

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

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

### **Test Number**

SP-007673

### **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	890
Efficacy	59.31 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

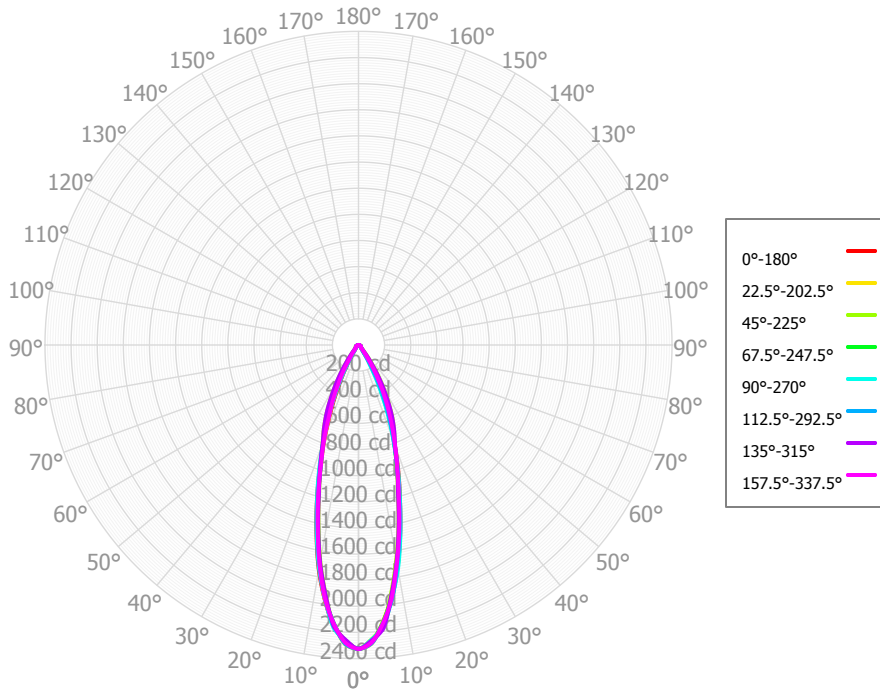
#### Full Beam Angle

0° - 180°	31°
90° - 270°	31°

### IES File Header Contents

Keyword	Value
TEST	SP-007673
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	2/11/2019
UPDATE	2/28/2019
LUMCAT	IF03SMx xx 835 020 DLNFGC MW
LUMINAIRE	Nom 3" Square Infinium recessed downlight
OTHER	Beam Angle: 31 degrees
OTHER	Narrow Flood optic, Clear glass lens
OTHER	Aluminum bezel contains lens
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°	192.50	21.64%	90.00° - 100.00°	0.08	0.01%
10.00° - 20.00°	328.88	36.97%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	227.94	25.62%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	73.36	8.25%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	22.92	2.58%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	18.10	2.03%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	17.75	2.00%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	6.07	0.68%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	2.04	0.23%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	889.56	99.99%	0.00° - 180.00°	889.64	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°	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43	2,325.43
2.50°	2,267.02	2,288.60	2,257.72	2,278.29	2,260.34	2,292.35	2,259.95	2,283.16	2,269.96	2,294.74	2,264.21	2,284.00	2,266.84	2,286.99	2,266.21	2,281.72	2,267.02
5.00°	2,155.29	2,128.71	2,157.08	2,134.85	2,167.00	2,145.25	2,163.57	2,145.57	2,164.46	2,145.42	2,163.29	2,145.31	2,174.86	2,141.40	2,178.15	2,140.59	2,155.29
7.50°	1,953.78	1,944.17	1,916.23	1,945.63	1,955.76	1,963.06	1,930.66	1,962.74	1,969.67	1,968.88	1,927.27	1,952.22	1,960.55	1,960.96	1,930.84	1,953.63	1,953.78
10.00°	1,723.57	1,691.35	1,666.35	1,695.42	1,740.34	1,710.90	1,693.52	1,712.48	1,748.19	1,710.51	1,684.19	1,702.12	1,738.30	1,705.86	1,682.42	1,695.63	1,723.57
12.50°	1,476.36	1,440.62	1,413.76	1,443.15	1,481.07	1,444.30	1,425.21	1,440.30	1,484.84	1,441.18	1,414.14	1,429.63	1,478.27	1,452.18	1,421.01	1,441.79	1,476.36
15.00°	1,225.05	1,194.41	1,163.62	1,188.63	1,224.55	1,199.57	1,169.22	1,192.48	1,227.90	1,194.27	1,164.07	1,186.82	1,225.71	1,201.00	1,169.51	1,193.24	1,225.05
17.50°	1,011.81	974.51	981.78	977.71	1,003.25	957.81	974.47	950.65	979.21	949.07	971.19	952.90	999.39	978.58	986.48	984.11	1,011.81
20.00°	804.92	800.49	807.32	806.31	787.16	793.43	798.38	765.27	758.42	767.73	803.27	778.99	785.11	796.90	817.48	815.79	804.92
22.50°	633.43	642.79	710.92	655.25	609.22	634.74	690.32	589.54	566.85	589.26	691.77	618.82	602.92	632.93	714.94	665.83	633.43
25.00°	465.68	508.37	612.18	519.19	437.43	494.53	579.09	457.50	405.86	457.94	576.44	478.07	432.94	489.32	609.09	531.79	465.68
27.50°	336.85	384.52	497.85	389.32	296.05	355.54	459.18	330.22	271.32	329.16	454.16	340.35	288.80	355.32	491.86	408.16	336.85
30.00°	210.17	272.91	385.70	263.14	171.49	243.46	345.51	230.30	171.80	231.02	340.82	231.35	171.64	230.59	377.30	291.85	210.17
32.50°	136.30	179.48	283.34	168.00	106.80	136.52	245.65	131.88	97.21	139.00	240.58	124.97	100.68	140.92	269.82	194.86	136.30
35.00°	65.43	103.42	188.49	88.04	56.16	90.03	159.96	89.78	59.79	90.20	157.95	84.20	54.53	78.72	174.76	108.81	65.43
37.50°	49.40	60.07	118.29	54.65	44.07	48.12	99.24	49.26	43.71	48.60	96.55	46.48	42.63	48.09	105.94	66.08	49.40
40.00°	34.43	42.51	62.31	39.11	34.37	38.95	56.63	39.60	35.86	40.78	57.58	38.85	34.24	37.47	56.46	43.50	34.43
42.50°	29.08	32.36	43.28	32.27	29.84	31.00	39.68	30.71	31.84	33.85	40.94	31.49	29.85	31.15	39.54	33.06	29.08
45.00°	24.25	26.94	29.42	27.96	25.66	28.86	29.50	29.01	28.49	30.07	31.73	27.89	25.89	27.10	28.44	27.03	24.25
47.50°	22.36	23.56	26.13	25.07	22.11	26.27	27.33	27.05	25.39	26.55	28.55	24.56	22.36	24.41	25.36	23.92	22.36
50.00°	20.21	21.25	23.72	22.49	19.40	22.12	25.36	23.63	22.21	23.69	25.71	23.43	19.28	22.29	22.80	21.61	20.21
52.50°	16.99	20.42	22.77	20.19	17.89	19.16	23.59	20.89	19.00	21.30	23.08	22.27	16.56	19.98	20.83	19.44	16.99
55.00°	14.76	20.21	22.52	17.93	17.16	19.36	23.32	21.01	17.85	19.87	22.75	20.94	15.66	17.61	20.26	17.31	14.76
57.50°	15.60	20.12	23.24	19.42	17.34	19.83	24.23	21.12	17.13	19.90	23.66	20.11	15.92	17.98	20.99	18.65	15.60
60.00°	16.82	20.07	23.10	21.23	18.13	20.83	24.05	21.22	18.79	22.44	24.00	21.17	17.40	19.02	21.01	20.47	16.82
62.50°	18.94	19.85	22.03	20.70	19.52	20.83	23.16	20.79	20.78	22.73	24.10	21.37	19.50	19.24	20.49	20.19	18.94
65.00°	19.28	19.60	19.41	19.99	19.05	19.12	19.37	19.11	19.05	19.88	19.61	19.07	18.56	19.31	18.13	19.77	19.28
67.50°	16.25	16.61	15.41	16.15	17.11	15.62	14.15	15.90	16.76	15.97	13.65	15.70	16.44	16.15	14.63	15.51	16.25
70.00°	12.58	13.17	11.74	12.31	12.52	10.11	9.68	10.47	10.62	11.09	9.82	10.49	11.07	12.61	10.76	11.30	12.58
72.50°	8.16	8.55	8.26	8.46	6.65	6.48	5.82	6.83	6.06	7.27	6.77	6.53	6.00	7.84	6.75	7.74	8.16
75.00°	5.91	5.39	6.34	5.56	4.97	3.98	4.17	4.31	3.99	4.36	5.54	3.52	4.32	4.71	4.99	5.19	5.91
77.50°	4.62	4.67	5.11	3.62	3.88	3.65	3.09	3.59	3.55	3.61	3.92	2.84	3.18	3.85	3.70	3.80	4.62
80.00°	4.23	4.14	4.84	3.44	3.31	3.21	2.54	3.14	3.35	3.00	2.93	2.21	2.52	3.64	3.02	4.30	4.23
82.50°	3.85	3.25	3.24	2.78	2.23	2.81	2.23	2.39	2.57	2.62	2.40	1.81	1.95	2.60	2.51	3.48	3.85
85.00°	1.97	1.96	1.73	1.71	1.17	1.60	1.61	1.38	1.40	1.59	1.62	1.24	1.07	1.63	1.52	1.94	1.97
87.50°	1.13	1.18	1.87	1.19	1.24	1.14	1.16	1.27	1.60	1.28	1.18	0.80	1.14	1.54	1.21	1.44	1.13
90.00°	1.17	1.22	1.39	1.12	1.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	1.09	1.10	1.17
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>	1,059	1,059	1,059	1,059	1,034	1,034	1,034	1,034	988	988	988	946	946	946	908	908	890
	<b>1</b>	1,013	990	969	950	991	971	952	935	935	920	906	902	890	879	871	863	845
	<b>2</b>	969	929	896	868	949	913	883	858	885	860	839	859	839	821	835	819	803
	<b>3</b>	927	875	835	803	910	863	826	797	840	809	784	819	793	772	799	778	763
	<b>4</b>	888	828	784	751	873	818	778	746	800	765	738	783	753	729	766	742	728
	<b>5</b>	852	787	741	707	839	778	736	704	763	726	697	749	717	692	736	708	695
	<b>6</b>	819	749	703	669	806	742	699	667	730	691	662	718	684	658	707	677	666
	<b>7</b>	787	715	669	636	776	710	666	635	699	660	631	689	654	628	680	649	638
	<b>8</b>	758	685	639	607	748	680	636	606	671	632	603	663	627	601	655	623	613
	<b>9</b>	731	657	611	581	722	653	609	580	645	606	578	638	602	576	631	598	589
	<b>10</b>	705	631	587	557	697	628	585	556	621	582	555	615	579	554	609	576	568

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	76.9 fc	3.1 ft
6.5 ft	55.0 fc	3.7 ft
7.5 ft	41.3 fc	4.2 ft
8.0 ft	36.3 fc	4.5 ft
10.0 ft	23.3 fc	5.6 ft
12.0 ft	16.1 fc	6.8 ft
14.0 ft	11.9 fc	7.9 ft
16.0 ft	9.1 fc	9.0 ft
20.0 ft	5.8 fc	11.3 ft
24.0 ft	4.0 fc	13.5 ft
28.0 ft	3.0 fc	15.8 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	977,762	977,762	977,762
<b>45.00°</b>	14,417	17,496	15,259
<b>55.00°</b>	10,820	16,510	12,582
<b>65.00°</b>	19,184	19,308	18,949
<b>75.00°</b>	9,605	10,299	8,077
<b>85.00°</b>	9,509	8,358	5,636

### 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>	15.2	16.2	15.6	16.5	16.8	15.5	16.5	15.8	16.8	17.1
	<b>3H</b>	17.7	18.6	18.1	18.9	19.3	17.7	18.5	18.0	18.9	19.2
	<b>4H</b>	18.0	18.8	18.4	19.1	19.5	17.8	18.6	18.2	19.0	19.4
	<b>6H</b>	18.2	19.0	18.6	19.3	19.7	17.9	18.6	18.3	19.0	19.4
	<b>8H</b>	18.4	19.1	18.8	19.5	19.9	17.9	18.6	18.4	19.0	19.4
	<b>12H</b>	18.5	19.1	18.9	19.5	19.9	17.9	18.6	18.4	19.0	19.4
<b>4H</b>	<b>2H</b>	16.3	17.1	16.7	17.4	17.8	16.5	17.4	17.0	17.7	18.1
	<b>3H</b>	18.5	19.2	18.9	19.6	20.0	18.4	19.1	18.8	19.5	19.9
	<b>4H</b>	18.8	19.4	19.2	19.8	20.3	18.5	19.1	19.0	19.6	20.0
	<b>6H</b>	19.1	19.6	19.6	20.1	20.6	18.7	19.2	19.1	19.6	20.1
	<b>8H</b>	19.3	19.8	19.8	20.2	20.7	18.7	19.2	19.2	19.7	20.1
	<b>12H</b>	19.5	19.9	19.9	20.4	20.8	18.7	19.2	19.2	19.6	20.1
<b>8H</b>	<b>4H</b>	18.9	19.3	19.3	19.8	20.3	18.5	19.0	19.0	19.5	19.9
	<b>6H</b>	19.3	19.7	19.8	20.2	20.7	18.7	19.1	19.2	19.6	20.1
	<b>8H</b>	19.6	19.9	20.1	20.5	20.9	18.9	19.2	19.4	19.7	20.2
	<b>12H</b>	19.8	20.1	20.3	20.6	21.2	18.9	19.2	19.5	19.7	20.3
<b>12H</b>	<b>4H</b>	18.8	19.2	19.3	19.7	20.2	18.5	18.9	19.0	19.4	19.9
	<b>6H</b>	19.3	19.6	19.8	20.1	20.7	18.7	19.1	19.3	19.5	20.1
	<b>8H</b>	19.7	19.9	20.2	20.4	21.0	18.9	19.2	19.4	19.7	20.2

Corrected UGR values based on total output lumens

SHR = 1.0