

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

SGx4LEDFX-10L35KDX-AR4223FX-MW-SO

Nom 4" diam recessed downlight

### **Test Number**

SP-00744\_M-10L

### **Test Date**

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

### Summary of Results

#### Power

Input Watts	9.2 W
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#### Lumen Output

Output Lumens	603
Efficacy	65.51 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

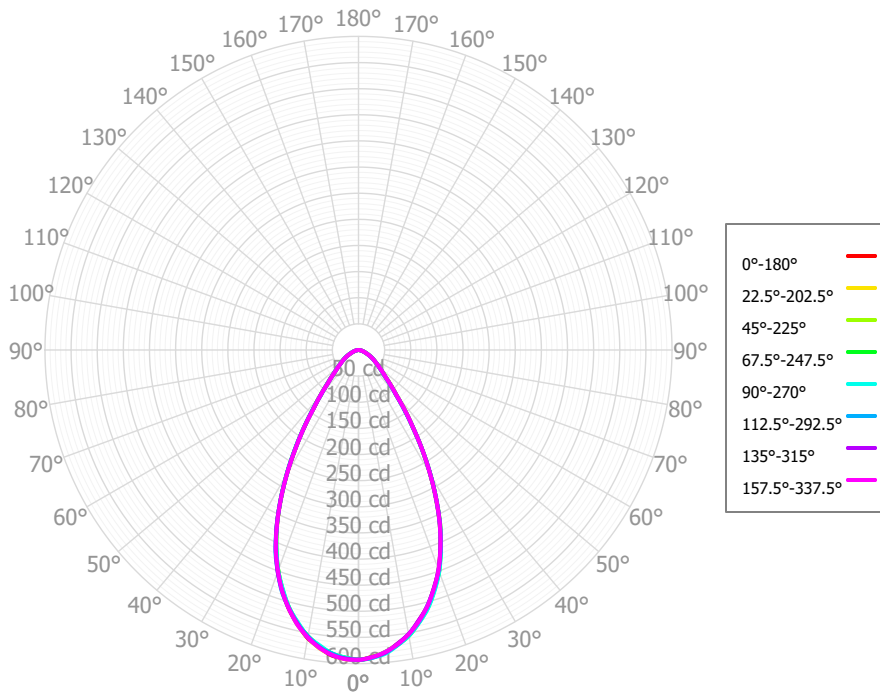
#### Full Beam Angle

0° - 180°	58°
90° - 270°	58°

### IES File Header Contents

Keyword	Value
TEST	SP-00744_M-10L
TESTLAB	Spectrum Lighting Photometric Lab
MANUFAC	Spectrum Lighting
ISSUEDATE	1/7/2019
UPDATE	3/4/2019
LUMCAT	SGx4LEDFX-10L35KDX-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, scaled from 30L

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	55.52	9.21%	90.00° - 100.00°	0.00	0.00%
10.00° - 20.00°	142.04	23.57%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	166.61	27.64%	110.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	114.94	19.07%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	58.42	9.69%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	35.03	5.81%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	19.81	3.29%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	8.61	1.43%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.73	0.29%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	602.72	100.00%	0.00° - 180.00°	602.72	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°	592.85	592.85	592.85	592.85	592.85	592.85	592.85	592.85	592.85	592.85	592.85	592.85	592.85	592.85	592.85	592.85	592.85
2.50°	587.93	589.41	588.22	588.99	589.55	591.25	590.79	592.26	590.73	592.39	589.63	589.29	589.06	589.91	588.41	588.69	587.93
5.00°	581.61	580.16	580.95	582.02	583.74	583.08	586.14	585.45	586.83	585.17	583.75	582.98	583.04	580.46	581.90	580.40	581.61
7.50°	567.59	568.65	568.81	569.39	570.33	574.01	573.68	574.97	574.07	575.72	571.61	571.49	570.12	569.44	567.38	568.68	567.59
10.00°	553.08	552.53	555.57	554.77	555.59	556.27	558.97	558.36	559.97	558.24	556.58	556.41	556.79	552.37	552.05	552.60	553.08
12.50°	531.00	533.11	533.31	534.02	535.04	538.03	537.16	539.17	537.71	539.01	535.83	536.18	534.35	533.13	530.54	532.41	531.00
15.00°	508.18	508.32	509.66	511.64	512.54	512.44	513.32	513.24	513.93	512.59	511.70	511.74	511.40	507.43	508.69	508.00	508.18
17.50°	479.02	480.23	480.34	482.06	483.68	486.39	484.53	485.11	483.64	485.09	482.05	482.37	480.85	479.83	478.64	479.51	479.02
20.00°	448.32	447.76	450.49	451.08	451.76	451.65	452.22	450.37	451.17	449.61	448.94	449.01	449.37	447.84	448.09	447.62	448.32
22.50°	409.38	410.32	410.78	410.54	412.12	415.82	413.09	414.03	411.71	413.41	411.28	411.75	410.44	411.61	409.14	409.77	409.38
25.00°	368.66	367.45	370.58	368.82	369.87	369.40	370.49	368.84	369.75	368.10	369.10	369.16	370.10	367.64	369.34	367.79	368.66
27.50°	321.28	321.97	322.56	322.24	322.45	322.72	322.45	322.14	321.65	322.46	322.10	322.33	322.52	322.27	322.06	321.97	321.28
30.00°	274.12	274.16	274.65	275.35	274.98	274.45	274.35	273.72	273.65	273.75	274.44	275.01	275.00	274.79	274.84	274.02	274.12
32.50°	227.60	228.18	228.28	227.96	227.43	226.98	226.15	225.12	225.86	225.41	226.20	227.38	227.66	228.21	228.00	228.08	227.60
35.00°	183.83	183.53	183.01	181.00	183.20	182.85	182.14	182.58	181.78	182.38	182.68	183.90	182.59	182.73	183.06	183.04	183.83
37.50°	146.28	146.70	146.41	145.27	143.31	142.24	142.51	140.38	143.60	141.19	142.56	142.61	143.99	144.19	145.39	146.34	146.28
40.00°	114.02	114.55	112.40	110.88	111.73	112.69	111.77	113.28	112.44	113.71	112.75	113.12	110.88	112.52	111.92	112.60	114.02
42.50°	91.19	92.20	91.55	90.64	88.99	87.51	88.63	86.85	90.27	88.28	88.91	88.51	89.87	89.27	90.95	91.35	91.19
45.00°	73.04	74.52	72.84	71.71	72.13	72.84	72.13	72.80	73.00	73.25	72.73	72.89	72.48	72.98	72.99	73.40	73.04
47.50°	61.82	62.36	62.09	61.26	60.50	60.18	60.23	59.37	60.91	59.68	60.19	60.19	61.60	61.12	61.94	62.19	61.82
50.00°	52.47	52.31	52.38	51.57	51.51	51.38	51.10	51.36	51.39	51.39	51.52	51.75	52.15	52.20	52.30	52.22	52.47
52.50°	45.36	45.06	45.62	45.15	44.42	43.94	43.54	43.77	44.10	43.93	44.27	44.35	44.76	45.08	45.23	45.34	45.36
55.00°	39.17	38.62	39.33	39.00	38.71	38.61	38.04	38.55	38.17	38.74	38.46	38.75	38.58	38.94	38.98	38.85	39.17
57.50°	33.87	33.78	34.05	33.76	33.79	33.52	33.48	33.37	33.19	33.59	33.05	33.45	33.80	33.77	33.95	33.91	33.87
60.00°	28.92	29.26	29.02	28.71	28.96	28.72	28.71	28.32	28.43	28.55	28.26	28.68	28.96	29.04	28.98	29.08	28.92
62.50°	24.24	24.54	24.44	24.13	24.17	24.15	23.86	23.45	23.81	23.71	23.59	23.96	24.08	24.35	24.09	24.34	24.24
65.00°	20.01	19.80	20.00	19.81	19.86	19.83	19.46	19.04	19.50	19.20	19.57	19.68	19.64	19.68	19.75	19.64	20.01
67.50°	16.06	16.79	15.78	15.97	15.73	16.43	15.18	15.35	15.35	15.41	15.66	15.56	15.52	16.08	15.98	15.95	16.06
70.00°	13.29	13.89	12.60	12.82	12.78	13.68	12.42	12.89	12.72	12.41	12.64	12.94	12.77	12.73	12.88	12.55	13.29
72.50°	11.00	10.80	10.35	10.44	10.12	10.81	9.92	10.31	10.33	10.11	9.90	10.41	10.51	10.33	10.21	10.38	11.00
75.00°	8.50	8.14	7.92	8.22	7.94	8.05	7.91	7.74	7.91	8.10	7.71	8.03	8.18	8.10	8.17	8.13	8.50
77.50°	6.18	6.07	5.71	6.10	5.82	5.67	5.78	5.73	5.47	6.28	5.79	5.55	5.78	6.18	6.31	5.82	6.18
80.00°	4.15	4.00	4.17	4.11	3.85	3.78	3.62	3.83	3.49	4.02	3.85	3.79	3.61	4.43	4.63	4.20	4.15
82.50°	2.73	2.41	2.35	2.61	2.41	2.41	2.13	2.11	2.25	2.12	2.09	2.63	2.18	2.75	2.71	2.36	2.73
85.00°	1.45	1.39	1.26	1.19	1.59	1.37	1.27	1.03	1.30	1.18	1.00	1.47	1.12	1.33	1.28	1.19	1.45
87.50°	0.83	0.70	0.59	0.68	0.60	0.80	0.51	0.56	0.52	0.45	0.49	0.70	0.73	0.53	0.68	0.58	0.83
90.00°	0.34	0.42	0.38	0.40	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.39	0.38	0.34

### 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>	718	718	718	718	701	701	701	701	670	670	670	641	641	641	615	615	603
	<b>1</b>	678	658	641	625	663	645	629	615	620	608	596	598	588	578	577	569	557
	<b>2</b>	638	603	575	552	624	593	567	545	573	552	533	555	537	522	537	523	513
	<b>3</b>	600	555	521	493	587	546	515	489	530	503	481	515	492	473	501	482	472
	<b>4</b>	565	513	475	446	553	506	470	443	492	462	437	479	453	432	468	445	437
	<b>5</b>	532	475	436	406	522	469	432	404	458	426	400	448	419	397	438	413	405
	<b>6</b>	503	442	402	373	493	437	399	372	428	394	369	419	389	366	411	384	377
	<b>7</b>	475	413	373	345	467	409	371	344	401	367	342	393	363	340	386	359	352
	<b>8</b>	450	387	347	320	442	383	345	319	376	342	318	370	339	316	364	336	330
	<b>9</b>	427	364	325	298	420	361	323	298	355	320	297	349	318	295	344	315	310
	<b>10</b>	406	343	305	279	400	340	303	279	335	301	278	330	299	277	325	297	292

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	19.6 fc	6.1 ft
6.5 ft	14.0 fc	7.2 ft
7.5 ft	10.5 fc	8.3 ft
8.0 ft	9.3 fc	8.8 ft
10.0 ft	5.9 fc	11.0 ft
12.0 ft	4.1 fc	13.2 ft
14.0 ft	3.0 fc	15.4 ft
16.0 ft	2.3 fc	17.6 ft
20.0 ft	1.5 fc	22.0 ft
24.0 ft	1.0 fc	26.4 ft
28.0 ft	0.8 fc	30.8 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	74610	74610	74610
45.00°	13000	12964	12838
55.00°	8594	8629	8493
65.00°	5958	5955	5914
75.00°	4134	3853	3860
85.00°	2098	1814	2289

### 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>	15.3	16.5	15.7	16.8	17.1	15.3	16.4	15.6	16.8	17.1
	<b>3H</b>	16.3	17.3	16.7	17.7	18.0	16.2	17.2	16.6	17.6	17.9
	<b>4H</b>	16.6	17.6	17.0	17.9	18.3	16.5	17.5	16.9	17.8	18.2
	<b>6H</b>	16.7	17.6	17.2	18.0	18.4	16.6	17.5	17.0	17.9	18.3
	<b>8H</b>	16.8	17.6	17.2	18.0	18.4	16.6	17.5	17.1	17.8	18.3
	<b>12H</b>	16.8	17.6	17.2	17.9	18.4	16.6	17.4	17.0	17.8	18.2
<b>4H</b>	<b>2H</b>	15.6	16.6	16.0	16.9	17.3	15.6	16.5	16.0	16.9	17.3
	<b>3H</b>	16.7	17.5	17.2	17.9	18.3	16.7	17.4	17.1	17.9	18.3
	<b>4H</b>	17.1	17.8	17.6	18.3	18.7	17.0	17.7	17.5	18.2	18.6
	<b>6H</b>	17.4	18.0	17.8	18.4	18.9	17.2	17.8	17.7	18.3	18.8
	<b>8H</b>	17.4	18.0	17.9	18.4	18.9	17.2	17.8	17.7	18.3	18.7
	<b>12H</b>	17.4	17.9	17.9	18.4	18.9	17.2	17.7	17.7	18.2	18.7
<b>8H</b>	<b>4H</b>	17.2	17.8	17.7	18.2	18.7	17.1	17.7	17.6	18.1	18.6
	<b>6H</b>	17.5	18.0	18.0	18.5	18.9	17.3	17.8	17.8	18.3	18.8
	<b>8H</b>	17.6	18.0	18.1	18.5	19.0	17.4	17.8	17.9	18.3	18.8
	<b>12H</b>	17.6	18.0	18.1	18.5	19.0	17.4	17.8	18.0	18.3	18.9
<b>12H</b>	<b>4H</b>	17.2	17.7	17.7	18.2	18.6	17.1	17.6	17.5	18.0	18.5
	<b>6H</b>	17.5	17.9	18.0	18.4	18.9	17.3	17.7	17.8	18.2	18.7
	<b>8H</b>	17.6	17.9	18.1	18.4	19.0	17.4	17.8	17.9	18.2	18.8

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0