

## Indoor Distribution Test Report

# Spectrum Lighting Inc.

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## Spectrum Lighting Photometric Lab

### Luminaire

SGx4LEDFX-30L35KDX-AR4223FX-SG-SO

Nom 4" diam recessed downlight

### Test Number

SP-00744\_1

### Test Date

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

### Summary of Results

#### Power

Input Watts	25 W
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#### Lumen Output

Output Lumens	1853
Efficacy	74.1 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.72
Two luminaires, plane 90°	0.75
Four luminaires	0.78

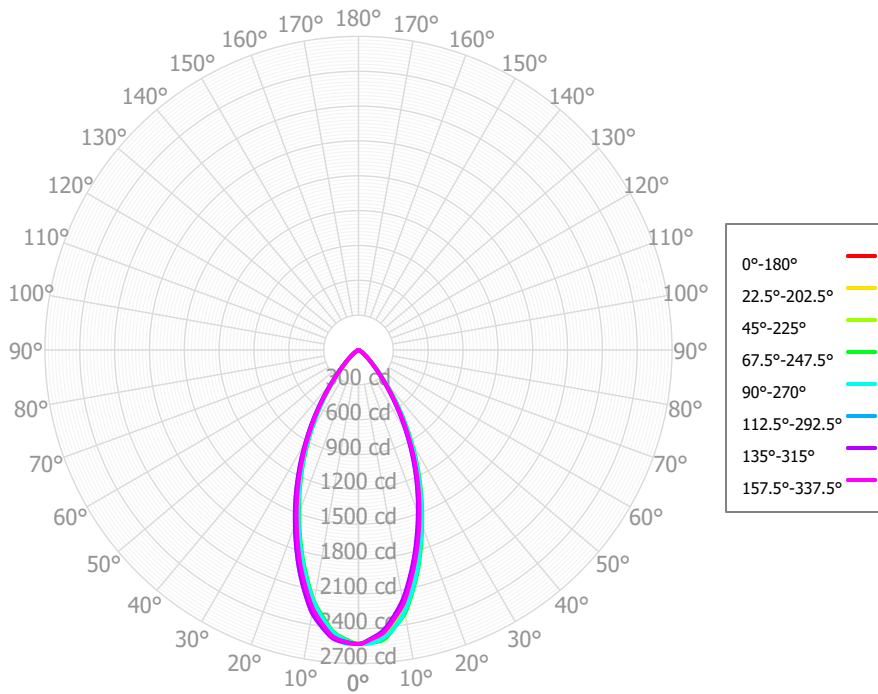
#### Full Beam Angle

0° - 180°	48°
90° - 270°	48°

### IES File Header Contents

Keyword	Value
TEST	SP-00744_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	1/7/2019
UPDATE	3/4/2019
LUMCAT	SGx4LEDFX-30L35KDX-AR4223FX-SG-SO
LUMINAIRE	Nom 4" diam recessed downlight
OTHER	Trim: AR4223FX, Soft Glow
OTHER	Regressed Integral Solite lens
OTHER	Data for New Construction: SGE4LEDFX-series w/AR4223FX-SG-SO
OTHER	Data for Retrofit: SGRTE4LEDFX-series w/AR4223FX-SG-SO
OTHER	Beam Angle: 48 deg
LAMPCAT	N/A
LAMP	N/A, Philips LED, Min. 80 CRI, Gen: 80G1
OTHER	CCT Tested: 3500K
OTHER	CCT Multipliers: 27K x 0.95, 30K x 1.0, 40K x 1.08
OTHER	Total Luminaire Watts is approximate
OTHER	This report prepared by Spectrum Lighting

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	230.59	12.45%	90.00° - 100.00°	0.00	0.00%
10.00° - 20.00°	527.21	28.46%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	546.01	29.47%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	353.31	19.07%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	140.20	7.57%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	44.85	2.42%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	8.15	0.44%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	1.20	0.06%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.08	0.06%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1852.61	100.00%	0.00° - 180.00°	1852.61	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°	2531.46	2531.46	2531.46	2531.46	2531.46	2531.46	2531.46	2531.46	2531.46	2531.46	2531.46	2531.46	2531.46	2531.46	2531.46	2531.46	2531.46
2.50°	2503.43	2512.28	2513.16	2524.18	2526.58	2527.34	2518.89	2514.18	2509.76	2503.92	2501.16	2493.48	2502.58	2492.68	2486.50	2493.42	2503.43
5.00°	2444.64	2473.72	2474.81	2502.97	2486.78	2491.54	2495.90	2478.67	2464.87	2449.78	2455.79	2438.56	2444.12	2431.91	2426.40	2446.49	2444.64
7.50°	2349.95	2378.31	2379.81	2405.03	2405.65	2408.65	2406.02	2379.36	2373.64	2348.87	2346.36	2322.94	2337.49	2324.09	2314.47	2340.25	2349.95
10.00°	2216.16	2260.62	2264.03	2303.61	2286.85	2292.88	2303.33	2260.31	2249.31	2221.55	2226.55	2199.08	2206.99	2195.48	2185.27	2223.25	2216.16
12.50°	2052.59	2097.50	2097.46	2138.65	2127.61	2138.08	2139.33	2096.19	2096.14	2059.55	2060.52	2027.81	2043.57	2031.48	2017.95	2055.69	2052.59
15.00°	1879.33	1920.90	1925.72	1971.56	1954.97	1966.70	1967.90	1924.52	1926.47	1888.84	1889.90	1854.77	1867.43	1855.21	1846.67	1882.47	1879.33
17.50°	1700.05	1743.75	1744.07	1785.66	1770.70	1779.15	1785.22	1738.83	1752.20	1708.91	1712.53	1674.72	1690.75	1679.24	1668.27	1708.40	1700.05
20.00°	1524.45	1566.48	1565.13	1601.33	1589.69	1596.77	1601.89	1557.43	1575.82	1530.73	1534.92	1496.63	1513.91	1503.33	1493.85	1534.30	1524.45
22.50°	1350.71	1393.60	1390.44	1425.66	1411.04	1418.46	1425.05	1382.38	1396.32	1354.11	1360.27	1324.39	1341.00	1332.11	1325.16	1363.31	1350.71
25.00°	1180.53	1221.38	1216.77	1250.82	1235.91	1242.88	1248.49	1208.63	1215.69	1180.75	1186.08	1153.22	1168.95	1161.77	1156.77	1192.55	1180.53
27.50°	1011.74	1053.55	1044.40	1079.39	1062.82	1069.06	1076.68	1036.40	1046.48	1009.72	1018.98	984.52	1003.26	996.31	988.72	1026.06	1011.74
30.00°	850.76	886.09	879.13	911.02	897.17	902.50	906.34	872.27	880.36	849.10	853.54	821.91	838.50	831.42	827.40	860.89	850.76
32.50°	692.19	729.48	721.14	751.75	734.98	739.72	749.82	716.18	725.42	694.52	701.53	670.52	688.18	682.29	672.60	707.78	692.19
35.00°	549.59	573.78	574.13	599.43	588.56	592.82	596.64	569.83	572.67	551.85	553.82	530.88	539.14	534.06	533.59	558.81	549.59
37.50°	410.56	444.32	436.51	463.00	447.92	452.40	463.81	431.34	443.99	414.75	428.25	408.76	423.36	418.18	406.96	433.63	410.56
40.00°	313.62	318.80	326.53	342.74	338.29	342.88	339.97	321.74	318.41	312.83	313.01	306.06	309.59	304.54	307.29	318.06	313.62
42.50°	223.00	243.27	235.57	252.48	237.18	243.35	253.45	231.17	241.83	223.63	236.22	227.08	237.83	232.97	224.86	240.67	223.00
45.00°	169.16	171.84	172.72	179.50	176.80	180.17	177.09	169.18	168.49	166.96	168.31	165.66	168.26	164.57	166.41	172.11	169.16
47.50°	118.73	130.82	125.35	132.13	124.56	125.62	131.81	122.45	128.57	119.26	125.57	121.62	128.17	125.63	120.36	130.00	118.73
50.00°	89.61	92.73	92.25	94.78	92.94	94.06	92.77	90.90	89.84	88.89	89.31	88.51	90.24	89.11	88.44	92.82	89.61
52.50°	61.49	68.83	65.56	69.42	64.06	66.21	68.86	65.71	67.86	61.99	67.27	64.41	67.86	67.15	62.24	67.21	61.49
55.00°	46.75	47.25	47.36	49.12	47.85	49.36	48.65	48.24	46.79	46.01	48.01	45.69	47.07	46.74	45.93	46.45	46.75
57.50°	32.33	33.89	32.10	33.86	32.51	33.64	35.43	33.29	34.99	31.45	33.66	30.54	34.00	32.67	32.72	34.62	32.33
60.00°	22.41	21.68	20.74	21.93	21.66	22.99	23.93	23.27	23.53	21.69	21.73	19.92	21.96	20.11	22.10	23.43	22.41
62.50°	12.96	12.61	10.41	12.68	11.08	12.61	15.05	14.44	14.24	12.27	13.23	11.70	13.58	12.14	12.09	13.21	12.96
65.00°	6.96	5.61	5.69	6.70	6.31	7.08	7.95	8.04	6.26	6.60	7.03	6.20	6.58	5.66	6.33	6.05	6.96
67.50°	2.14	2.77	2.01	2.80	2.16	2.13	3.03	2.05	3.51	1.52	3.41	1.85	3.08	2.61	1.25	2.53	2.14
70.00°	1.41	1.30	1.46	1.42	1.72	1.57	1.00	1.49	1.63	1.53	1.64	1.16	1.15	0.99	1.29	1.17	1.41
72.50°	1.05	1.28	1.13	0.95	1.36	1.08	0.91	1.20	1.24	1.40	1.06	1.21	1.24	1.02	1.36	1.22	1.05
75.00°	1.13	1.19	1.10	1.05	1.12	0.69	0.97	1.29	1.06	1.00	1.25	1.27	1.28	0.88	1.13	1.21	1.13
77.50°	1.00	1.14	0.90	1.09	0.98	0.96	1.04	1.30	0.98	1.06	1.24	1.29	1.25	0.76	1.07	1.15	1.00
80.00°	0.96	1.21	0.80	1.12	1.07	1.13	1.11	1.16	0.95	1.18	0.91	1.21	1.08	0.81	1.11	1.02	0.96
82.50°	0.97	1.16	1.02	1.35	1.23	1.05	1.23	0.93	1.04	1.20	0.92	0.94	0.95	1.01	1.12	1.07	0.97
85.00°	0.86	0.75	1.13	0.99	0.94	1.03	1.04	1.15	1.33	1.06	1.13	0.90	0.82	1.19	0.86	1.13	0.86
87.50°	1.00	0.93	1.13	1.03	0.90	0.79	0.94	0.93	0.86	0.99	1.06	0.99	0.99	1.15	0.91	1.09	1.00
90.00°	0.93	0.52	1.05	0.41	1.18	1.14	0.39	0.84	0.39	0.92	0.35	1.04	0.78	0.34	0.90	0.33	0.93

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

<b>RCR</b>	<b>pfc</b>	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	<b>pcc</b>	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	<b>0</b>	2205	2205	2205	2205	2154	2154	2154	2154	2058	2058	2058	1971	1971	1971	1890	1890	1853
	<b>1</b>	2103	2051	2005	1964	2057	2011	1970	1932	1936	1903	1873	1867	1841	1817	1804	1784	1748
	<b>2</b>	1998	1908	1833	1770	1957	1876	1808	1750	1816	1760	1712	1761	1715	1675	1710	1673	1640
	<b>3</b>	1897	1778	1686	1612	1860	1752	1668	1599	1704	1632	1574	1659	1599	1549	1617	1568	1537
	<b>4</b>	1801	1661	1559	1481	1768	1640	1545	1472	1600	1519	1454	1563	1494	1437	1529	1470	1442
	<b>5</b>	1711	1556	1448	1368	1680	1539	1438	1362	1505	1417	1350	1475	1398	1338	1446	1379	1354
	<b>6</b>	1626	1461	1351	1271	1598	1446	1342	1267	1419	1327	1258	1393	1311	1250	1368	1297	1274
	<b>7</b>	1547	1375	1264	1186	1522	1363	1258	1183	1339	1245	1177	1317	1233	1170	1296	1222	1201
	<b>8</b>	1473	1298	1187	1111	1451	1287	1182	1109	1267	1172	1104	1248	1162	1100	1230	1153	1134
	<b>9</b>	1405	1227	1118	1045	1384	1218	1114	1043	1200	1106	1039	1184	1098	1036	1169	1090	1073
	<b>10</b>	1341	1163	1056	985	1323	1155	1053	984	1140	1046	981	1126	1039	978	1112	1033	1018

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	83.7 fc	4.9 ft
6.5 ft	59.9 fc	5.8 ft
7.5 ft	45.0 fc	6.7 ft
8.0 ft	39.6 fc	7.2 ft
10.0 ft	25.3 fc	9.0 ft
12.0 ft	17.6 fc	10.8 ft
14.0 ft	12.9 fc	12.6 ft
16.0 ft	9.9 fc	14.4 ft
20.0 ft	6.3 fc	17.9 ft
24.0 ft	4.4 fc	21.5 ft
28.0 ft	3.2 fc	25.1 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	318584	318584	318584
<b>45.00°</b>	30106	30741	31467
<b>55.00°</b>	10258	10392	10498
<b>65.00°</b>	2073	1694	1879
<b>75.00°</b>	550	537	544
<b>85.00°</b>	1237	1633	1356

### UGR CIE 190:2010

<b>Ceiling reflectance</b>		<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>	<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>
<b>Wall reflectance</b>		<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>
<b>Plane reflectance</b>		<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>
<b>Room dimensions</b>		<b>Viewed crosswise</b>					<b>Viewed endwise</b>				
<b>2H</b>	<b>2H</b>	11.5	12.6	11.9	12.9	13.2	11.2	12.2	11.6	12.5	12.8
	<b>3H</b>	11.4	12.3	11.7	12.6	13.0	11.0	11.9	11.4	12.3	12.6
	<b>4H</b>	11.3	12.1	11.7	12.5	12.8	10.9	11.8	11.4	12.1	12.5
	<b>6H</b>	11.2	11.9	11.6	12.3	12.7	10.9	11.6	11.3	12.0	12.4
	<b>8H</b>	11.1	11.8	11.6	12.2	12.6	10.8	11.5	11.3	11.9	12.3
	<b>12H</b>	11.1	11.8	11.5	12.2	12.6	10.8	11.5	11.2	11.8	12.3
<b>4H</b>	<b>2H</b>	11.3	12.1	11.7	12.5	12.9	11.0	11.8	11.4	12.2	12.6
	<b>3H</b>	11.1	11.8	11.5	12.2	12.6	10.8	11.5	11.3	11.9	12.3
	<b>4H</b>	11.0	11.6	11.5	12.0	12.5	10.7	11.3	11.2	11.8	12.2
	<b>6H</b>	10.9	11.5	11.4	11.9	12.4	10.7	11.2	11.1	11.6	12.1
	<b>8H</b>	10.9	11.4	11.4	11.8	12.3	10.6	11.1	11.1	11.5	12.0
	<b>12H</b>	10.9	11.3	11.4	11.8	12.2	10.6	11.0	11.1	11.5	12.0
<b>8H</b>	<b>4H</b>	10.9	11.3	11.3	11.8	12.3	10.6	11.0	11.0	11.5	12.0
	<b>6H</b>	10.8	11.2	11.3	11.7	12.1	10.5	10.9	11.0	11.4	11.9
	<b>8H</b>	10.7	11.1	11.3	11.6	12.1	10.5	10.8	11.0	11.3	11.8
	<b>12H</b>	10.7	11.0	11.3	11.5	12.1	10.5	10.8	11.0	11.3	11.9
<b>12H</b>	<b>4H</b>	10.8	11.2	11.3	11.7	12.2	10.5	10.9	11.0	11.4	11.9
	<b>6H</b>	10.7	11.1	11.2	11.5	12.1	10.4	10.8	11.0	11.2	11.8
	<b>8H</b>	10.7	11.0	11.2	11.5	12.1	10.4	10.7	11.0	11.2	11.8

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0