

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

SGx4LEDFX-30L35KDX-AR4223FX-MW-SO

Nom 4" diam recessed downlight

### **Test Number**

SP-00744

### **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	1826
Efficacy	73.06 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.88
Two luminaires, plane 90°	0.88
Four luminaires	0.88

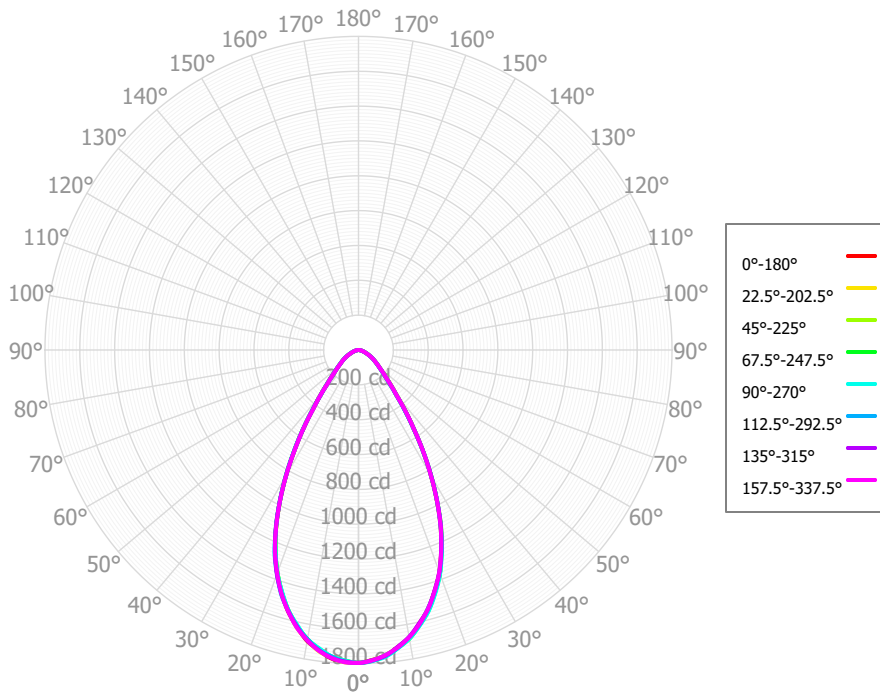
#### Full Beam Angle

0° - 180°	58°
90° - 270°	58°

### IES File Header Contents

Keyword	Value
TEST	SP-00744
TESTLAB	Spectrum Lighting Photometric Lab
MANUFAC	Spectrum Lighting
ISSUEDATE	1/7/2019
UPDATE	3/4/2019
LUMCAT	SGx4LEDFX-30L35KDX-AR4223FX-MW-SO
LUMINAIRE	Nom 4" diam recessed downlight
OTHER	Trim: AR4223FX Matte White
OTHER	Regressed Integral Solite lens
OTHER	Data for New Construction: SGE4LEDFX-series w/AR4223FX-MW-SO
OTHER	Data for Retrofit: SGRTE4LEDFX-series w/AR4223FX-MW-SO
OTHER	Beam Angle: 58 deg
LAMPCAT	N/A
LAMP	N/A, Philips LED, Gen: 80G1
OTHER	CCT Tested: 3500K
OTHER	CCT Multipliers: 27K x 0.95, 30K x 1.0, 40K x 1.08
OTHER	This report prepared by Spectrum Lighting

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	168.25	9.21%	90.00° - 100.00°	0.00	0.00%
10.00° - 20.00°	430.43	23.57%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	504.88	27.64%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	348.32	19.07%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	177.02	9.69%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	106.17	5.81%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	60.03	3.29%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	26.10	1.43%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	5.25	0.29%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1826.43	100.00%	0.00° - 180.00°	1826.43	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°	1796.52	1796.52	1796.52	1796.52	1796.52	1796.52	1796.52	1796.52	1796.52	1796.52	1796.52	1796.52	1796.52	1796.52	1796.52	1796.52	1796.52
2.50°	1781.61	1786.10	1782.50	1784.83	1786.50	1791.65	1790.27	1794.73	1790.09	1795.11	1786.75	1785.74	1785.04	1787.61	1783.05	1783.90	1781.61
5.00°	1762.46	1758.06	1760.44	1763.69	1768.91	1766.91	1776.19	1774.08	1778.27	1773.24	1768.94	1766.62	1766.78	1758.97	1763.34	1758.79	1762.46
7.50°	1719.98	1723.20	1723.67	1725.43	1728.27	1739.41	1738.43	1742.33	1739.60	1744.59	1732.14	1731.77	1727.63	1725.59	1719.35	1723.28	1719.98
10.00°	1676.01	1674.34	1683.54	1681.13	1683.60	1685.68	1693.85	1691.98	1696.89	1691.63	1686.61	1686.10	1687.26	1673.84	1672.90	1674.53	1676.01
12.50°	1609.10	1615.49	1616.09	1618.23	1621.35	1630.39	1627.77	1633.85	1629.42	1633.36	1623.73	1624.80	1619.24	1615.55	1607.71	1613.36	1609.10
15.00°	1539.93	1540.36	1544.43	1550.43	1553.16	1552.85	1555.51	1555.29	1557.36	1553.30	1550.61	1550.73	1549.69	1537.66	1541.47	1539.39	1539.93
17.50°	1451.58	1455.25	1455.58	1460.79	1465.69	1473.90	1468.28	1470.03	1465.56	1469.96	1460.75	1461.73	1457.12	1454.02	1450.43	1453.06	1451.58
20.00°	1358.55	1356.85	1365.12	1366.89	1368.95	1368.63	1370.36	1364.75	1367.18	1362.44	1360.41	1360.64	1361.74	1357.08	1357.84	1356.41	1358.55
22.50°	1240.53	1243.40	1244.79	1244.07	1248.85	1260.07	1251.79	1254.63	1247.60	1252.75	1246.30	1247.74	1243.76	1247.30	1239.81	1241.74	1240.53
25.00°	1117.15	1113.48	1122.95	1117.62	1120.82	1119.40	1122.70	1117.69	1120.45	1115.45	1118.49	1118.65	1121.52	1114.07	1119.20	1114.51	1117.15
27.50°	973.58	975.66	977.46	976.48	977.11	977.93	977.14	976.17	974.69	977.14	976.06	976.75	977.35	976.59	975.92	975.67	973.58
30.00°	830.66	830.80	832.29	834.41	833.26	831.66	831.35	829.46	829.25	829.53	831.65	833.36	833.33	832.71	832.85	830.36	830.66
32.50°	689.68	691.46	691.77	690.78	689.19	687.82	685.29	682.18	684.43	683.06	685.47	689.02	689.87	691.56	690.92	691.16	689.68
35.00°	557.05	556.16	554.57	548.47	555.15	554.09	551.95	553.28	550.85	552.65	553.58	557.27	553.30	553.72	554.72	554.66	557.05
37.50°	443.28	444.56	443.67	440.21	434.26	431.04	431.85	425.39	435.15	427.84	432.01	432.15	436.34	436.94	440.58	443.45	443.28
40.00°	345.51	347.11	340.60	336.00	338.57	341.47	338.68	343.27	340.71	344.58	341.66	342.77	336.01	340.96	339.15	341.21	345.51
42.50°	276.32	279.40	277.41	274.66	269.65	265.17	268.58	263.18	273.54	267.50	269.43	268.21	272.34	270.52	275.60	276.81	276.32
45.00°	221.34	225.81	220.73	217.32	218.58	220.73	218.59	220.60	221.23	221.97	220.40	220.89	219.63	221.16	221.17	222.43	221.34
47.50°	187.32	188.96	188.15	185.65	183.34	182.37	182.52	179.92	184.59	180.84	182.40	182.38	186.66	185.20	187.68	188.44	187.32
50.00°	158.99	158.53	158.73	156.26	156.10	155.70	154.86	155.63	155.73	155.71	156.11	156.80	158.02	158.18	158.49	158.26	158.99
52.50°	137.45	136.55	138.25	136.80	134.61	133.15	131.95	132.63	133.64	133.11	134.15	134.38	135.64	136.61	137.07	137.40	137.45
55.00°	118.69	117.04	119.18	118.19	117.30	117.01	115.29	116.81	115.66	117.38	116.53	117.42	116.90	117.99	118.12	117.73	118.69
57.50°	102.64	102.35	103.19	102.30	102.41	101.57	101.45	101.11	100.58	101.79	100.16	101.37	102.41	102.34	102.88	102.77	102.64
60.00°	87.63	88.67	87.95	86.99	87.77	87.03	86.99	85.83	86.16	86.52	85.63	86.90	87.77	87.99	87.82	88.11	87.63
62.50°	73.46	74.37	74.05	73.13	73.25	73.19	72.30	71.05	72.14	71.83	71.48	72.60	72.98	73.78	72.98	73.74	73.46
65.00°	60.62	59.99	60.60	60.03	60.19	60.08	58.98	57.71	59.10	58.18	59.30	59.63	59.51	59.63	59.86	59.52	60.62
67.50°	48.66	50.88	47.81	48.40	47.65	49.79	46.01	46.52	46.50	46.70	47.46	47.15	47.03	48.73	48.42	48.34	48.66
70.00°	40.26	42.09	38.19	38.85	38.73	41.44	37.62	39.05	38.56	37.62	38.30	39.22	38.69	38.58	39.02	38.04	40.26
72.50°	33.34	32.72	31.36	31.62	30.65	32.74	30.05	31.25	31.32	30.64	30.01	31.56	31.86	31.29	30.94	31.45	33.34
75.00°	25.76	24.65	24.01	24.91	24.06	24.40	23.96	23.47	23.96	24.55	23.35	24.34	24.79	24.53	24.76	24.64	25.76
77.50°	18.72	18.41	17.29	18.49	17.63	17.19	17.51	17.37	16.58	19.04	17.54	16.81	17.51	18.73	19.11	17.63	18.72
80.00°	12.57	12.13	12.63	12.45	11.65	11.47	10.96	11.61	10.57	12.18	11.67	11.48	10.92	13.43	14.03	12.74	12.57
82.50°	8.27	7.30	7.13	7.92	7.29	7.31	6.45	6.38	6.81	6.43	6.34	7.97	6.59	8.32	8.22	7.16	8.27
85.00°	4.40	4.21	3.81	3.60	4.80	4.14	3.86	3.11	3.94	3.56	3.04	4.46	3.41	4.04	3.88	3.61	4.40
87.50°	2.52	2.11	1.79	2.06	1.81	2.42	1.55	1.71	1.58	1.37	1.49	2.12	2.20	1.61	2.06	1.76	2.52
90.00°	1.03	1.26	1.14	1.21	1.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44	1.18	1.14	1.03

### 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>	2174	2174	2174	2174	2124	2124	2124	2124	2029	2029	2029	1943	1943	1943	1864	1864	1826
	<b>1</b>	2054	1995	1942	1895	2008	1955	1908	1864	1880	1842	1807	1812	1781	1753	1748	1724	1689
	<b>2</b>	1932	1829	1743	1671	1890	1796	1719	1652	1736	1671	1616	1680	1627	1580	1629	1586	1554
	<b>3</b>	1817	1682	1577	1494	1779	1656	1559	1482	1606	1525	1457	1561	1492	1434	1518	1461	1432
	<b>4</b>	1711	1554	1438	1350	1676	1532	1425	1342	1491	1399	1325	1453	1374	1309	1418	1350	1324
	<b>5</b>	1613	1441	1320	1231	1581	1422	1310	1225	1388	1289	1214	1356	1270	1202	1327	1252	1228
	<b>6</b>	1523	1341	1218	1130	1494	1325	1210	1126	1297	1194	1118	1270	1179	1110	1245	1165	1143
	<b>7</b>	1440	1252	1130	1044	1414	1239	1123	1041	1215	1111	1035	1192	1099	1029	1170	1087	1068
	<b>8</b>	1365	1173	1052	969	1341	1162	1047	967	1141	1037	963	1121	1027	958	1103	1018	1001
	<b>9</b>	1295	1102	984	904	1273	1092	979	902	1074	971	899	1057	963	895	1041	955	940
	<b>10</b>	1231	1038	923	846	1211	1030	919	845	1014	912	842	999	906	840	985	899	886

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	59.4 fc	6.1 ft
6.5 ft	42.5 fc	7.2 ft
7.5 ft	31.9 fc	8.3 ft
8.0 ft	28.1 fc	8.8 ft
10.0 ft	18.0 fc	11.0 ft
12.0 ft	12.5 fc	13.2 ft
14.0 ft	9.2 fc	15.4 ft
16.0 ft	7.0 fc	17.6 ft
20.0 ft	4.5 fc	22.0 ft
24.0 ft	3.1 fc	26.4 ft
28.0 ft	2.3 fc	30.8 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	226092	226092	226092
<b>45.00°</b>	39393	39285	38902
<b>55.00°</b>	26043	26149	25738
<b>65.00°</b>	18053	18045	17922
<b>75.00°</b>	12528	11675	11699
<b>85.00°</b>	6358	5497	6935

### 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>	19.2	20.4	19.6	20.7	21.0	19.1	20.3	19.5	20.6	20.9
	<b>3H</b>	20.1	21.2	20.5	21.5	21.9	20.0	21.1	20.4	21.4	21.8
	<b>4H</b>	20.4	21.4	20.9	21.8	22.2	20.3	21.3	20.7	21.7	22.0
	<b>6H</b>	20.6	21.5	21.0	21.9	22.3	20.5	21.4	20.9	21.7	22.1
	<b>8H</b>	20.6	21.5	21.1	21.8	22.3	20.5	21.3	20.9	21.7	22.1
	<b>12H</b>	20.6	21.4	21.0	21.8	22.2	20.5	21.3	20.9	21.6	22.1
<b>4H</b>	<b>2H</b>	19.5	20.4	19.9	20.8	21.2	19.4	20.4	19.8	20.7	21.1
	<b>3H</b>	20.6	21.4	21.0	21.8	22.2	20.5	21.3	20.9	21.7	22.1
	<b>4H</b>	21.0	21.7	21.4	22.1	22.6	20.9	21.6	21.3	22.0	22.5
	<b>6H</b>	21.2	21.8	21.7	22.3	22.7	21.1	21.7	21.5	22.1	22.6
	<b>8H</b>	21.3	21.8	21.7	22.3	22.7	21.1	21.7	21.6	22.1	22.6
	<b>12H</b>	21.3	21.8	21.7	22.2	22.7	21.1	21.6	21.6	22.1	22.6
<b>8H</b>	<b>4H</b>	21.1	21.6	21.5	22.1	22.5	20.9	21.5	21.4	22.0	22.4
	<b>6H</b>	21.4	21.8	21.9	22.3	22.8	21.2	21.6	21.7	22.1	22.6
	<b>8H</b>	21.4	21.8	21.9	22.3	22.8	21.2	21.7	21.8	22.2	22.7
	<b>12H</b>	21.5	21.8	22.0	22.3	22.9	21.3	21.6	21.8	22.1	22.7
<b>12H</b>	<b>4H</b>	21.0	21.5	21.5	22.0	22.5	20.9	21.4	21.4	21.9	22.4
	<b>6H</b>	21.3	21.7	21.9	22.2	22.8	21.2	21.6	21.7	22.0	22.6
	<b>8H</b>	21.4	21.8	21.9	22.3	22.9	21.2	21.6	21.8	22.1	22.7

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0