

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

WS1611-TA05L-AMB-EX-TF2-MWI  
Nom 16" diam Warehouse Shade RLM luminaire

### **Test Number**

SP-00642\_3

### **Test Date**

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

### Summary of Results

#### Power

Input Watts	15.3 W
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#### Lumen Output

Output Lumens	521
Efficacy	34.03 lm/W

#### Luminous Dimensions

0° - 180° Size	-1.33
90° - 270° Size	-1.33
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	1.32
Two luminaires, plane 90°	1.34
Four luminaires	1.49

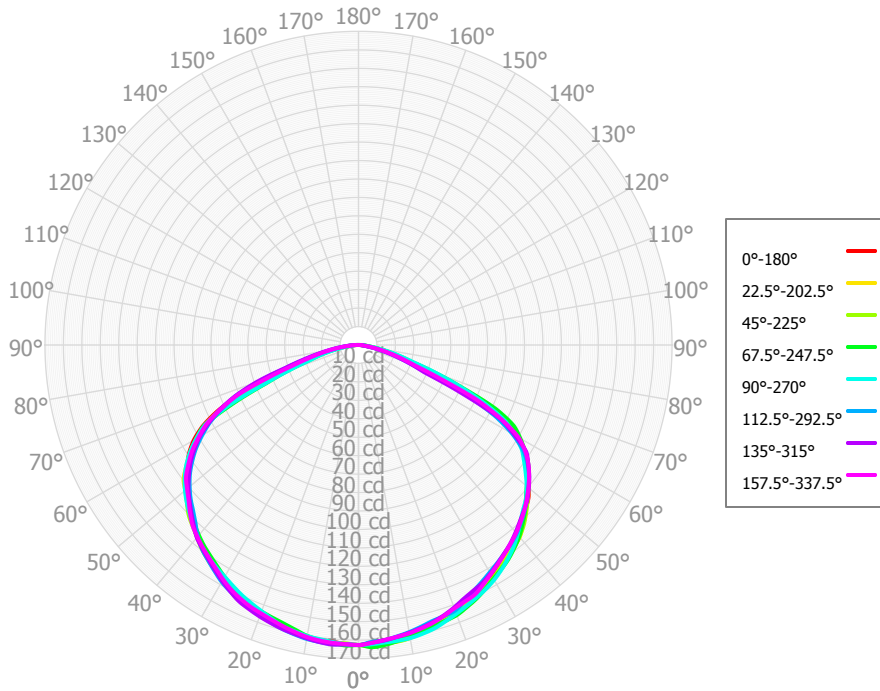
#### Full Beam Angle

0° - 180°	129°
90° - 270°	128°

### IES File Header Contents

Keyword	Value
TEST	SP-00642_3
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	3/13/2019
UPDATE	3/26/2019
LUMCAT	WS1611-TA05L-AMB-EX-TF2-MWI
LUMINAIRE	Nom 16" diam Warehouse Shade RLM luminaire
OTHER	Beam Angle: 128 degrees
OTHER	Matte white trim; Polycarbonate 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

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	15.64	3.00%	90.00° - 100.00°	0.13	0.02%
10.00° - 20.00°	44.54	8.55%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	69.44	13.33%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	88.11	16.92%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	98.97	19.01%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	99.86	19.18%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	73.51	14.12%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	25.41	4.88%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	5.11	0.98%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	520.59	99.98%	0.00° - 180.00°	520.72	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°	162.70	162.70	162.70	162.70	162.70	162.70	162.70	162.70	162.70	162.70	162.70	162.70	162.70	162.70	162.70	162.70	162.70
2.50°	161.64	163.45	161.75	164.00	162.45	162.37	162.59	162.33	162.39	162.59	161.93	163.09	162.41	161.19	161.63	161.74	161.64
5.00°	160.67	162.78	161.88	163.27	161.95	162.85	163.00	162.08	161.49	162.03	162.25	162.00	161.63	160.68	160.83	160.59	160.67
7.50°	160.30	162.05	162.17	161.94	161.78	162.41	162.48	161.64	161.35	161.68	161.66	161.29	160.94	159.42	159.67	159.62	160.30
10.00°	159.61	161.27	161.26	160.49	161.41	161.83	161.51	160.77	161.37	160.54	160.65	160.17	160.25	158.12	158.45	158.74	159.61
12.50°	158.26	159.75	158.96	159.10	160.39	160.70	160.48	159.39	159.70	158.89	159.74	158.18	159.16	156.51	157.18	157.43	158.26
15.00°	156.86	157.72	157.46	157.72	159.09	159.45	159.42	157.89	157.80	157.66	158.88	156.41	158.04	154.94	155.60	155.99	156.86
17.50°	155.39	156.11	156.73	156.76	157.09	157.82	158.09	156.29	156.44	156.67	157.45	155.07	155.83	154.18	153.74	154.06	155.39
20.00°	153.80	154.70	155.28	155.84	155.09	156.11	156.68	154.83	155.12	155.35	155.88	153.85	153.65	153.21	151.51	152.01	153.80
22.50°	152.06	152.47	153.25	153.75	153.12	154.19	155.04	153.48	152.76	153.89	153.55	152.79	151.68	150.24	149.02	150.61	152.06
25.00°	149.74	149.89	151.03	151.63	151.19	152.34	153.34	151.66	150.38	151.52	151.08	150.92	149.67	147.34	147.10	149.31	149.74
27.50°	146.80	147.83	148.70	149.00	149.31	150.60	150.65	149.53	148.17	148.86	149.01	148.11	147.35	144.81	145.51	146.49	146.80
30.00°	144.37	145.94	146.09	146.39	147.07	148.33	147.82	146.81	145.98	146.70	146.99	145.29	145.10	142.35	143.14	143.49	144.37
32.50°	142.43	143.18	143.34	144.11	144.34	145.31	144.84	143.78	143.94	144.67	144.65	142.45	143.18	140.13	140.41	140.80	142.43
35.00°	139.84	140.21	140.94	141.73	141.34	142.35	141.86	141.10	141.72	142.14	142.29	139.85	141.15	137.93	137.88	138.12	139.84
37.50°	136.77	138.04	138.67	138.73	138.05	139.44	139.11	138.58	138.33	139.52	139.13	137.43	138.72	135.79	135.43	135.59	136.77
40.00°	133.43	136.00	135.72	135.56	134.21	135.60	136.35	135.86	135.08	136.13	135.97	134.66	136.06	133.40	132.58	133.04	133.43
42.50°	129.93	132.12	132.56	131.69	129.90	130.88	132.28	133.07	132.45	132.65	133.16	131.68	132.75	130.42	129.62	130.08	129.93
45.00°	127.14	128.04	128.55	127.67	126.30	126.89	128.23	129.13	129.60	129.16	130.23	128.49	129.49	127.27	126.89	127.09	127.14
47.50°	124.69	124.36	124.34	123.17	123.21	123.47	124.36	124.92	125.97	125.66	126.21	125.20	126.29	123.78	124.20	123.74	124.69
50.00°	120.69	120.69	120.14	119.11	119.06	119.53	120.42	121.36	122.14	122.67	122.14	121.34	122.81	120.23	120.53	120.32	120.69
52.50°	116.11	116.23	115.95	116.13	114.30	115.25	115.88	117.90	117.77	119.55	117.84	117.26	118.81	116.59	116.73	116.52	116.11
55.00°	111.40	111.72	111.38	112.36	109.58	110.11	111.16	112.57	113.36	113.85	113.25	112.77	114.07	111.84	112.32	112.43	111.40
57.50°	106.65	106.46	106.78	107.04	104.89	104.53	105.54	107.05	108.84	108.05	107.43	108.16	108.31	105.69	107.86	107.22	106.65
60.00°	100.01	100.79	100.40	101.30	97.84	97.89	99.44	100.10	103.02	101.47	101.19	101.49	101.57	96.32	97.73	100.18	100.01
62.50°	92.98	91.62	93.78	94.91	89.92	90.80	91.61	93.07	95.12	93.74	93.62	94.36	93.72	83.64	86.91	87.62	92.98
65.00°	71.69	80.01	74.65	82.25	76.17	81.72	82.97	82.51	83.71	79.57	81.80	75.12	78.00	65.54	61.55	71.80	71.69
67.50°	48.44	56.73	55.94	61.73	60.85	72.02	72.23	71.03	67.78	64.09	60.25	54.09	55.24	42.97	38.61	48.75	48.44
70.00°	36.07	37.83	40.18	44.65	45.38	56.32	58.85	52.64	51.59	44.68	43.15	40.60	39.81	30.67	30.19	32.70	36.07
72.50°	25.32	27.67	27.68	29.97	31.36	40.91	42.07	37.73	35.22	31.47	31.25	28.97	28.03	23.04	22.62	24.70	25.32
75.00°	18.77	20.27	20.41	22.28	23.56	30.34	31.33	28.46	26.32	24.41	23.81	22.29	21.74	16.77	16.27	18.08	18.77
77.50°	13.25	14.27	14.64	15.86	16.77	21.90	23.05	21.39	19.00	18.43	17.97	16.48	15.64	11.12	10.97	12.23	13.25
80.00°	8.47	8.62	9.27	10.36	10.94	15.42	16.41	15.21	12.98	12.71	13.02	11.29	9.97	6.46	6.48	7.32	8.47
82.50°	4.68	5.29	4.88	5.95	6.38	10.79	10.76	9.90	8.30	7.72	7.78	6.76	6.46	3.62	3.33	4.35	4.68
85.00°	2.76	2.88	3.20	3.36	3.82	6.39	5.83	5.81	5.00	4.30	4.24	3.54	3.37	2.60	1.97	2.37	2.76
87.50°	1.71	1.64	2.11	1.94	2.57	3.20	3.41	2.99	2.87	2.47	2.40	2.72	2.54	1.39	1.22	1.88	1.71
90.00°	0.85	0.52	0.97	0.43	1.36	1.85	0.94	1.26	0.66	1.23	0.46	1.37	1.26	0.40	1.00	0.59	0.85
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>	620	620	620	620	605	605	605	605	579	579	579	554	554	554	531	531	521
	<b>1</b>	568	544	522	503	554	532	512	494	510	494	479	490	476	464	471	460	450
	<b>2</b>	516	473	438	408	502	463	431	403	445	417	394	427	405	385	412	393	376
	<b>3</b>	469	413	371	337	456	405	365	333	389	355	327	375	346	322	362	337	316
	<b>4</b>	427	364	318	282	415	357	314	280	344	306	276	332	299	273	320	292	269
	<b>5</b>	392	323	276	241	380	318	273	239	306	267	237	296	261	234	286	256	231
	<b>6</b>	360	290	242	208	350	285	240	207	275	235	205	266	231	203	258	226	201
	<b>7</b>	333	261	215	182	324	257	213	182	249	209	180	241	206	179	234	202	177
	<b>8</b>	309	238	192	161	301	234	191	161	227	188	160	220	185	159	214	182	158
	<b>9</b>	289	217	174	144	281	214	172	144	208	170	143	202	167	142	197	165	141
	<b>10</b>	270	200	158	130	263	197	157	130	192	155	129	187	153	128	182	151	128

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	5.4 fc	22.4 ft
6.5 ft	3.9 fc	26.5 ft
7.5 ft	2.9 fc	30.6 ft
8.0 ft	2.5 fc	32.6 ft
10.0 ft	1.6 fc	40.8 ft
12.0 ft	1.1 fc	48.9 ft
14.0 ft	0.8 fc	57.1 ft
16.0 ft	0.6 fc	65.2 ft
20.0 ft	0.4 fc	81.5 ft
24.0 ft	0.3 fc	97.8 ft
28.0 ft	0.2 fc	114.1 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	1,261	1,261	1,261
45.00°	1,393	1,408	1,384
55.00°	1,505	1,505	1,480
65.00°	1,314	1,369	1,396
75.00°	562	611	705
85.00°	245	284	340

### 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>	13.6	15.2	13.9	15.5	15.9	13.5	15.2	13.9	15.5	15.8
	<b>3H</b>	14.4	15.9	14.8	16.3	16.6	14.8	16.3	15.2	16.7	17.0
	<b>4H</b>	14.6	16.0	15.0	16.4	16.7	15.1	16.5	15.5	16.8	17.2
	<b>6H</b>	14.7	16.0	15.1	16.3	16.7	15.2	16.5	15.6	16.9	17.3
	<b>8H</b>	14.7	15.9	15.1	16.3	16.7	15.2	16.5	15.6	16.9	17.3
	<b>12H</b>	14.7	15.8	15.1	16.2	16.7	15.2	16.4	15.7	16.8	17.2
<b>4H</b>	<b>2H</b>	14.0	15.4	14.4	15.8	16.2	14.2	15.7	14.6	16.0	16.4
	<b>3H</b>	15.0	16.2	15.4	16.6	17.0	15.7	16.8	16.1	17.2	17.6
	<b>4H</b>	15.2	16.3	15.6	16.7	17.1	16.0	17.1	16.4	17.5	17.9
	<b>6H</b>	15.3	16.3	15.8	16.7	17.2	16.2	17.1	16.6	17.6	18.0
	<b>8H</b>	15.3	16.2	15.8	16.6	17.1	16.2	17.1	16.7	17.5	18.0
	<b>12H</b>	15.3	16.1	15.8	16.6	17.1	16.2	17.0	16.7	17.5	18.0
<b>8H</b>	<b>4H</b>	15.3	16.1	15.7	16.6	17.0	16.2	17.0	16.6	17.5	17.9
	<b>6H</b>	15.4	16.1	15.9	16.6	17.1	16.4	17.1	16.9	17.6	18.1
	<b>8H</b>	15.4	16.1	15.9	16.6	17.1	16.5	17.1	17.0	17.6	18.1
	<b>12H</b>	15.4	16.0	16.0	16.5	17.1	16.5	17.1	17.0	17.6	18.1
<b>12H</b>	<b>4H</b>	15.3	16.0	15.7	16.5	17.0	16.2	16.9	16.6	17.4	17.9
	<b>6H</b>	15.4	16.0	15.9	16.5	17.0	16.4	17.1	17.0	17.5	18.1
	<b>8H</b>	15.4	16.0	15.9	16.5	17.0	16.5	17.1	17.0	17.6	18.1

Corrected UGR values based on total output lumens

SHR = 1.0