

## Indoor Distribution Test Report

# Spectrum Lighting Inc.

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## Spectrum Lighting Photometric Lab

### Luminaire

ES03SMFxx 930 007 xxx WW WF LW MW  
Nom 3 inch diam round recessed wall wash estimator

### Test Number

SP-00876\_M-007L

### Test Date

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

### Summary of Results

#### Power

Input Watts	8.8 W
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#### Lumen Output

Output Lumens	235
Efficacy	26.7 lm/W

#### Luminous Dimensions

0° - 180° Size	0.22
90° - 270° Size	0.22
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	1.52
Two luminaires, plane 90°	0.81
Four luminaires	1.07

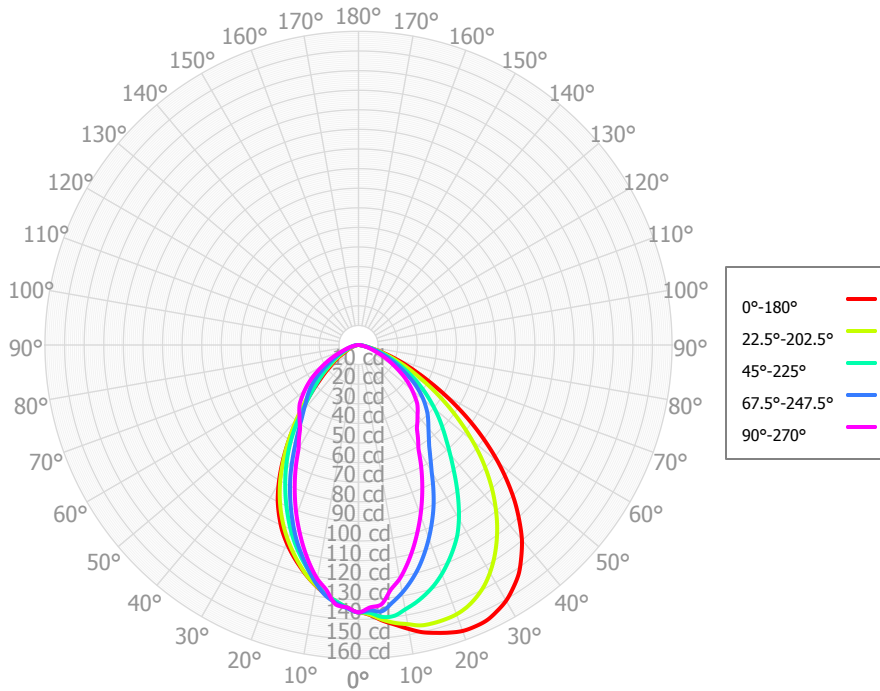
#### Full Beam Angle

0° - 180°	85°
90° - 270°	49°

### IES File Header Contents

Keyword	Value
TEST	SP-00876_M-007L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	6/6/2019
UPDATE	7/26/2019
LUMCAT	ES03SMFxx 930 007 xxx WW WF LW MW
LUMINAIRE	Nom 3 inch diam round recessed wall wash estimator
LAMPCAT	N/A
LAMP	N/A; CRI: 90, 9mm LES
OTHER	Asymmetrical Beam: 83.8 degrees x 51.5 degrees
OTHER	CCT Output Multipliers: 27HK x 0.97
OTHER	This report prepared by Spectrum Lighting, scaled from 13L
_CCTMULT	27HK x 0.97

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	13.05	5.55%	90.00° - 100.00°	0.07	0.03%
10.00° - 20.00°	34.28	14.58%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	46.54	19.79%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	47.36	20.14%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	40.96	17.42%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	29.62	12.60%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	16.17	6.88%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	5.92	2.52%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.22	0.52%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	235.13	100.00%	0.00° - 180.00°	235.13	100.00%

### Candela Distribution

	0.00°	22.50°	45.00°	67.50°	90.00°	112.50°	135.00°	157.50°	180.00°
0.00°	136.44	136.44	136.44	136.44	136.44	136.44	136.44	136.44	136.44
2.50°	138.00	137.78	136.88	135.56	134.08	134.43	134.10	134.05	134.06
5.00°	141.22	140.76	139.32	136.42	132.96	132.16	131.19	131.27	131.71
7.50°	144.00	143.07	139.43	132.54	126.01	128.99	128.36	128.14	128.46
10.00°	147.12	144.67	137.05	128.37	121.16	123.82	123.46	124.66	124.83
12.50°	150.13	146.58	134.73	123.48	114.66	117.62	117.88	120.81	120.93
15.00°	152.10	147.00	131.86	117.99	107.55	111.30	112.49	116.01	116.60
17.50°	153.91	146.84	128.49	111.67	100.07	104.77	106.90	110.95	112.13
20.00°	155.32	146.27	124.38	104.95	92.49	97.55	100.84	105.61	107.33
22.50°	155.50	144.73	119.71	97.90	84.72	90.12	94.27	99.89	102.10
25.00°	155.02	142.14	114.69	90.64	76.91	82.72	87.68	93.74	95.93
27.50°	153.14	138.73	109.26	82.71	69.07	75.22	80.98	87.06	89.30
30.00°	150.69	134.20	102.49	74.66	61.22	67.33	74.29	79.88	81.39
32.50°	146.93	128.87	94.93	68.23	56.51	59.85	67.45	72.04	72.90
35.00°	142.58	122.84	87.15	62.89	51.96	53.42	60.47	64.08	64.27
37.50°	136.45	116.24	79.54	58.91	49.38	47.75	53.22	56.18	55.74
40.00°	129.75	108.98	72.70	55.54	46.85	43.49	45.72	48.70	47.58
42.50°	121.46	101.35	66.54	52.67	44.73	39.76	39.08	41.88	39.77
45.00°	112.73	93.21	61.10	49.87	42.38	36.85	33.40	35.62	33.28
47.50°	103.02	84.75	55.99	46.62	39.05	33.81	28.83	30.18	27.25
50.00°	92.99	75.73	50.81	43.23	35.70	30.54	25.06	25.14	22.74
52.50°	82.40	66.70	45.69	39.38	32.25	26.97	21.62	20.79	18.55
55.00°	71.76	57.89	40.79	35.42	28.62	23.10	18.33	17.15	15.62
57.50°	61.10	49.33	35.91	30.99	24.60	19.48	15.66	14.32	12.78
60.00°	50.86	41.26	30.97	26.62	20.82	16.16	13.44	11.70	10.05
62.50°	41.18	33.75	26.20	22.48	17.42	13.38	11.31	9.37	7.69
65.00°	32.68	27.42	21.76	18.47	14.08	10.99	9.24	7.46	6.47
67.50°	25.51	21.52	17.54	14.80	10.80	8.95	7.41	5.98	5.35
70.00°	18.96	16.32	13.48	11.44	8.27	7.14	5.77	4.80	4.13
72.50°	13.02	11.69	10.06	8.71	6.42	5.65	4.60	3.84	3.06
75.00°	8.22	8.10	7.28	6.31	4.90	4.33	3.73	2.95	2.29
77.50°	4.00	5.04	5.07	4.41	3.60	3.28	2.94	2.18	1.64
80.00°	2.09	2.89	3.25	2.83	2.34	2.36	2.22	1.62	1.16
82.50°	0.93	1.51	1.96	1.71	1.09	1.72	1.64	1.16	0.81
85.00°	0.58	0.85	1.14	0.99	0.83	1.18	1.17	0.78	0.58
87.50°	0.52	0.60	0.67	0.63	0.70	0.84	0.78	0.55	0.55
90.00°	0.00	0.43	0.56	0.58	0.42	0.60	0.50	0.54	0.49

### 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>	280	280	280	280	273	273	273	273	261	261	261	250	250	250	240	240	235
	<b>1</b>	261	252	244	236	255	247	239	233	237	231	225	228	223	219	220	216	211
	<b>2</b>	241	225	212	201	236	221	209	199	213	203	194	206	197	190	199	192	188
	<b>3</b>	223	202	186	173	218	199	184	172	192	179	169	186	175	166	180	171	168
	<b>4</b>	207	183	165	151	202	180	163	150	174	160	148	169	157	146	164	153	150
	<b>5</b>	192	166	147	134	188	163	146	133	159	143	132	154	141	130	150	138	136
	<b>6</b>	179	151	133	119	175	149	132	119	145	130	118	141	128	117	138	126	123
	<b>7</b>	167	139	120	107	164	137	120	107	134	118	106	130	116	106	127	115	113
	<b>8</b>	157	128	110	97	153	126	109	97	124	108	97	121	107	96	118	105	103
	<b>9</b>	147	119	101	89	144	117	100	89	115	99	88	112	98	88	110	97	95
	<b>10</b>	139	110	93	82	136	109	93	82	107	92	81	105	91	81	103	90	89

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	4.5 fc	10.0 ft
6.5 ft	3.2 fc	11.8 ft
7.5 ft	2.4 fc	13.6 ft
8.0 ft	2.1 fc	14.5 ft
10.0 ft	1.4 fc	18.2 ft
12.0 ft	0.9 fc	21.8 ft
14.0 ft	0.7 fc	25.4 ft
16.0 ft	0.5 fc	29.1 ft
20.0 ft	0.3 fc	36.3 ft
24.0 ft	0.2 fc	43.6 ft
28.0 ft	0.2 fc	50.9 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	30,343	30,343	30,343
<b>45.00°</b>	35,456	19,218	13,329
<b>55.00°</b>	27,825	15,816	11,096
<b>65.00°</b>	17,196	11,450	7,410
<b>75.00°</b>	7,063	6,254	4,207
<b>85.00°</b>	1,478	2,915	2,118

### 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>	24.0	25.4	24.4	25.7	26.1	17.6	19.0	17.9	19.3	19.6
	<b>3H</b>	24.8	26.1	25.2	26.4	26.8	18.5	19.8	18.9	20.2	20.5
	<b>4H</b>	25.0	26.2	25.4	26.5	26.9	18.8	20.0	19.2	20.4	20.7
	<b>6H</b>	25.0	26.1	25.4	26.4	26.8	19.0	20.1	19.4	20.4	20.8
	<b>8H</b>	24.9	26.0	25.4	26.4	26.8	19.0	20.0	19.4	20.4	20.8
	<b>12H</b>	24.9	25.9	25.3	26.3	26.7	19.0	20.0	19.4	20.4	20.8
<b>4H</b>	<b>2H</b>	24.1	25.3	24.5	25.6	26.0	17.7	18.9	18.1	19.2	19.6
	<b>3H</b>	25.1	26.0	25.5	26.4	26.8	18.8	19.8	19.2	20.2	20.6
	<b>4H</b>	25.2	26.1	25.7	26.5	27.0	19.2	20.1	19.6	20.5	20.9
	<b>6H</b>	25.3	26.0	25.7	26.5	26.9	19.4	20.2	19.9	20.6	21.1
	<b>8H</b>	25.2	25.9	25.7	26.4	26.8	19.5	20.2	19.9	20.6	21.1
	<b>12H</b>	25.2	25.8	25.7	26.3	26.8	19.5	20.1	20.0	20.6	21.1
<b>8H</b>	<b>4H</b>	25.2	25.9	25.7	26.4	26.8	19.2	19.9	19.7	20.4	20.8
	<b>6H</b>	25.2	25.8	25.7	26.3	26.8	19.5	20.1	20.0	20.6	21.1
	<b>8H</b>	25.2	25.7	25.7	26.2	26.7	19.6	20.1	20.1	20.6	21.1
	<b>12H</b>	25.2	25.6	25.7	26.1	26.7	19.7	20.1	20.2	20.6	21.2
<b>12H</b>	<b>4H</b>	25.2	25.8	25.7	26.3	26.8	19.2	19.8	19.7	20.3	20.8
	<b>6H</b>	25.2	25.7	25.7	26.2	26.7	19.5	20.0	20.0	20.5	21.1
	<b>8H</b>	25.2	25.7	25.7	26.1	26.7	19.6	20.1	20.1	20.6	21.2

Corrected UGR values based on total output lumens

SHR = 1.0