

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

IF03SMx xx 835 020 DLNFGN MW  
Nom 3" Square Infinium recessed downlight

### **Test Number**

SP-00763\_1

### **Test Date**

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

### Summary of Results

#### Power

Input Watts	15 W
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#### Lumen Output

Output Lumens	926
Efficacy	61.74 lm/W

#### Luminous Dimensions

0° - 180° Size	0.16
90° - 270° Size	0.16
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	0.51
Two luminaires, plane 90°	0.51
Four luminaires	0.56

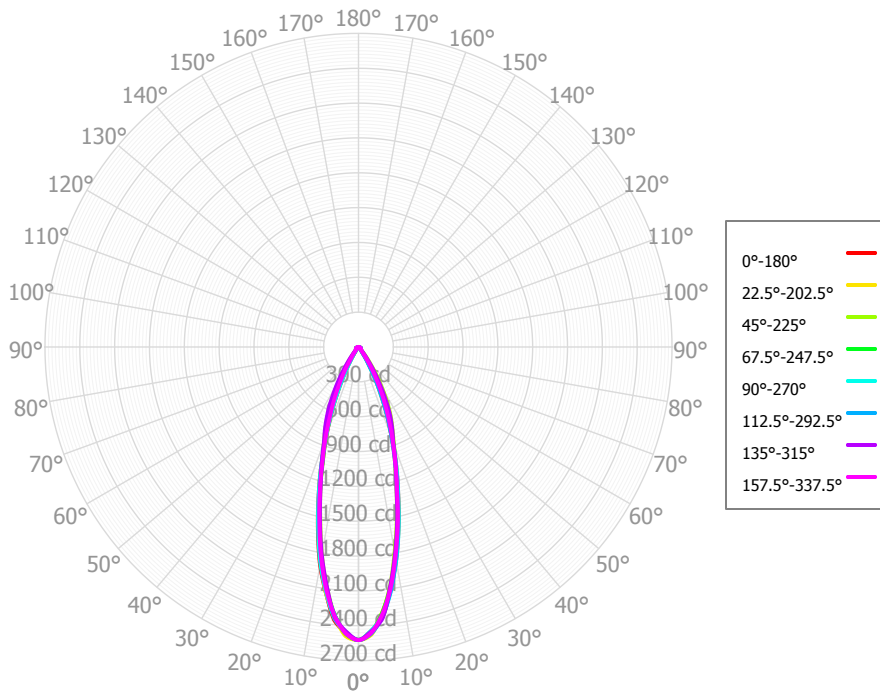
#### Full Beam Angle

0° - 180°	31°
90° - 270°	31°

### IES File Header Contents

Keyword	Value
TEST	SP-00763_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	2/11/2019
UPDATE	2/28/2019
LUMCAT	IF03SMx xx 835 020 DLNFGN MW
LUMINAIRE	Nom 3" Square Infinium recessed downlight
OTHER	Beam Angle: 31 degrees
OTHER	Narrow Flood optic, Open aperture / no lens
OTHER	Aluminum bezel
LAMPCAT	N/A
LAMP	N/A, CRI: 80, Philips
OTHER	CCT Multiplier: 40K x 1.03
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	80
_LAMPMULT	07L x 0.40, 10L x 0.56, 15L x 0.78
_CCTMULT	40K x 1.03

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	208.28	22.49%	90.00° - 100.00°	0.07	0.01%
10.00° - 20.00°	354.41	38.27%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	235.83	25.46%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	66.36	7.17%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	18.02	1.95%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	14.15	1.53%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	19.91	2.15%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	7.27	0.78%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.83	0.20%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	926.04	99.99%	0.00° - 180.00°	926.11	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°	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20	2,523.20
2.50°	2,450.84	2,481.64	2,458.35	2,465.63	2,448.20	2,468.62	2,453.10	2,471.34	2,463.20	2,493.04	2,470.93	2,473.40	2,458.48	2,471.95	2,454.87	2,466.87	2,450.84
5.00°	2,341.91	2,303.14	2,309.64	2,308.12	2,331.28	2,326.41	2,340.43	2,329.18	2,365.04	2,330.23	2,326.22	2,325.34	2,351.75	2,336.04	2,349.99	2,317.06	2,341.91
7.50°	2,103.93	2,100.65	2,080.51	2,098.51	2,108.13	2,106.22	2,084.44	2,115.42	2,139.13	2,140.95	2,088.85	2,115.39	2,130.63	2,125.60	2,086.67	2,104.46	2,103.93
10.00°	1,862.98	1,827.30	1,793.74	1,825.94	1,868.18	1,843.86	1,821.79	1,849.85	1,905.24	1,855.83	1,818.38	1,845.99	1,890.74	1,855.11	1,813.94	1,835.27	1,862.98
12.50°	1,589.54	1,555.88	1,524.93	1,553.17	1,595.71	1,553.05	1,533.63	1,553.21	1,612.92	1,559.85	1,522.79	1,550.87	1,604.33	1,576.21	1,537.78	1,561.80	1,589.54
15.00°	1,320.32	1,288.97	1,266.45	1,280.21	1,320.27	1,289.10	1,264.48	1,283.94	1,324.84	1,289.23	1,266.73	1,279.65	1,325.29	1,291.78	1,265.11	1,285.14	1,320.32
17.50°	1,078.68	1,047.53	1,064.03	1,057.25	1,086.43	1,039.63	1,050.55	1,027.68	1,058.04	1,020.03	1,035.51	1,016.66	1,060.78	1,052.30	1,065.30	1,056.99	1,078.68
20.00°	845.66	852.45	887.06	873.86	854.62	847.77	866.14	823.16	804.94	818.77	868.80	811.18	815.87	836.79	873.29	858.06	845.66
22.50°	651.37	676.57	760.98	711.79	659.68	680.73	748.86	637.73	600.82	620.19	734.31	620.40	602.16	654.74	755.60	688.87	651.37
25.00°	468.27	529.07	653.41	563.70	467.53	525.12	626.37	487.71	414.20	473.00	594.50	461.03	412.49	486.70	634.29	533.88	468.27
27.50°	321.71	392.44	528.84	418.13	314.04	373.36	494.50	347.90	274.64	329.43	452.58	307.24	253.60	338.78	492.12	396.04	321.71
30.00°	193.84	268.92	399.66	273.86	170.75	249.33	369.18	235.93	159.05	218.90	329.71	197.30	141.77	197.42	355.84	264.80	193.84
32.50°	113.20	168.56	288.10	169.99	105.02	132.20	253.39	129.72	95.13	118.79	212.69	92.52	79.38	119.35	243.61	167.63	113.20
35.00°	54.31	90.84	179.93	82.68	48.41	82.18	159.89	82.67	51.00	77.27	135.14	63.06	45.44	56.79	144.30	80.34	54.31
37.50°	38.99	47.70	111.71	48.66	37.80	44.34	92.95	43.57	40.64	42.33	66.38	37.78	36.04	39.82	84.57	49.74	38.99
40.00°	28.08	32.32	48.71	31.96	28.85	33.26	51.55	34.91	32.71	33.70	43.76	31.87	29.90	30.52	39.36	31.22	28.08
42.50°	24.20	23.38	32.44	25.34	25.88	25.17	34.79	28.63	28.08	26.48	28.23	26.05	26.02	25.66	28.30	24.89	24.20
45.00°	20.92	18.66	19.29	21.12	22.78	23.07	25.21	24.01	24.66	23.53	23.34	22.28	22.48	21.26	20.15	20.32	20.92
47.50°	18.41	15.97	17.34	18.92	19.34	21.28	21.32	19.53	22.62	20.63	19.42	18.67	19.12	18.22	17.57	17.26	18.41
50.00°	15.52	14.32	15.52	17.04	16.32	17.98	19.19	18.02	20.11	17.83	18.86	16.44	16.55	15.26	15.57	14.32	15.52
52.50°	12.21	13.28	14.22	15.83	14.21	14.84	18.20	16.62	17.19	15.98	18.42	14.58	14.33	14.70	14.46	13.87	12.21
55.00°	10.76	12.49	13.36	14.69	13.24	14.91	18.69	16.48	15.33	15.88	18.47	14.92	13.64	14.24	14.93	13.50	10.76
57.50°	10.92	13.92	16.91	16.28	14.21	15.40	19.93	16.85	14.26	17.10	18.71	15.83	13.48	15.43	17.34	13.61	10.92
60.00°	13.15	16.06	19.99	18.00	17.10	19.53	22.41	20.61	16.67	20.29	21.69	19.08	15.90	16.87	19.62	14.01	13.15
62.50°	16.85	18.39	20.22	20.77	22.66	23.23	25.39	23.84	21.23	22.44	24.18	21.54	19.00	20.35	21.77	17.78	16.85
65.00°	18.87	20.76	19.87	23.16	24.38	24.53	23.46	24.73	22.83	23.31	23.25	21.65	20.87	22.68	20.84	20.74	18.87
67.50°	19.91	18.77	17.03	19.54	21.71	23.58	20.02	23.08	23.08	20.07	20.31	19.41	22.43	19.41	17.38	18.47	19.91
70.00°	16.58	16.06	13.79	15.50	16.91	16.19	14.60	15.46	16.32	13.59	11.94	13.30	15.18	15.47	13.10	15.33	16.58
72.50°	11.69	11.43	9.64	9.69	10.54	10.36	9.39	9.21	8.98	7.66	6.88	8.31	8.79	10.17	8.41	9.93	11.69
75.00°	7.31	7.46	6.75	5.85	6.62	5.97	5.43	4.15	4.32	3.18	4.32	4.27	4.08	6.08	6.29	6.45	7.31
77.50°	4.87	4.70	4.81	3.97	3.96	3.83	3.46	3.06	3.05	2.15	3.05	2.55	2.87	3.19	4.74	4.40	4.87
80.00°	5.02	4.56	4.38	3.51	3.29	2.72	2.42	2.68	2.50	2.66	2.40	1.82	2.11	2.95	3.81	3.75	5.02
82.50°	3.30	3.61	3.54	3.01	2.46	2.01	1.75	2.06	1.51	1.68	1.93	1.52	1.44	2.26	2.63	3.26	3.30
85.00°	1.38	1.79	1.96	2.00	1.32	1.13	1.43	1.04	1.27	1.00	1.02	1.14	0.91	1.26	1.62	1.97	1.38
87.50°	1.10	1.07	1.08	1.59	0.87	1.08	1.13	1.45	1.02	1.03	0.80	1.09	1.13	1.13	1.05	1.26	1.10
90.00°	0.86	0.78	0.96	1.45	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	1.19	1.13	0.86
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%	20%	0%
	<b>pcc</b>	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	<b>0</b>	1,102	1,102	1,102	1,102	1,077	1,077	1,077	1,077	1,029	1,029	1,029	985	985	985	945	945	945	926
	<b>1</b>	1,055	1,031	1,010	991	1,033	1,012	992	975	974	959	945	940	928	917	908	899	891	881
	<b>2</b>	1,010	969	935	907	990	953	923	897	924	899	877	896	876	858	871	855	841	838
	<b>3</b>	968	915	874	841	950	902	865	834	878	847	821	856	830	808	836	815	796	799
	<b>4</b>	929	867	822	788	913	857	815	783	838	802	774	820	790	765	803	778	757	764
	<b>5</b>	892	825	778	744	878	817	773	740	801	763	734	786	753	728	772	744	721	731
	<b>6</b>	858	787	740	705	845	780	736	703	767	728	698	755	720	694	743	713	690	701
	<b>7</b>	826	753	705	672	815	747	702	670	736	696	667	726	690	664	716	685	660	673
	<b>8</b>	796	722	675	642	786	717	672	641	708	667	639	699	663	636	691	658	634	648
	<b>9</b>	769	693	647	616	760	689	645	615	681	641	613	674	637	611	666	633	609	624
	<b>10</b>	742	667	622	592	734	663	620	591	656	617	589	650	614	588	644	610	586	602

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	83.4 fc	3.1 ft
6.5 ft	59.7 fc	3.6 ft
7.5 ft	44.9 fc	4.2 ft
8.0 ft	39.4 fc	4.5 ft
10.0 ft	25.2 fc	5.6 ft
12.0 ft	17.5 fc	6.7 ft
14.0 ft	12.9 fc	7.8 ft
16.0 ft	9.9 fc	8.9 ft
20.0 ft	6.3 fc	11.2 ft
24.0 ft	4.4 fc	13.4 ft
28.0 ft	3.2 fc	15.7 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	1,060,916	1,060,916	1,060,916
<b>45.00°</b>	12,439	11,472	13,546
<b>55.00°</b>	7,890	9,794	9,708
<b>65.00°</b>	18,772	19,769	24,252
<b>75.00°</b>	11,872	10,962	10,758
<b>85.00°</b>	6,649	9,452	6,370

### 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>	12.7	13.7	13.1	14.0	14.3	13.8	14.8	14.2	15.1	15.4
	<b>3H</b>	17.7	18.6	18.1	18.9	19.3	18.3	19.2	18.7	19.5	19.9
	<b>4H</b>	18.3	19.1	18.7	19.4	19.8	18.5	19.3	18.9	19.7	20.1
	<b>6H</b>	18.5	19.2	18.9	19.6	20.0	18.6	19.3	19.0	19.7	20.1
	<b>8H</b>	18.6	19.3	19.1	19.7	20.1	18.6	19.3	19.0	19.7	20.1
	<b>12H</b>	18.7	19.3	19.1	19.7	20.1	18.6	19.2	19.0	19.6	20.0
<b>4H</b>	<b>2H</b>	15.0	15.8	15.4	16.2	16.5	16.0	16.8	16.4	17.2	17.6
	<b>3H</b>	18.8	19.4	19.2	19.8	20.2	19.3	19.9	19.7	20.3	20.8
	<b>4H</b>	19.3	19.9	19.7	20.3	20.7	19.5	20.1	19.9	20.5	21.0
	<b>6H</b>	19.6	20.1	20.1	20.5	21.0	19.5	20.0	20.0	20.5	21.0
	<b>8H</b>	19.7	20.2	20.2	20.7	21.1	19.5	20.0	20.0	20.5	20.9
	<b>12H</b>	19.8	20.2	20.3	20.7	21.2	19.5	19.9	20.0	20.4	20.9
<b>8H</b>	<b>4H</b>	19.4	19.8	19.8	20.3	20.8	19.5	19.9	19.9	20.4	20.9
	<b>6H</b>	19.8	20.1	20.3	20.6	21.1	19.6	19.9	20.1	20.4	20.9
	<b>8H</b>	20.0	20.3	20.5	20.8	21.3	19.6	19.9	20.1	20.4	20.9
	<b>12H</b>	20.1	20.4	20.7	20.9	21.5	19.6	19.9	20.1	20.4	21.0
<b>12H</b>	<b>4H</b>	19.3	19.7	19.8	20.2	20.7	19.4	19.8	19.9	20.3	20.8
	<b>6H</b>	19.8	20.1	20.3	20.6	21.1	19.5	19.8	20.1	20.3	20.9
	<b>8H</b>	20.0	20.3	20.6	20.8	21.4	19.6	19.9	20.1	20.4	20.9

Corrected UGR values based on total output lumens

SHR = 1.0