

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

IF03SSx IC 835 015 N11 DLNFGN MW  
Nom 3" Square Infinium recessed downlight

### **Test Number**

SP-00779\_1\_M-015L

### **Test Date**

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

### Summary of Results

#### Power

Input Watts	10.2 W
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#### Lumen Output

Output Lumens	722
Efficacy	70.82 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

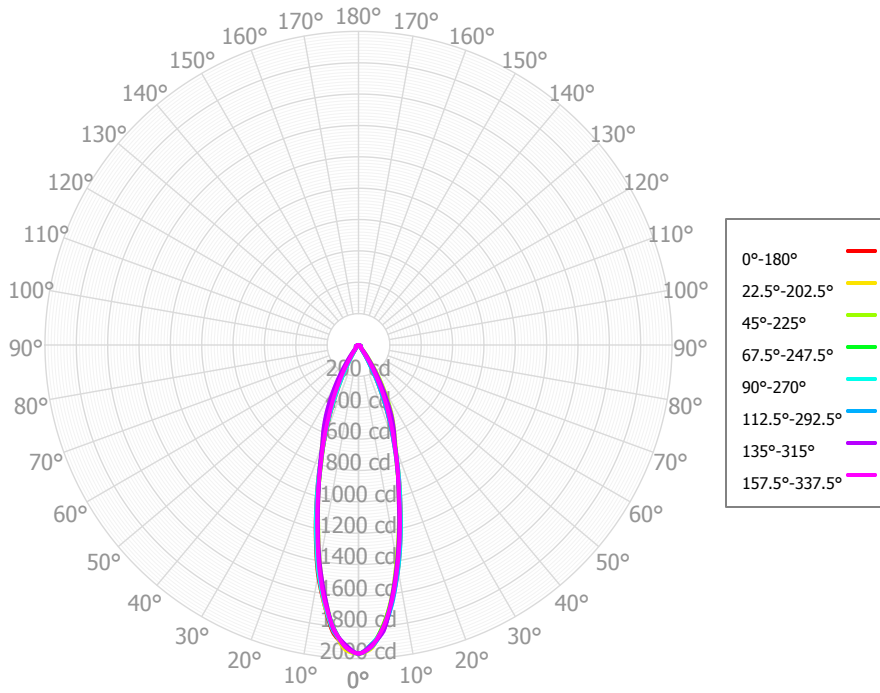
#### Full Beam Angle

0° - 180°	31°
90° - 270°	31°

### IES File Header Contents

Keyword	Value
TEST	SP-00779_1_M-015L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	2/11/2019
UPDATE	4/4/2019
LUMCAT	IF03SSx IC 835 015 N11 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: 27K x 0.95, 30K x 0.98, 40K x 1.03
OTHER	Total luminaire wattage is approximate, +2W for thermal protection
OTHER	This report prepared by Spectrum Lighting, scaled from 20L
_CRI	80
_CCTMULT	27K x 0.95, 30K x 0.98, 40K x 1.03
_LAMPMULT	07L x 0.40, 10L x 0.56

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	162.46	22.49%	90.00° - 100.00°	0.06	0.01%
10.00° - 20.00°	276.44	38.27%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	183.95	25.46%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	51.76	7.17%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	14.05	1.95%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	11.03	1.53%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	15.53	2.15%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	5.67	0.78%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.43	0.20%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	722.31	99.99%	0.00° - 180.00°	722.36	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°	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09	1,968.09
2.50°	1,911.65	1,935.68	1,917.51	1,923.19	1,909.60	1,925.52	1,913.42	1,927.65	1,921.30	1,944.57	1,927.32	1,929.25	1,917.62	1,928.12	1,914.80	1,924.15	1,911.65
5.00°	1,826.69	1,796.45	1,801.52	1,800.34	1,818.40	1,814.60	1,825.53	1,816.76	1,844.73	1,817.58	1,814.45	1,813.76	1,834.36	1,822.11	1,832.99	1,807.30	1,826.69
7.50°	1,641.06	1,638.51	1,622.80	1,636.84	1,644.34	1,642.85	1,625.86	1,650.02	1,668.52	1,669.94	1,629.30	1,650.01	1,661.89	1,657.97	1,627.60	1,641.48	1,641.06
10.00°	1,453.13	1,425.29	1,399.11	1,424.23	1,457.18	1,438.21	1,421.00	1,442.88	1,486.08	1,447.55	1,418.33	1,439.87	1,474.78	1,446.99	1,414.88	1,431.51	1,453.13
12.50°	1,239.84	1,213.59	1,189.45	1,211.47	1,244.65	1,211.38	1,196.23	1,221.50	1,258.08	1,216.68	1,187.77	1,209.68	1,251.38	1,229.44	1,199.47	1,218.20	1,239.84
15.00°	1,029.85	1,005.40	987.83	998.56	1,029.81	1,005.50	986.30	1,001.47	1,033.37	1,005.60	988.05	998.13	1,033.73	1,007.59	986.78	1,002.41	1,029.85
17.50°	841.37	817.07	829.95	824.65	847.41	810.91	819.43	801.59	825.27	795.62	807.70	792.99	827.41	820.79	830.93	824.45	841.37
20.00°	659.61	664.91	691.91	681.61	666.60	661.26	675.59	642.06	627.85	638.64	677.66	632.72	636.38	652.70	681.17	669.28	659.61
22.50°	508.07	527.73	593.57	555.19	514.55	530.97	584.11	497.43	468.64	483.74	572.76	483.91	469.68	510.70	589.37	537.32	508.07
25.00°	365.25	412.68	509.66	439.69	364.67	409.59	488.56	380.41	323.08	368.94	463.71	359.60	321.74	379.63	494.75	416.43	365.25
27.50°	250.93	306.10	412.50	326.14	244.95	291.22	385.71	271.36	214.22	256.95	353.01	239.64	197.81	264.25	383.85	308.91	250.93
30.00°	151.20	209.76	311.73	213.61	133.19	194.48	287.96	184.03	124.06	170.74	257.17	153.89	110.58	153.99	277.55	206.54	151.20
32.50°	88.30	131.48	224.72	132.59	81.92	103.12	197.64	101.18	74.20	92.66	165.90	72.17	61.92	93.09	190.02	130.75	88.30
35.00°	42.36	70.86	140.35	64.49	37.76	64.10	124.72	64.48	39.78	60.27	105.41	49.19	35.44	44.30	112.55	62.67	42.36
37.50°	30.41	37.21	87.14	37.96	29.48	34.59	72.50	33.99	31.70	33.02	51.78	29.47	28.11	31.06	65.96	38.80	30.41
40.00°	21.90	25.21	38.00	24.93	22.50	25.94	40.21	27.23	25.51	26.28	34.14	24.86	23.32	23.81	30.70	24.35	21.90
42.50°	18.88	18.23	25.30	19.76	20.18	19.64	27.14	22.33	21.90	20.65	22.02	20.32	20.30	20.01	22.07	19.41	18.88
45.00°	16.32	14.56	15.05	16.47	17.77	18.00	19.67	18.73	19.23	18.35	18.20	17.38	17.53	16.58	15.72	15.85	16.32
47.50°	14.36	12.45	13.52	14.75	15.08	16.60	16.63	15.23	17.64	16.09	15.15	14.56	14.92	14.21	13.70	13.46	14.36
50.00°	12.10	11.17	12.10	13.29	12.73	14.02	14.97	14.06	15.69	13.91	14.71	12.82	12.91	11.91	12.14	11.17	12.10
52.50°	9.53	10.36	11.10	12.35	11.09	11.58	14.20	12.96	13.41	12.47	14.36	11.38	11.18	11.47	11.28	10.82	9.53
55.00°	8.40	9.74	10.42	11.46	10.33	11.63	14.58	12.85	11.96	12.39	14.40	11.64	10.64	11.11	11.64	10.53	8.40
57.50°	8.52	10.85	13.19	12.70	11.09	12.01	15.54	13.14	11.12	13.33	14.59	12.35	10.52	12.04	13.52	10.62	8.52
60.00°	10.26	12.53	15.59	14.04	13.34	15.23	17.48	16.07	13.00	15.83	16.92	14.88	12.40	13.16	15.30	10.93	10.26
62.50°	13.15	14.34	15.77	16.20	17.68	18.12	19.81	18.59	16.56	17.50	18.86	16.80	14.82	15.87	16.98	13.87	13.15
65.00°	14.72	16.19	15.50	18.06	19.01	19.13	18.30	19.29	17.81	18.18	18.13	16.88	16.28	17.69	16.26	16.18	14.72
67.50°	15.53	14.64	13.28	15.24	16.93	18.39	15.61	18.01	18.00	15.66	15.85	15.14	17.49	15.14	13.56	14.41	15.53
70.00°	12.93	12.53	10.75	12.09	13.19	12.63	11.39	12.06	12.73	10.60	9.31	10.37	11.84	12.07	10.22	11.96	12.93
72.50°	9.12	8.92	7.52	7.56	8.22	8.08	7.32	7.19	7.00	5.97	5.37	6.48	6.86	7.93	6.56	7.75	9.12
75.00°	5.70	5.82	5.26	4.57	5.17	4.65	4.23	3.24	3.37	2.48	3.37	3.33	3.18	4.75	4.90	5.03	5.70
77.50°	3.80	3.67	3.75	3.09	3.09	2.99	2.70	2.38	2.38	1.68	2.38	1.99	2.23	2.49	3.70	3.43	3.80
80.00°	3.92	3.56	3.42	2.74	2.57	2.12	1.89	2.09	1.95	2.08	1.87	1.42	1.64	2.30	2.97	2.92	3.92
82.50°	2.58	2.81	2.76	2.35	1.92	1.57	1.37	1.61	1.18	1.31	1.51	1.18	1.12	1.77	2.05	2.54	2.58
85.00°	1.07	1.40	1.53	1.56	1.03	0.88	1.12	0.81	0.99	0.78	0.80	0.89	0.71	0.98	1.26	1.54	1.07
87.50°	0.85	0.84	0.84	1.24	0.68	0.84	0.88	1.13	0.80	0.80	0.62	0.85	0.88	0.88	0.82	0.98	0.85
90.00°	0.67	0.61	0.75	1.13	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.93	0.88	0.67
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>	860	860	860	860	840	840	840	840	803	803	803	768	768	768	737	737	722
	<b>1</b>	823	805	788	773	806	789	774	761	760	748	737	733	724	715	709	701	695
	<b>2</b>	788	756	729	707	772	744	720	699	721	701	684	699	683	670	680	667	656
	<b>3</b>	755	714	682	656	741	704	674	651	685	661	640	668	648	631	652	635	621
	<b>4</b>	724	676	641	615	712	668	636	611	653	626	604	639	616	597	626	607	590
	<b>5</b>	696	643	607	580	685	637	603	577	625	595	572	613	588	568	602	580	563
	<b>6</b>	669	614	577	550	659	609	574	548	598	568	545	589	562	541	580	556	538
	<b>7</b>	644	587	550	524	636	583	548	523	574	543	520	566	538	518	559	534	515
	<b>8</b>	621	563	526	501	613	559	524	500	552	521	498	545	517	496	539	513	494
	<b>9</b>	599	541	505	480	592	537	503	480	531	500	478	525	497	477	520	494	475
	<b>10</b>	579	520	485	461	573	517	484	461	512	481	460	507	479	459	502	476	457

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	65.1 fc	3.1 ft
6.5 ft	46.6 fc	3.6 ft
7.5 ft	35.0 fc	4.2 ft
8.0 ft	30.8 fc	4.5 ft
10.0 ft	19.7 fc	5.6 ft
12.0 ft	13.7 fc	6.7 ft
14.0 ft	10.0 fc	7.8 ft
16.0 ft	7.7 fc	8.9 ft
20.0 ft	4.9 fc	11.2 ft
24.0 ft	3.4 fc	13.4 ft
28.0 ft	2.5 fc	15.7 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	827,515	827,515	827,515
<b>45.00°</b>	9,702	8,948	10,566
<b>55.00°</b>	6,154	7,639	7,572
<b>65.00°</b>	14,642	15,420	18,917
<b>75.00°</b>	9,260	8,550	8,391
<b>85.00°</b>	5,186	7,373	4,969

### 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>	11.9	12.8	12.2	13.2	13.5	12.9	13.9	13.3	14.2	14.5
	<b>3H</b>	16.8	17.7	17.2	18.0	18.4	17.4	18.3	17.8	18.6	19.0
	<b>4H</b>	17.4	18.2	17.8	18.5	18.9	17.7	18.5	18.1	18.8	19.2
	<b>6H</b>	17.6	18.4	18.1	18.8	19.1	17.7	18.4	18.1	18.8	19.2
	<b>8H</b>	17.8	18.5	18.2	18.8	19.3	17.7	18.4	18.1	18.8	19.2
	<b>12H</b>	17.8	18.5	18.2	18.8	19.3	17.7	18.4	18.1	18.7	19.2
<b>4H</b>	<b>2H</b>	14.1	14.9	14.5	15.3	15.7	15.1	16.0	15.6	16.3	16.7
	<b>3H</b>	17.9	18.6	18.3	19.0	19.4	18.4	19.1	18.8	19.5	19.9
	<b>4H</b>	18.4	19.0	18.9	19.4	19.9	18.6	19.2	19.1	19.6	20.1
	<b>6H</b>	18.7	19.2	19.2	19.7	20.2	18.7	19.2	19.2	19.6	20.1
	<b>8H</b>	18.9	19.3	19.3	19.8	20.3	18.7	19.2	19.2	19.6	20.1
	<b>12H</b>	18.9	19.3	19.4	19.8	20.3	18.7	19.1	19.2	19.6	20.0
<b>8H</b>	<b>4H</b>	18.5	19.0	19.0	19.4	19.9	18.6	19.1	19.1	19.5	20.0
	<b>6H</b>	18.9	19.3	19.4	19.8	20.3	18.7	19.1	19.2	19.6	20.1
	<b>8H</b>	19.1	19.5	19.7	20.0	20.5	18.7	19.1	19.3	19.6	20.1
	<b>12H</b>	19.3	19.5	19.8	20.0	20.6	18.8	19.0	19.3	19.5	20.1
<b>12H</b>	<b>4H</b>	18.5	18.9	19.0	19.4	19.8	18.6	19.0	19.1	19.5	19.9
	<b>6H</b>	18.9	19.2	19.4	19.7	20.3	18.7	19.0	19.2	19.5	20.0
	<b>8H</b>	19.2	19.5	19.7	20.0	20.5	18.7	19.0	19.2	19.5	20.1

Corrected UGR values based on total output lumens

SHR = 1.0