

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

IF03SMx xx DWDD1020 DLFLGPMW

Nom 3" Infinium Square Downlight, 20L dim to warm 27HK emitter

### **Test Number**

SP-00944\_3

### **Test Date**

11/6/2019

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

### Summary of Results

#### Power

Input Watts	21.7 W
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#### Lumen Output

Output Lumens	930
Efficacy	42.86 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.61
Two luminaires, plane 90°	0.61
Four luminaires	0.67

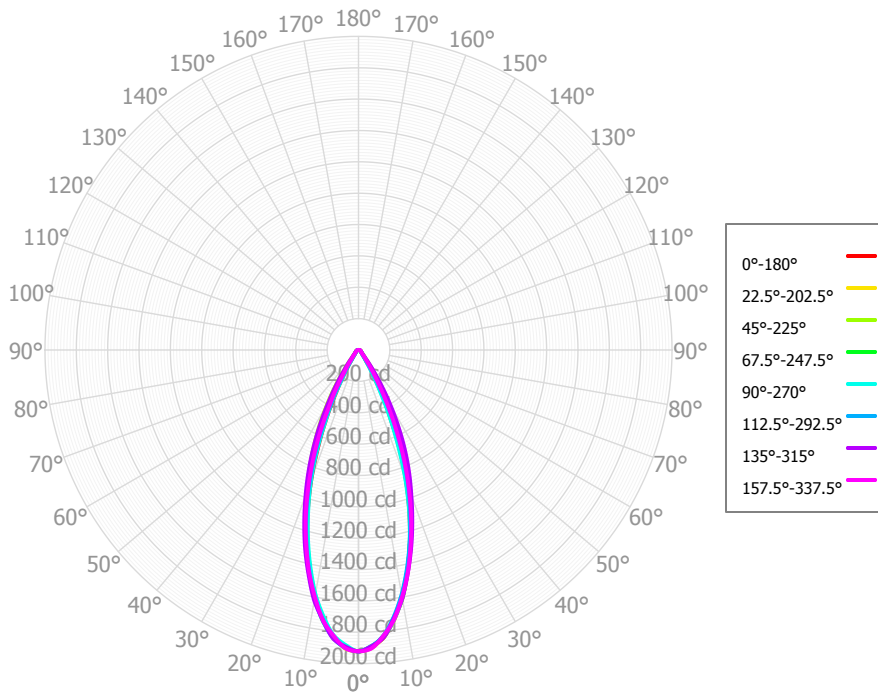
#### Full Beam Angle

0° - 180°	38°
90° - 270°	38°

### IES File Header Contents

Keyword	Value
TEST	SP-00944_3
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/6/2019
ISSUEDATE	11/13/2019
LUMCAT	IF03SMx xx DWDD1020 DLFLGPMW
LUMINAIRE	Nom 3" Infinium Square Downlight, 20L dim to warm 27HK emitter
OTHER	Beam angle: 38.0 degrees
LAMPCAT	N/A
LAMP	N/A
OTHER	CCT Output Multipliers: N/A dim to warm
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	95
_CCTMULT	N/A, dim to warm emitter
_LAMPMULT	7L x 0.38, 10L x 0.49, 15L x 0.8

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	169.54	18.23%	90.00° - 100.00°	0.09	0.01%
10.00° - 20.00°	348.31	37.45%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	258.98	27.84%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	81.07	8.72%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	27.22	2.93%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	17.94	1.93%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	14.50	1.56%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	9.84	1.06%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	2.62	0.28%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	930.02	99.99%	0.00° - 180.00°	930.10	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°	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23	1,922.23
2.50°	1,895.68	1,903.38	1,891.55	1,894.89	1,889.99	1,902.71	1,894.84	1,905.04	1,895.37	1,906.82	1,893.32	1,899.82	1,884.57	1,894.57	1,891.63	1,905.35	1,895.68
5.00°	1,841.58	1,833.29	1,839.66	1,831.86	1,837.16	1,845.13	1,848.50	1,829.11	1,840.18	1,835.55	1,845.35	1,833.69	1,827.08	1,828.95	1,840.37	1,828.89	1,841.58
7.50°	1,732.96	1,738.35	1,730.75	1,731.93	1,734.87	1,743.49	1,737.42	1,738.52	1,732.61	1,743.59	1,724.98	1,734.53	1,714.36	1,718.70	1,727.35	1,736.02	1,732.96
10.00°	1,609.41	1,597.27	1,608.00	1,594.22	1,606.99	1,612.31	1,623.80	1,599.83	1,603.11	1,597.80	1,594.36	1,593.34	1,583.21	1,584.49	1,607.73	1,600.51	1,609.41
12.50°	1,442.55	1,443.42	1,449.31	1,439.16	1,440.25	1,451.13	1,469.07	1,453.87	1,434.94	1,438.31	1,435.00	1,429.80	1,419.05	1,428.46	1,454.06	1,454.18	1,442.55
15.00°	1,267.24	1,270.52	1,287.67	1,269.22	1,263.30	1,282.63	1,313.55	1,287.25	1,259.93	1,265.52	1,273.15	1,261.72	1,246.70	1,263.16	1,299.10	1,285.83	1,267.24
17.50°	1,078.13	1,092.90	1,119.83	1,094.35	1,073.79	1,108.09	1,149.05	1,118.83	1,075.22	1,090.23	1,115.51	1,091.73	1,067.14	1,096.13	1,139.42	1,114.85	1,078.13
20.00°	887.23	909.56	958.34	916.04	872.96	922.73	985.42	938.97	881.95	910.42	958.27	916.33	886.25	928.51	983.93	939.61	887.23
22.50°	688.45	726.02	807.49	732.16	660.46	729.92	827.54	758.71	678.52	730.08	813.14	739.18	690.94	754.41	840.47	761.95	688.45
25.00°	489.11	542.26	658.29	545.15	471.46	547.36	670.54	579.19	493.27	557.47	668.40	566.45	493.96	578.67	695.80	581.04	489.11
27.50°	341.09	385.81	511.35	388.55	302.14	370.48	517.52	403.51	325.57	385.33	529.06	394.83	343.48	419.33	548.40	420.04	341.09
30.00°	197.02	251.87	376.00	245.90	189.55	247.08	373.44	281.11	207.21	269.07	392.45	271.30	195.54	262.91	408.78	280.95	197.02
32.50°	138.39	164.36	253.75	160.03	115.49	147.20	259.75	166.70	127.58	156.22	276.16	156.17	133.43	175.89	282.95	181.11	138.39
35.00°	82.95	107.84	162.86	94.45	75.10	95.70	162.50	115.91	81.40	109.92	169.93	104.96	73.97	97.15	181.17	116.39	82.95
37.50°	64.72	74.73	100.81	65.96	53.68	61.29	107.80	70.76	57.12	66.61	112.90	60.63	57.94	70.49	114.75	76.18	64.72
40.00°	47.91	54.54	65.16	47.45	42.55	46.72	65.60	54.67	43.99	53.17	64.70	47.89	42.64	46.87	69.38	54.30	47.91
42.50°	40.60	43.01	49.24	38.90	36.03	37.41	48.78	40.79	36.72	40.77	48.94	36.67	34.28	37.67	49.11	40.96	40.60
45.00°	33.93	35.28	38.38	32.35	31.72	32.89	36.16	35.00	32.08	35.08	35.80	31.42	26.86	28.79	36.07	32.78	33.93
47.50°	30.16	29.95	30.67	27.59	28.17	29.28	30.56	29.70	28.52	29.71	29.92	26.31	24.90	26.28	30.07	28.37	30.16
50.00°	26.36	25.44	25.81	23.06	24.34	26.06	26.09	25.80	25.08	25.81	24.78	23.61	22.78	23.77	25.38	25.77	26.36
52.50°	22.43	23.51	22.38	22.09	20.44	22.89	23.13	22.46	21.68	22.20	21.24	20.92	19.99	21.32	21.77	23.16	22.43
55.00°	19.33	22.25	20.46	21.36	18.41	20.15	20.81	20.40	20.18	19.51	18.38	18.25	17.48	18.99	19.14	20.55	19.33
57.50°	18.39	20.46	19.12	18.44	16.76	17.44	19.18	18.41	19.14	17.39	16.71	15.91	15.86	17.44	17.15	18.80	18.39
60.00°	17.67	18.57	17.50	15.55	15.29	16.51	17.69	16.55	17.25	16.70	15.60	15.49	14.62	16.09	16.31	17.31	17.67
62.50°	17.40	17.55	15.79	14.85	13.86	15.58	16.33	15.12	15.21	15.96	15.28	15.04	14.32	15.65	16.07	16.56	17.40
65.00°	16.74	16.64	14.53	14.07	12.60	13.98	14.63	14.29	14.55	15.12	14.87	14.47	13.56	15.18	14.99	15.98	16.74
67.50°	15.45	15.05	13.36	12.52	11.36	12.42	12.68	13.66	13.96	13.98	14.35	13.70	11.92	14.66	13.53	15.49	15.45
70.00°	13.90	13.42	12.26	10.94	10.19	11.09	11.86	13.21	12.41	12.47	12.79	12.45	11.06	13.72	12.88	15.00	13.90
72.50°	12.10	11.71	11.11	9.27	8.95	9.34	11.26	11.20	10.60	11.65	10.66	11.55	10.94	12.14	12.42	14.15	12.10
75.00°	10.07	10.09	9.65	7.28	7.55	7.04	9.49	8.93	8.39	10.67	9.54	10.95	9.04	10.43	11.82	12.49	10.07
77.50°	7.96	8.58	7.75	5.32	5.71	6.00	7.91	7.22	6.55	7.65	8.17	7.71	6.80	8.50	9.92	9.41	7.96
80.00°	5.86	6.03	5.54	4.83	4.13	4.67	5.89	5.28	4.64	5.08	6.10	5.71	4.61	5.94	6.68	6.90	5.86
82.50°	3.34	3.95	3.29	3.12	2.94	3.01	3.15	3.42	2.79	3.29	2.99	4.12	3.21	4.15	3.71	4.21	3.34
85.00°	1.99	2.25	1.36	1.73	1.27	1.62	1.84	1.88	1.34	1.77	2.01	2.16	1.37	2.02	2.00	2.05	1.99
87.50°	1.40	1.44	1.34	1.35	1.31	1.36	1.24	1.25	1.60	1.35	1.58	1.30	1.55	1.37	1.13	1.23	1.40
90.00°	1.35	1.21	1.14	1.08	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	1.54	1.25	1.35
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>	1,107	1,107	1,107	1,107	1,081	1,081	1,081	1,081	1,033	1,033	1,033	989	989	989	949	949	949	930
	<b>1</b>	1,058	1,033	1,010	990	1,035	1,013	993	974	975	959	944	940	928	916	909	899	890	881
	<b>2</b>	1,010	967	931	902	989	951	919	891	921	895	872	894	872	853	868	851	836	834
	<b>3</b>	965	909	866	832	947	897	857	825	873	840	812	850	823	800	830	807	788	792
	<b>4</b>	923	859	812	776	907	849	805	771	829	792	762	811	779	753	794	767	745	753
	<b>5</b>	884	814	765	728	870	805	759	725	789	749	719	774	740	712	760	730	706	717
	<b>6</b>	848	773	723	687	835	766	719	685	753	711	680	740	704	676	729	697	672	685
	<b>7</b>	814	737	687	651	802	731	683	650	719	677	646	709	671	643	699	666	640	655
	<b>8</b>	782	703	654	620	772	698	651	618	689	646	616	680	641	613	671	637	611	627
	<b>9</b>	752	673	624	591	743	668	622	590	660	618	588	652	614	586	645	610	584	601
	<b>10</b>	725	645	597	565	716	641	595	564	634	592	563	627	589	561	621	585	560	577

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	63.5 fc	3.8 ft
6.5 ft	45.5 fc	4.5 ft
7.5 ft	34.2 fc	5.2 ft
8.0 ft	30.0 fc	5.5 ft
10.0 ft	19.2 fc	6.9 ft
12.0 ft	13.3 fc	8.3 ft
14.0 ft	9.8 fc	9.6 ft
16.0 ft	7.5 fc	11.0 ft
20.0 ft	4.8 fc	13.8 ft
24.0 ft	3.3 fc	16.5 ft
28.0 ft	2.5 fc	19.3 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	808,233	808,233	808,233
<b>45.00°</b>	20,174	22,820	18,862
<b>55.00°</b>	14,172	14,998	13,499
<b>65.00°</b>	16,657	14,452	12,537
<b>75.00°</b>	16,353	15,673	12,264
<b>85.00°</b>	9,587	6,551	6,120

### 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>	15.3	16.2	15.6	16.6	16.9	14.2	15.2	14.6	15.5	15.8
	<b>3H</b>	17.7	18.6	18.1	18.9	19.3	16.4	17.2	16.8	17.6	18.0
	<b>4H</b>	18.6	19.4	19.0	19.8	20.2	17.3	18.1	17.7	18.5	18.9
	<b>6H</b>	19.2	20.0	19.6	20.3	20.7	17.8	18.6	18.2	18.9	19.3
	<b>8H</b>	19.3	20.0	19.8	20.4	20.8	18.0	18.7	18.4	19.0	19.5
	<b>12H</b>	19.4	20.1	19.8	20.4	20.9	18.0	18.7	18.4	19.0	19.5
<b>4H</b>	<b>2H</b>	15.8	16.6	16.2	17.0	17.4	15.0	15.8	15.4	16.2	16.6
	<b>3H</b>	18.5	19.2	18.9	19.6	20.0	17.4	18.1	17.8	18.5	18.9
	<b>4H</b>	19.6	20.2	20.1	20.7	21.1	18.4	19.0	18.9	19.5	19.9
	<b>6H</b>	20.4	20.9	20.8	21.3	21.8	19.1	19.6	19.5	20.0	20.5
	<b>8H</b>	20.5	21.0	21.0	21.5	21.9	19.2	19.7	19.7	20.2	20.6
	<b>12H</b>	20.6	21.0	21.1	21.5	22.0	19.3	19.7	19.8	20.2	20.7
<b>8H</b>	<b>4H</b>	20.0	20.4	20.4	20.9	21.4	18.8	19.3	19.3	19.8	20.3
	<b>6H</b>	20.8	21.2	21.3	21.7	22.2	19.6	20.0	20.1	20.5	21.0
	<b>8H</b>	21.1	21.4	21.6	21.9	22.4	19.9	20.2	20.4	20.7	21.2
	<b>12H</b>	21.2	21.5	21.7	22.0	22.6	20.0	20.3	20.5	20.8	21.4
<b>12H</b>	<b>4H</b>	20.0	20.4	20.4	20.9	21.3	18.9	19.3	19.4	19.8	20.2
	<b>6H</b>	20.9	21.2	21.4	21.7	22.2	19.7	20.0	20.2	20.5	21.0
	<b>8H</b>	21.1	21.4	21.7	21.9	22.5	20.0	20.2	20.5	20.7	21.3

Corrected UGR values based on total output lumens

SHR = 1.0