

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SDFO4PC20L35KMDE1-SD4FPCSGMF
4" Square aperture recessed LED downlight.

Test Number

SP-R1164

Test Date

8/21/2025

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

Summary of Results

Power

Input Watts	13.87 W
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Lumen Output

Output Lumens	1427
Efficacy	102.88 lm/W

Luminous Dimensions

0° - 180° Size	0.31
90° - 270° Size	0.31
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.37
Two luminaires, plane 90°	0.43
Four luminaires	0.48

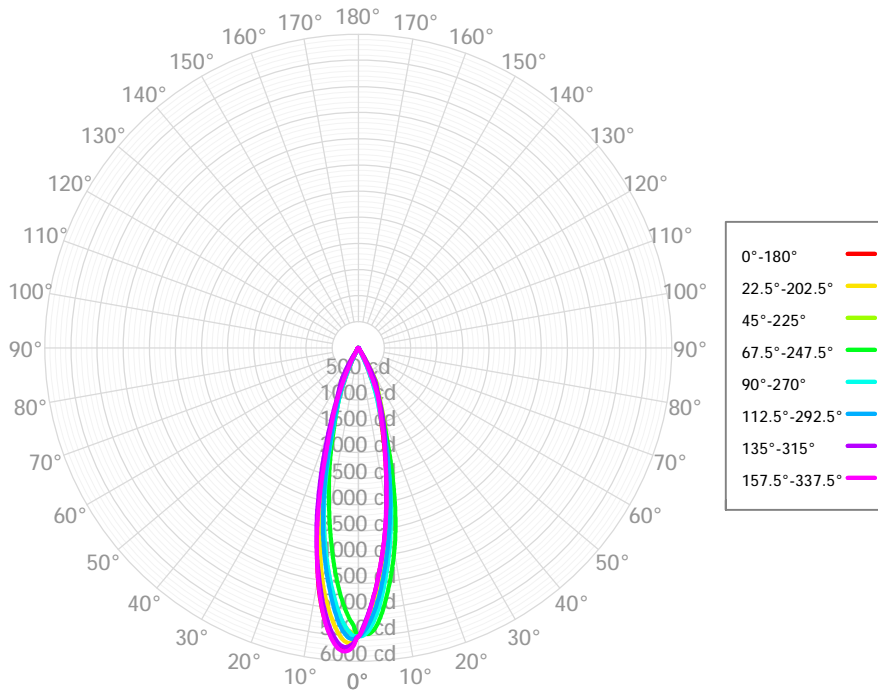
Full Beam Angle

0° - 180°	25°
90° - 270°	25°

IES File Header Contents

Keyword	Value
TEST	SP-R1164
TESTLAB	Spectrum Lighting Photometric Lab. VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	8/21/2025
ISSUEDATE	8/21/2025
LUMCAT	SDFO4PC20L35KMDE1-SD4FPCSGMF
LUMINAIRE	4" Square aperture recessed LED downlight.
DISTRIBUTION	Beam Angle 25.9
OTHER	CCT 3505 CRI 83.8 R9 8.8
OTHER	Total Luminaire wattage is approximate
OTHER	This report is prepared by Spectrum Lighting
_CRI	80+
_LAMPMULT	10L x 0.523, 15L x 0.76, 30L x 1.471, 40L x 1.912, 50L x 2.405

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	429.93	30.13%	90.00° - 100.00°	0.00	0.00%
10.00° - 20.00°	632.19	44.30%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	280.91	19.69%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	32.34	2.27%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	13.25	0.93%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	11.31	0.79%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	10.14	0.71%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	8.97	0.63%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	7.96	0.56%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1427.00	100.00%	0.00° - 180.00°	1427.00	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°	5521.81	5521.81	5521.81	5521.81	5521.81	5521.81	5521.81	5521.81	5521.81	5521.81	5521.81	5521.81	5521.81	5521.81	5521.81	5521.81	5521.81
1.00°	5361.30	5434.79	5421.06	5467.12	5504.80	5575.88	5655.25	5716.10	5695.80	5638.29	5469.11	5313.51	5509.23	5446.95	5334.34	5372.18	5361.30
2.00°	5140.80	5264.08	5320.04	5477.82	5424.92	5544.34	5722.46	5801.33	5781.89	5651.64	5411.81	5169.00	5422.93	5317.84	5119.19	5150.04	5140.80
3.00°	4905.54	5054.87	5172.55	5419.11	5280.89	5442.47	5723.94	5811.89	5787.34	5593.43	5303.20	4983.72	5291.97	5143.23	4890.53	4908.30	4905.54
4.00°	4650.67	4832.79	4980.66	5292.68	5102.92	5286.39	5649.30	5752.52	5720.27	5476.10	5149.19	4769.16	5117.35	4941.47	4647.39	4645.81	4650.67
5.00°	4393.50	4595.40	4762.25	5110.62	4883.85	5082.24	5519.72	5629.66	5603.74	5317.38	4953.07	4530.46	4913.23	4712.41	4395.60	4388.47	4393.50
6.00°	4136.68	4343.49	4524.52	4901.29	4632.61	4845.80	5341.58	5463.80	5451.49	5129.45	4731.04	4276.93	4688.74	4465.96	4142.86	4129.72	4136.68
7.00°	3883.34	4079.27	4270.47	4670.22	4374.83	4600.57	5132.88	5264.39	5251.02	4930.63	4496.16	4013.58	4449.73	4214.44	3880.00	3876.44	3883.34
8.00°	3629.22	3815.67	4010.95	4440.78	4123.64	4349.94	4897.43	5017.49	5025.05	4702.19	4252.51	3737.45	4211.06	3955.76	3616.63	3619.15	3629.22
9.00°	3371.06	3558.56	3750.37	4199.40	3846.17	4092.65	4637.49	4749.51	4762.44	4442.67	3995.38	3472.94	3966.46	3697.50	3344.16	3351.82	3371.06
10.00°	3109.26	3282.28	3500.54	3955.75	3569.14	3827.93	4374.59	4458.19	4459.54	4148.99	3729.27	3207.57	3714.43	3449.56	3072.64	3096.07	3109.26
11.00°	2844.79	3015.46	3250.16	3701.27	3286.94	3555.20	4119.32	4144.19	4136.17	3832.47	3464.21	2952.90	3448.71	3196.00	2813.21	2838.09	2844.79
12.00°	2583.25	2762.97	3000.62	3417.25	2990.99	3254.19	3848.97	3820.15	3793.52	3508.72	3196.76	2711.85	3164.10	2949.58	2575.61	2578.60	2583.25
13.00°	2339.32	2514.59	2756.26	3127.52	2689.02	2943.48	3564.36	3487.39	3431.90	3177.85	2928.99	2473.13	2863.56	2691.46	2355.01	2329.69	2339.32
14.00°	2114.09	2301.13	2519.02	2817.75	2380.79	2630.18	3263.24	3134.69	3048.55	2837.52	2671.01	2238.85	2558.41	2434.33	2161.30	2115.60	2114.09
15.00°	1901.10	2090.84	2298.50	2521.78	2083.46	2324.26	2949.96	2781.85	2669.27	2504.65	2427.43	2011.94	2252.18	2189.78	1987.79	1923.32	1901.10
16.00°	1693.83	1908.02	2085.17	2225.88	1804.85	2031.43	2651.15	2440.67	2309.10	2191.88	2205.11	1789.57	1962.58	1959.84	1843.13	1737.05	1693.83
17.00°	1508.03	1730.47	1889.85	1947.61	1565.62	1769.77	2365.51	2122.51	1985.27	1908.86	1990.41	1584.27	1699.62	1749.44	1711.83	1563.98	1508.03
18.00°	1359.57	1565.65	1713.14	1692.87	1367.21	1544.16	2090.53	1847.01	1716.45	1663.07	1790.85	1406.17	1474.39	1556.16	1586.69	1408.88	1359.57
19.00°	1239.06	1407.42	1549.14	1476.44	1197.21	1361.77	1832.07	1618.03	1474.11	1465.29	1602.25	1259.33	1292.64	1385.83	1456.93	1281.55	1239.06
20.00°	1134.43	1285.20	1400.53	1299.68	1056.74	1207.36	1598.46	1426.90	1278.28	1303.64	1425.38	1137.38	1137.51	1230.62	1320.21	1173.72	1134.43
21.00°	1006.33	1186.73	1261.58	1151.58	912.59	1078.08	1389.45	1256.02	1079.36	1162.15	1262.69	1019.92	991.68	1112.35	1188.23	1086.25	1006.33
22.00°	855.02	1092.19	1139.31	1028.94	762.02	955.19	1200.43	1086.20	872.92	1027.87	1115.17	893.87	837.59	1015.40	1070.29	986.84	855.02
23.00°	687.72	984.57	1035.94	904.08	606.62	819.88	1049.52	907.64	713.79	880.30	986.20	754.14	677.77	920.00	974.51	852.77	687.72
24.00°	530.78	848.11	953.74	766.51	456.26	677.11	939.38	751.43	575.59	739.10	898.71	609.98	523.42	809.62	896.20	699.80	530.78
25.00°	410.06	690.44	885.81	627.34	315.94	535.32	863.63	620.04	418.09	623.92	835.18	464.91	383.51	681.23	830.81	549.88	410.06
26.00°	309.86	534.68	832.11	485.90	196.02	396.61	796.59	472.60	268.74	505.31	779.94	328.85	255.70	547.96	776.20	421.90	309.86
27.00°	197.41	407.29	772.13	349.41	116.67	268.86	732.54	314.06	147.37	363.97	715.26	212.68	151.67	411.42	707.26	326.94	197.41
28.00°	124.27	314.27	682.19	227.39	76.73	162.96	653.15	180.42	84.46	230.24	639.00	123.07	87.20	283.99	605.76	221.33	124.27
29.00°	93.29	211.71	571.66	131.97	60.92	93.61	548.75	95.43	61.57	127.89	522.10	71.10	60.31	175.13	492.30	126.15	93.29
30.00°	76.30	120.33	453.49	74.63	48.85	63.13	451.38	59.95	45.36	70.64	395.16	52.01	48.23	97.55	379.02	80.37	76.30
31.00°	65.18	75.40	340.69	53.21	43.52	49.52	365.45	46.17	41.23	47.84	280.56	43.47	41.16	55.59	277.46	62.51	65.18
32.00°	59.97	57.30	231.48	40.73	43.08	40.96	262.94	36.70	35.13	36.85	194.04	36.54	38.15	40.82	204.37	50.14	59.97
33.00°	55.51	46.77	141.28	32.78	38.59	36.52	163.35	31.98	31.07	30.51	124.27	34.33	35.41	32.26	140.97	43.47	55.51
34.00°	48.32	40.50	76.58	30.95	35.47	32.20	88.04	30.69	32.30	26.42	67.91	32.79	31.68	27.75	81.45	39.24	48.32
35.00°	43.70	37.12	41.45	29.10	33.54	27.90	44.67	27.76	29.32	25.37	36.26	30.99	30.40	27.06	43.52	36.44	43.70
36.00°	40.27	34.26	28.37	27.73	29.71	26.15	28.53	26.14	26.24	23.59	26.18	28.66	29.34	25.62	28.94	32.96	40.27
37.00°	37.20	31.35	21.93	25.67	28.55	25.48	23.86	25.82	24.46	20.75	23.63	26.20	26.28	24.92	23.99	30.05	37.20
38.00°	34.31	28.90	18.19	24.25	28.21	23.58	20.63	22.62	22.82	18.17	21.41	24.20	22.33	23.60	20.56	29.87	34.31
39.00°	31.67	26.73	17.12	22.89	26.73	21.63	18.03	21.78	21.24	19.33	19.25	23.14	21.69	21.88	19.51	28.76	31.67
40.00°	29.07	25.26	16.38	21.68	23.98	19.67	16.38	21.55	20.75	20.72	17.70	22.15	22.06	19.60	18.94	26.48	29.07
41.00°	27.27	23.80	15.84	20.35	22.29	18.89	14.98	20.44	20.30	18.42	16.19	22.88	22.04	17.89	17.47	24.43	27.27
42.00°	25.82	22.43	15.39	18.38	22.50	18.41	14.25	19.04	19.10	15.89	15.29	23.72	21.88	17.63	15.78	22.83	25.82
43.00°	24.26	21.06	15.09	16.41	22.72	17.93	13.53	17.83	17.73	14.77	14.59	22.75	21.43	17.37	14.62	21.23	24.26

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%	20%	0%
	pcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	1699	1699	1699	1699	1659	1659	1659	1659	1586	1586	1586	1518	1518	1518	1456	1456	1456	1427
	1	1633	1599	1569	1542	1599	1569	1542	1518	1512	1491	1471	1459	1443	1427	1411	1398	1386	1371
	2	1574	1517	1470	1431	1544	1493	1451	1415	1448	1414	1385	1407	1380	1355	1369	1347	1327	1321
	3	1519	1447	1391	1346	1493	1428	1376	1335	1392	1349	1315	1359	1324	1294	1328	1300	1275	1275
	4	1468	1385	1324	1277	1445	1369	1313	1270	1341	1293	1255	1314	1274	1241	1289	1256	1228	1233
	5	1420	1330	1266	1220	1400	1317	1258	1214	1294	1243	1204	1272	1228	1194	1252	1214	1184	1193
	6	1376	1280	1216	1170	1358	1270	1210	1166	1251	1198	1159	1233	1187	1152	1216	1176	1144	1156
	7	1334	1235	1171	1126	1318	1227	1166	1123	1210	1157	1118	1195	1148	1113	1181	1139	1107	1121
	8	1294	1194	1130	1087	1280	1186	1126	1085	1173	1119	1081	1160	1112	1077	1148	1105	1073	1088
	9	1257	1155	1093	1051	1244	1149	1090	1049	1138	1084	1046	1127	1078	1043	1117	1073	1040	1057
	10	1222	1120	1059	1018	1210	1115	1056	1017	1105	1052	1015	1096	1047	1012	1087	1042	1010	1028

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	182.5 fc	2.5 ft
6.5 ft	130.7 fc	2.9 ft
7.5 ft	98.2 fc	3.3 ft
8.0 ft	86.3 fc	3.6 ft
10.0 ft	55.2 fc	4.5 ft
12.0 ft	38.3 fc	5.4 ft
14.0 ft	28.2 fc	6.3 ft
16.0 ft	21.6 fc	7.1 ft
20.0 ft	13.8 fc	8.9 ft
24.0 ft	9.6 fc	10.7 ft
28.0 ft	7.0 fc	12.5 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	608628	608628	608628
45.00°	3201	2377	3165
55.00°	2619	2244	3193
65.00°	2923	2339	3899
75.00°	4350	3415	3933
85.00°	10938	10336	9978

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	5.9	6.8	6.2	7.1	7.4	6.2	7.1	6.5	7.4	7.7
	3H	8.4	9.2	8.8	9.6	9.9	9.1	9.9	9.5	10.2	10.6
	4H	10.0	10.7	10.4	11.1	11.5	10.3	11.1	10.7	11.5	11.8
	6H	11.8	12.5	12.2	12.9	13.3	11.8	12.5	12.2	12.9	13.3
	8H	12.7	13.4	13.1	13.7	14.2	12.7	13.4	13.1	13.8	14.2
	12H	13.8	14.4	14.2	14.8	15.2	13.7	14.3	14.1	14.7	15.1
4H	2H	6.5	7.3	6.9	7.6	8.0	6.5	7.3	6.9	7.6	8.0
	3H	9.3	9.9	9.7	10.3	10.8	9.7	10.3	10.1	10.7	11.2
	4H	11.0	11.6	11.4	12.0	12.4	11.2	11.8	11.6	12.2	12.6
	6H	13.0	13.5	13.5	13.9	14.4	12.9	13.4	13.4	13.9	14.4
	8H	14.0	14.5	14.5	14.9	15.4	14.0	14.4	14.4	14.8	15.3
	12H	15.3	15.7	15.8	16.1	16.6	15.1	15.5	15.6	16.0	16.4
8H	4H	11.5	12.0	12.0	12.4	12.9	11.6	12.1	12.1	12.5	13.0
	6H	13.8	14.2	14.3	14.7	15.2	13.7	14.0	14.2	14.6	15.0
	8H	15.0	15.3	15.5	15.8	16.3	14.9	15.2	15.4	15.7	16.2
	12H	16.4	16.7	17.0	17.2	17.8	16.3	16.5	16.8	17.0	17.6
12H	4H	11.7	12.0	12.1	12.5	13.0	11.8	12.2	12.3	12.7	13.1
	6H	14.1	14.4	14.6	14.9	15.4	14.0	14.3	14.5	14.7	15.3
	8H	15.4	15.6	15.9	16.1	16.7	15.2	15.5	15.8	16.0	16.6

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0