

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

994 Jefferson Street  
Fall River, MA 02721  
+1.508.678.2303

## **Spectrum Lighting Photometric Lab**

### **Luminaire**

SS4Mx TA5L E1 SDD4x AMB MW FG  
Nom 4" square recessed downlight

### **Test Number**

SP-00787

### **Test Date**

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

### Summary of Results

#### Power

Input Watts	15.8 W
-------------	--------

#### Lumen Output

Output Lumens	302
Efficacy	19.1 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.99
Two luminaires, plane 90°	0.99
Four luminaires	1.06

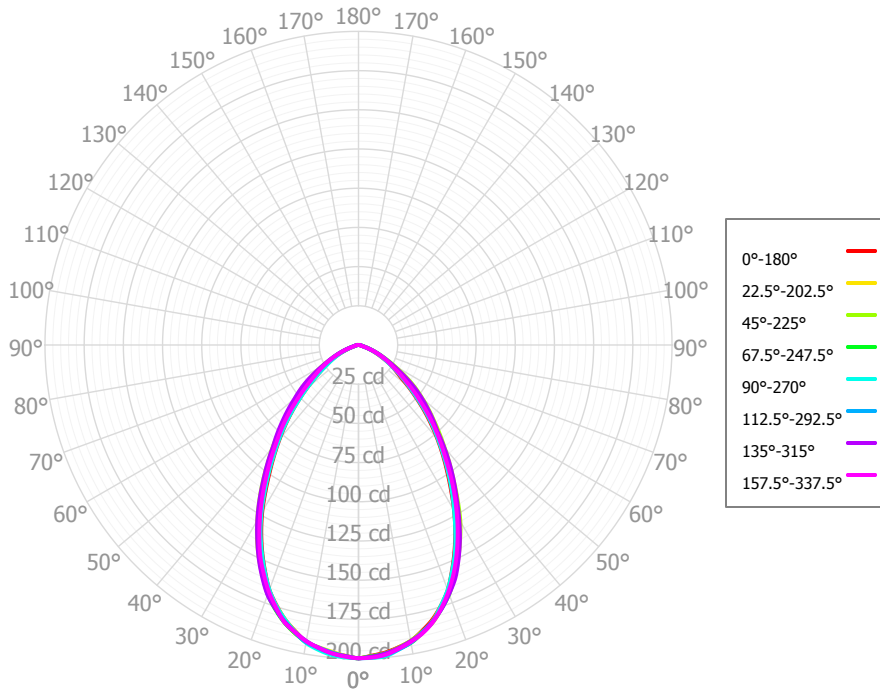
#### Full Beam Angle

0° - 180°	69°
90° - 270°	70°

### IES File Header Contents

Keyword	Value
TEST	SP-00787
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	3/14/2019
UPDATE	4/23/2019
LUMCAT	SS4Mx TA5L E1 SDD4x AMB MW FG
LUMINAIRE	Nom 4" square recessed downlight
OTHER	Beam Angle: 70 degrees
OTHER	Matte white trim; Frosted glass lens
LAMPCAT	N/A
LAMP	N/A, LEDs Amber in color, 590 nm
OTHER	CCT Output Multipliers: N/A
OTHER	Total luminaire wattages is approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	N/A, Amber Light
_CCTMULT	N/A
_LAMPMULT	N/A

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	18.96	6.28%	90.00° - 100.00°	0.08	0.03%
10.00° - 20.00°	50.98	16.89%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	67.67	22.42%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	64.24	21.28%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	49.34	16.35%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	30.72	10.18%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	14.91	4.94%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	3.63	1.20%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.29	0.43%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	301.74	99.97%	0.00° - 180.00°	301.83	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°	199.79	199.79	199.79	199.79	199.79	199.79	199.79	199.79	199.79	199.79	199.79	199.79	199.79	199.79	199.79	199.79	199.79
2.50°	198.38	198.82	198.70	198.71	199.76	198.65	198.62	198.97	198.48	198.45	199.06	198.88	199.45	199.39	198.97	199.57	198.38
5.00°	196.96	197.41	197.54	197.45	199.19	196.85	197.36	197.38	197.13	196.41	197.90	197.75	198.41	198.32	197.55	198.37	196.96
7.50°	194.60	195.16	194.77	195.31	196.02	194.67	194.95	194.79	194.88	194.51	195.18	195.31	196.12	195.88	195.08	195.57	194.60
10.00°	191.80	192.25	191.58	192.88	192.60	192.43	191.74	191.99	192.36	192.62	192.03	192.56	192.89	192.67	191.84	192.36	191.80
12.50°	186.95	187.76	187.43	188.09	187.74	187.72	187.44	187.59	186.94	187.02	188.22	188.02	187.31	187.84	188.12	188.47	186.95
15.00°	181.58	182.26	183.14	182.78	182.72	182.83	182.56	183.01	181.27	181.25	183.02	183.08	181.27	182.50	182.67	183.12	181.58
17.50°	174.61	174.95	176.30	175.01	174.62	175.62	176.36	175.27	174.13	174.40	176.18	176.71	174.38	176.34	176.40	175.87	174.61
20.00°	166.51	166.93	169.27	166.84	166.28	168.27	169.64	167.35	166.31	167.36	168.42	169.34	166.22	168.92	169.00	167.60	166.51
22.50°	155.86	157.96	159.94	157.43	156.07	158.92	160.41	157.96	155.99	158.56	159.85	159.50	156.23	159.97	161.20	158.30	155.86
25.00°	144.98	147.94	150.54	147.62	145.57	149.25	150.48	148.40	145.47	149.28	150.31	149.21	145.94	149.72	150.95	148.03	144.98
27.50°	133.69	136.79	140.31	136.92	133.70	137.56	139.84	137.03	134.41	137.50	140.11	138.08	135.30	138.28	140.08	136.99	133.69
30.00°	122.05	125.31	129.85	126.06	122.02	125.91	129.07	125.62	122.86	125.70	129.12	126.60	123.78	126.46	128.44	125.69	122.05
32.50°	109.96	113.55	117.81	114.93	110.94	114.40	117.58	114.00	110.39	113.83	117.73	114.63	111.54	114.36	116.68	114.23	109.96
35.00°	98.75	102.53	106.04	103.75	99.99	103.18	106.04	102.57	98.73	102.45	106.44	103.45	99.98	103.24	106.01	102.75	98.75
37.50°	88.42	91.94	95.48	92.52	89.35	92.80	95.43	91.86	88.24	92.21	95.21	93.12	88.87	92.66	95.43	91.27	88.42
40.00°	78.49	81.62	85.32	82.41	79.27	83.02	84.95	81.66	78.36	82.49	85.18	83.07	78.93	82.64	84.81	81.50	78.49
42.50°	68.84	71.42	76.32	73.44	70.13	74.47	76.68	72.77	69.14	73.69	75.47	73.27	69.55	72.84	74.39	72.29	68.84
45.00°	59.47	62.75	67.83	64.34	60.89	66.02	68.47	63.89	60.16	64.78	67.06	64.37	60.30	64.03	66.96	63.16	59.47
47.50°	50.26	54.60	60.41	55.14	51.51	57.71	60.70	55.05	51.37	55.72	58.85	56.04	51.09	55.52	59.58	54.04	50.26
50.00°	42.08	46.63	53.27	47.11	43.40	49.45	53.18	46.98	43.39	47.45	52.35	47.81	43.22	47.33	52.54	46.09	42.08
52.50°	34.35	38.70	46.58	39.77	36.57	41.25	46.85	39.98	35.95	40.01	46.00	39.63	35.67	39.21	45.40	38.28	34.35
55.00°	29.50	33.08	39.58	33.75	30.58	34.41	40.29	33.98	30.18	33.72	39.16	33.17	29.82	33.50	37.84	32.21	29.50
57.50°	25.54	27.78	32.22	28.31	25.22	28.80	33.03	29.05	25.23	28.36	32.37	27.34	24.23	28.05	30.64	26.27	25.54
60.00°	21.04	22.97	25.92	23.44	20.83	24.20	26.38	24.39	21.18	23.91	26.51	23.02	20.34	23.57	24.49	22.30	21.04
62.50°	16.43	18.21	20.62	18.75	17.01	20.30	21.07	19.96	17.46	20.03	20.77	19.06	16.57	19.14	19.04	18.36	16.43
65.00°	12.90	14.43	15.79	14.98	13.45	16.35	16.26	15.86	13.70	15.99	15.98	15.23	13.29	15.22	15.08	14.69	12.90
67.50°	9.50	10.75	11.31	11.41	10.00	12.36	12.29	11.98	9.94	11.87	11.46	11.42	10.03	11.35	11.23	11.03	9.50
70.00°	6.67	7.67	8.06	7.89	6.92	8.79	8.69	8.20	6.84	8.57	7.89	7.86	6.93	7.70	7.51	7.43	6.67
72.50°	4.11	4.81	5.31	4.74	4.06	5.36	5.45	4.47	4.08	5.51	5.03	4.68	4.35	4.70	4.83	4.40	4.11
75.00°	2.18	2.27	3.33	2.84	2.55	3.25	3.46	2.92	2.43	3.01	2.88	2.54	2.48	2.40	2.73	1.94	2.18
77.50°	1.73	1.64	2.20	1.88	1.63	1.95	2.05	1.94	1.56	1.71	1.76	2.03	2.00	1.83	1.40	1.59	1.73
80.00°	1.50	1.48	1.99	1.41	1.32	1.63	1.34	1.65	1.31	1.43	1.45	1.86	1.62	1.53	0.95	1.16	1.50
82.50°	1.07	1.43	1.80	1.15	1.42	1.16	1.41	1.44	1.46	1.36	1.45	1.36	1.30	1.57	1.20	0.98	1.07
85.00°	1.05	1.15	1.27	1.24	1.04	1.39	1.64	1.08	1.27	1.52	1.30	1.25	1.11	1.35	1.02	1.12	1.05
87.50°	1.09	1.35	1.07	1.07	1.11	1.13	1.06	0.98	1.00	1.11	1.24	1.05	1.11	1.48	1.02	1.01	1.09
90.00°	0.00	0.00	0.98	0.94	1.25	1.23	1.01	0.97	1.19	1.11	0.00	0.87	0.00	0.00	0.00	0.00	0.00
92.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 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>	359	359	359	359	351	351	351	351	335	335	335	321	321	321	308	308	302
	<b>1</b>	337	326	317	308	329	320	311	303	307	300	293	296	290	285	285	281	275
	<b>2</b>	314	295	279	266	307	289	275	263	279	267	257	270	260	251	261	253	248
	<b>3</b>	292	267	248	232	285	263	245	230	254	239	226	246	233	223	239	228	224
	<b>4</b>	272	243	222	205	266	239	219	204	232	215	201	226	211	199	220	207	203
	<b>5</b>	254	222	200	183	248	219	198	182	213	194	180	207	191	179	202	188	184
	<b>6</b>	237	204	181	165	232	201	180	164	196	177	163	191	174	162	187	172	169
	<b>7</b>	223	188	165	149	218	186	164	149	181	162	148	177	160	147	173	158	155
	<b>8</b>	209	174	152	136	205	172	151	136	168	149	135	165	147	135	161	146	143
	<b>9</b>	197	162	140	125	193	160	139	125	157	138	124	154	136	124	151	135	133
	<b>10</b>	186	151	130	116	182	149	129	115	146	128	115	144	127	115	141	126	124

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	6.6 fc	7.7 ft
6.5 ft	4.7 fc	9.1 ft
7.5 ft	3.6 fc	10.5 ft
8.0 ft	3.1 fc	11.2 ft
10.0 ft	2.0 fc	13.9 ft
12.0 ft	1.4 fc	16.7 ft
14.0 ft	1.0 fc	19.5 ft
16.0 ft	0.8 fc	22.3 ft
20.0 ft	0.5 fc	27.9 ft
24.0 ft	0.3 fc	33.5 ft
28.0 ft	0.3 fc	39.0 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	19,748	19,748	19,748
<b>45.00°</b>	8,313	9,482	8,512
<b>55.00°</b>	5,084	6,821	5,269
<b>65.00°</b>	3,016	3,694	3,145
<b>75.00°</b>	832	1,270	972
<b>85.00°</b>	1,194	1,442	1,179

### 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>	15.9	17.2	16.3	17.5	17.9	16.1	17.4	16.4	17.7	18.0
	<b>3H</b>	16.4	17.6	16.8	17.9	18.3	16.7	17.8	17.0	18.2	18.5
	<b>4H</b>	16.4	17.5	16.8	17.9	18.3	16.7	17.8	17.1	18.1	18.5
	<b>6H</b>	16.4	17.4	16.8	17.8	18.2	16.6	17.7	17.1	18.0	18.4
	<b>8H</b>	16.4	17.3	16.8	17.7	18.1	16.6	17.6	17.1	18.0	18.4
	<b>12H</b>	16.3	17.3	16.8	17.6	18.1	16.6	17.5	17.1	17.9	18.4
<b>4H</b>	<b>2H</b>	16.2	17.3	16.6	17.7	18.0	16.4	17.5	16.8	17.9	18.2
	<b>3H</b>	16.8	17.7	17.2	18.1	18.5	17.1	18.0	17.5	18.4	18.8
	<b>4H</b>	16.8	17.6	17.3	18.0	18.5	17.1	17.9	17.5	18.3	18.8
	<b>6H</b>	16.8	17.5	17.3	17.9	18.4	17.1	17.8	17.6	18.2	18.7
	<b>8H</b>	16.8	17.4	17.3	17.9	18.3	17.1	17.7	17.6	18.2	18.7
	<b>12H</b>	16.8	17.4	17.3	17.8	18.3	17.1	17.7	17.6	18.2	18.6
<b>8H</b>	<b>4H</b>	16.8	17.4	17.2	17.9	18.3	17.1	17.7	17.5	18.2	18.6
	<b>6H</b>	16.8	17.3	17.3	17.8	18.3	17.1	17.6	17.6	18.1	18.6
	<b>8H</b>	16.7	17.2	17.3	17.7	18.2	17.1	17.5	17.6	18.1	18.6
	<b>12H</b>	16.8	17.2	17.3	17.7	18.3	17.1	17.5	17.6	18.0	18.6
<b>12H</b>	<b>4H</b>	16.7	17.3	17.2	17.8	18.3	17.0	17.6	17.5	18.1	18.5
	<b>6H</b>	16.7	17.2	17.2	17.7	18.2	17.0	17.5	17.6	18.0	18.5
	<b>8H</b>	16.7	17.2	17.3	17.7	18.2	17.1	17.5	17.6	18.0	18.5

Corrected UGR values based on total output lumens

SHR = 1.0