watts	35.31 W
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Lumen Output

Output Lumens	3493
Efficacy	98.92 lm/W

Luminous Dimensions

0° - 180° Size	0.33
90° - 270° Size	0.33
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.35
Two luminaires, plane 90°	0.4
Four luminaires	0.33

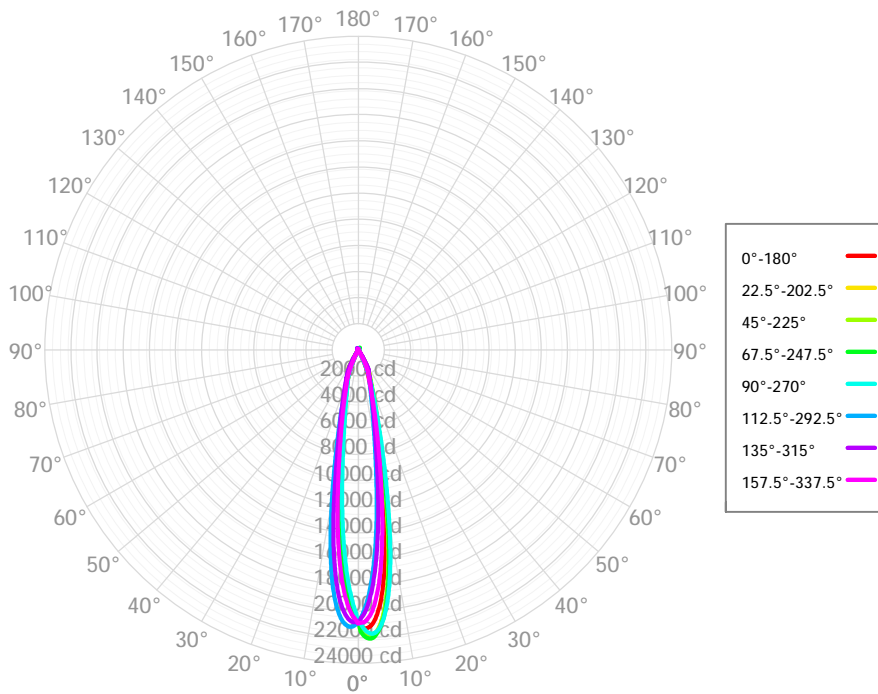
Full Beam Angle

0° - 180°	18°
90° - 270°	18°

IES File Header Contents

Keyword	Value
TEST	SP-R249
TESTLAB	Spectrum Lighting Photometric Lab. VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	8/7/2025
ISSUEDATE	8/7/2025
LUMCAT	SDFO4PC50L35KNDE1-SD4FPCSGMF
LUMINAIRE	4" Square aperture recessed LED downlight
DISTRIBUTION	Beam Angle 18.1
OTHER	CCT 3501 CRI 83.0 R9 5.6
OTHER	Total Luminaire wattage is approximate
OTHER	This report is prepared by Spectrum Lighting
_CRI	80+
_LAMPMULT	10L x 0.218, 15L x 0.316, 20L x 0.416, 30L x 0.612, 40L x 0.795

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	1395.17	39.94%	90.00° - 100.00°	1.34	0.04%
10.00° - 20.00°	1339.11	38.34%	100.00° - 110.00°	1.20	0.03%
20.00° - 30.00°	615.33	17.62%	100.00° - 120.00°	2.29	0.07%
30.00° - 40.00°	57.37	1.64%	120.00° - 130.00°	1.32	0.04%
40.00° - 50.00°	9.28	0.27%	130.00° - 140.00°	7.07	0.20%
50.00° - 60.00°	5.37	0.15%	140.00° - 150.00°	38.83	1.11%
60.00° - 70.00°	3.61	0.10%	150.00° - 160.00°	10.00	0.29%
70.00° - 80.00°	2.13	0.06%	160.00° - 170.00°	2.91	0.08%
80.00° - 90.00°	1.67	0.05%	170.00° - 180.00°	0.20	0.01%
0.00° - 90.00°	3429.03	98.17%	0.00° - 180.00°	3493.00	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°	20935.56	20935.56	20935.56	20935.56	20935.56	20935.56	20935.56	20935.56	20935.56	20935.56	20935.56	20935.56	20935.56	20935.56	20935.56	20935.56	20935.56
0.50°	21168.51	21280.72	21526.80	21562.63	20987.70	21020.48	20836.45	20676.40	20708.91	20586.29	20911.29	20884.87	20158.12	20524.89	20591.32	20892.80	21168.51
1.00°	21271.63	21524.63	21750.82	21835.15	21275.99	21147.87	20849.30	20477.48	20399.60	20137.25	20471.83	20453.95	19657.54	20166.53	20352.63	20868.68	21271.63
1.50°	21343.65	21702.56	21911.04	22006.04	21506.77	21199.26	20785.26	20195.13	20006.07	19602.15	19972.21	19935.81	19082.13	19739.64	20051.96	20776.13	21343.65
2.00°	21282.24	21829.37	21993.56	22099.22	21659.33	21188.82	20648.34	19844.51	19514.49	19011.54	19405.95	19320.31	18454.09	19256.07	19669.25	20601.91	21282.24
2.50°	21176.74	21877.43	21996.63	22122.95	21741.81	21098.73	20438.10	19432.74	18984.39	18379.00	18766.63	18686.12	17764.26	18703.23	19202.51	20361.99	21176.74
3.00°	20981.99	21811.82	21909.87	22051.27	21746.91	20937.58	20169.85	18942.03	18378.52	17682.11	18064.84	17958.12	17019.97	18076.95	18665.35	20041.62	20981.99
3.50°	20705.66	21685.75	21745.68	21879.42	21665.14	20707.59	19820.83	18369.57	17723.21	16930.34	17309.70	17166.10	16224.98	17388.60	18048.87	19636.24	20705.66
4.00°	20342.99	21450.23	21507.68	21634.24	21505.57	20396.59	19397.97	17734.71	16972.87	16107.98	16513.75	16369.06	15378.71	16629.71	17384.30	19158.03	20342.99
4.50°	19905.48	21133.65	21167.31	21323.12	21270.61	20007.04	18916.20	17045.88	16210.45	15273.71	15671.98	15509.92	14511.70	15841.63	16659.17	18607.44	19905.48
5.00°	19389.72	20731.82	20733.03	20937.00	20953.72	19546.26	18342.36	16302.76	15375.68	14413.88	14792.78	14629.52	13626.55	15007.97	15892.96	17995.45	19389.72
5.50°	18808.70	20231.66	20234.15	20474.14	20548.12	19006.17	17706.14	15513.72	14536.99	13510.95	13888.96	13719.43	12723.30	14139.79	15080.76	17308.94	18808.70
6.00°	18136.94	19671.25	19658.48	19920.23	20076.21	18403.01	17002.91	14704.21	13670.96	12645.82	12971.10	12803.51	11834.49	13282.58	14225.62	16564.37	18136.94
6.50°	17391.53	19019.15	19001.96	19272.72	19521.22	17726.34	16240.42	13856.53	12801.73	11775.81	12072.02	11909.11	10951.50	12388.11	13357.46	15767.18	17391.53
7.00°	16602.15	18303.10	18259.05	18523.88	18878.73	16961.08	15448.07	12998.91	11962.23	10941.49	11189.55	11013.50	10103.39	11515.82	12472.01	14925.26	16602.15
7.50°	15759.05	17525.17	17439.05	17722.12	18183.60	16144.28	14601.83	12146.26	11154.27	10148.10	10345.17	10160.94	9317.10	10674.88	11606.13	14055.55	15759.05
8.00°	14857.54	16654.47	16560.80	16851.51	17397.80	15275.23	13733.90	11312.02	10369.66	9386.99	9548.62	9362.51	8580.03	9853.21	10786.99	13190.45	14857.54
8.50°	13937.63	15727.73	15616.90	15927.11	16559.14	14368.21	12847.32	10521.87	9624.52	8685.46	8793.34	8615.27	7909.10	9117.24	9991.97	12322.44	13937.63
9.00°	13000.91	14764.50	14627.63	14972.31	15662.28	13451.41	11940.04	9763.65	8927.73	8031.81	8101.47	7932.37	7308.82	8413.08	9236.54	11471.37	13000.91
9.50°	12080.42	13757.12	13630.41	13978.33	14710.13	12520.28	11061.18	9043.97	8250.73	7449.36	7479.96	7309.04	6771.99	7772.96	8540.77	10645.05	12080.42
10.00°	11153.27	12785.85	12617.18	12989.07	13759.53	11621.21	10226.21	8376.64	7660.40	6925.93	6916.92	6765.75	6306.74	7208.30	7893.88	9858.28	11153.27
10.50°	10285.69	11824.40	11647.85	11973.57	12796.20	10750.48	9440.68	7781.86	7127.11	6449.73	6424.45	6294.09	5882.66	6701.89	7334.06	9117.51	10285.69
11.00°	9469.42	10866.05	10715.31	11044.97	11851.39	9910.18	8728.97	7247.18	6639.62	6013.26	5989.17	5855.43	5491.06	6253.66	6819.50	8409.48	9469.42
11.50°	8709.66	9951.89	9840.36	10155.11	10943.52	9135.33	8087.15	6760.97	6198.36	5615.24	5600.97	5467.65	5140.80	5844.38	6365.04	7775.65	8709.66
12.00°	8011.63	9118.54	9044.29	9294.84	10062.08	8405.02	7514.87	6316.27	5794.86	5253.48	5249.66	5099.71	4823.76	5465.34	5965.23	7198.18	8011.63
12.50°	7376.85	8368.12	8328.47	8542.65	9259.97	7743.45	6996.28	5909.10	5418.29	4921.63	4920.60	4772.32	4541.52	5125.28	5592.30	6678.72	7376.85
13.00°	6785.78	7690.80	7687.82	7850.66	8514.37	7158.75	6523.26	5525.06	5073.20	4604.53	4630.31	4485.86	4282.60	4812.99	5256.53	6198.70	6785.78
13.50°	6246.89	7079.15	7129.42	7229.02	7823.22	6613.42	6098.85	5173.30	4746.37	4303.46	4370.87	4223.82	4041.32	4529.16	4946.92	5753.82	6246.89
14.00°	5737.91	6511.89	6628.38	6690.38	7204.33	6119.92	5717.55	4852.92	4449.73	4042.78	4131.85	3992.44	3821.61	4282.72	4660.94	5339.01	5737.91
14.50°	5282.65	6001.79	6178.68	6181.30	6631.74	5658.33	5369.47	4558.14	4171.54	3803.15	3926.94	3786.29	3615.04	4048.55	4411.40	4949.04	5282.65
15.00°	4859.48	5527.94	5766.05	5708.57	6101.34	5226.11	5050.72	4281.65	3910.31	3579.36	3753.03	3603.19	3426.95	3835.59	4179.01	4590.31	4859.48
15.50°	4459.19	5098.85	5387.78	5272.31	5623.28	4835.59	4757.74	4022.40	3667.94	3379.43	3598.12	3436.79	3261.25	3644.72	3976.79	4254.21	4459.19
16.00°	4106.63	4711.20	5054.60	4867.16	5179.53	4472.55	4495.42	3780.43	3452.21	3198.94	3460.32	3287.75	3108.53	3463.83	3797.35	3956.24	4106.63
16.50°	3784.62	4358.61	4736.46	4525.53	4793.76	4143.10	4258.25	3560.10	3262.47	3039.67	3344.58	3162.77	2971.02	3304.01	3631.74	3679.92	3784.62
17.00°	3512.46	4061.37	4455.28	4211.31	4447.57	3852.44	4036.15	3363.46	3080.39	2896.20	3233.18	3037.12	2842.82	3150.04	3473.16	3437.29	3512.46
17.50°	3258.54	3772.05	4195.11	3932.25	4134.50	3598.27	3835.25	3185.67	2923.53	2769.27	3126.10	2924.84	2724.55	3011.32	3329.98	3214.83	3258.54
18.00°	3041.10	3531.91	3941.83	3688.22	3850.22	3381.89	3651.19	3023.13	2777.36	2658.18	3025.69	2819.73	2617.18	2888.88	3198.90	3023.55	3041.10
18.50°	2853.88	3311.65	3709.29	3463.32	3587.71	3185.86	3480.67	2877.10	2636.97	2553.49	2929.85	2727.47	2522.64	2776.80	3067.27	2861.85	2853.88
19.00°	2683.96	3131.43	3494.19	3266.01	3349.42	3011.11	3319.73	2745.77	2514.68	2452.02	2838.31	2644.29	2439.26	2676.18	2933.38	2716.05	2683.96
19.50°	2527.77	2967.22	3284.83	3090.32	3120.93	2858.97	3161.81	2627.53	2397.00	2362.95	2747.01	2557.26	2352.14	2589.38	2812.31	2582.54	2527.77
20.00°	2388.19	2813.79	3104.61	2909.78	2920.25	2722.57	3012.60	2513.46	2261.51	2280.67	2659.01	2476.85	2256.85	2506.86	2695.77	2465.63	2388.19
20.50°	2276.36	2689.06	2936.27	2759.12	2741.27	2598.48	2877.81	2401.40	2111.85	2197.60	2567.28	2403.24	2144.33	2438.97	2584.98	2370.09	2276.36
21.00°	2165.09	2563.56	2784.09	2627.83	2562.99	2477.16	2745.66	2288.30	1949.84	2110.68	2482.16	2333.04	2000.96	2358.04	2487.09	2276.65	2165.09
21.50°	2030.15	2447.86	2646.71	2505.95	2365.86	2371.31	2626.61	2163.51	1778.37	2008.76	2394.96	2268.57	1843.71	2291.67	2395.34	2184.49	2030.15

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	4143	4143	4143	4143	4039	4039	4039	4039	3846	3846	3846	3668	3668	3668	3506	3506	3429
	1	4004	3931	3865	3806	3915	3851	3793	3740	3700	3655	3614	3562	3528	3496	3434	3409	3337
	2	3876	3752	3649	3563	3798	3689	3597	3519	3570	3497	3434	3460	3403	3353	3359	3315	3247
	3	3756	3597	3474	3376	3689	3547	3435	3346	3452	3361	3286	3364	3291	3229	3283	3224	3161
	4	3645	3462	3328	3225	3586	3421	3298	3203	3344	3242	3161	3273	3188	3119	3207	3137	3078
	5	3541	3341	3202	3099	3489	3308	3179	3083	3245	3136	3051	3187	3094	3021	3132	3054	2999
	6	3443	3233	3091	2990	3398	3205	3074	2978	3153	3039	2954	3105	3006	2931	3059	2975	2924
	7	3352	3134	2993	2894	3311	3111	2979	2885	3068	2951	2867	3027	2925	2849	2989	2900	2852
	8	3266	3044	2904	2808	3229	3024	2893	2801	2987	2871	2787	2953	2849	2774	2920	2829	2784
	9	3184	2960	2823	2730	3152	2944	2814	2725	2912	2796	2714	2883	2778	2703	2855	2761	2720
	10	3108	2883	2749	2659	3079	2869	2741	2655	2842	2726	2646	2816	2711	2637	2792	2697	2659

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	692.1 fc	1.7 ft
6.5 ft	495.5 fc	2.0 ft
7.5 ft	372.2 fc	2.3 ft
8.0 ft	327.1 fc	2.5 ft
10.0 ft	209.4 fc	3.1 ft
12.0 ft	145.4 fc	3.7 ft
14.0 ft	106.8 fc	4.3 ft
16.0 ft	81.8 fc	5.0 ft
20.0 ft	52.3 fc	6.2 ft
24.0 ft	36.3 fc	7.4 ft
28.0 ft	26.7 fc	8.7 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	2032198	2032198	2032198
45.00°	2057	793	1907
55.00°	1495	592	1114
65.00°	1525	675	1015
75.00°	928	614	864
85.00°	2393	1678	1591

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		Viewing C0-180					Viewing C90-270				
2H	2H	-1.7	-0.8	-1.3	-0.5	-0.1	-4.2	-3.3	-3.8	-3.0	-2.6
	3H	0.1	0.9	0.5	1.3	1.7	-2.0	-1.2	-1.6	-0.9	-0.4
	4H	0.5	1.2	0.9	1.6	2.0	-1.4	-0.7	-0.9	-0.3	0.2
	6H	1.0	1.6	1.4	2.0	2.5	-0.7	-0.1	-0.3	0.3	0.8
	8H	1.4	2.0	1.9	2.4	2.9	-0.2	0.4	0.3	0.8	1.3
	12H	2.1	2.7	2.6	3.1	3.6	0.4	1.0	0.9	1.4	1.9
4H	2H	-1.7	-1.0	-1.3	-0.6	-0.2	-4.1	-3.4	-3.6	-3.0	-2.5
	3H	0.1	0.7	0.6	1.2	1.6	-1.7	-1.1	-1.3	-0.7	-0.2
	4H	0.6	1.2	1.1	1.6	2.1	-0.9	-0.4	-0.4	0.1	0.6
	6H	1.4	1.8	1.9	2.3	2.8	0.0	0.5	0.5	1.0	1.5
	8H	2.0	2.4	2.5	2.9	3.4	0.7	1.1	1.2	1.6	2.1
	12H	2.9	3.3	3.4	3.8	4.3	1.5	1.9	2.0	2.4	2.9
8H	4H	0.7	1.1	1.2	1.6	2.1	-0.6	-0.2	-0.1	0.3	0.8
	6H	1.6	1.9	2.2	2.5	3.0	0.6	0.9	1.2	1.5	2.0
	8H	2.5	2.8	3.0	3.3	3.9	1.5	1.7	2.0	2.3	2.8
	12H	3.7	3.9	4.2	4.5	5.1	2.5	2.7	3.0	3.3	3.9
12H	4H	0.7	1.0	1.2	1.5	2.0	-0.6	-0.2	0.0	0.3	0.8
	6H	1.7	2.0	2.3	2.5	3.1	0.7	1.0	1.3	1.5	2.1
	8H	2.7	2.9	3.2	3.5	4.1	1.6	1.9	2.2	2.4	3.0

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0