

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

IF03SMx xx DWDD1020 DLWFGPMW  
Nom 3" Infinium Square Downlight, 20L dim to warm 27HK emitter

### **Test Number**

SP-00944

### **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	1006
Efficacy	46.38 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.91
Two luminaires, plane 90°	0.9
Four luminaires	0.89

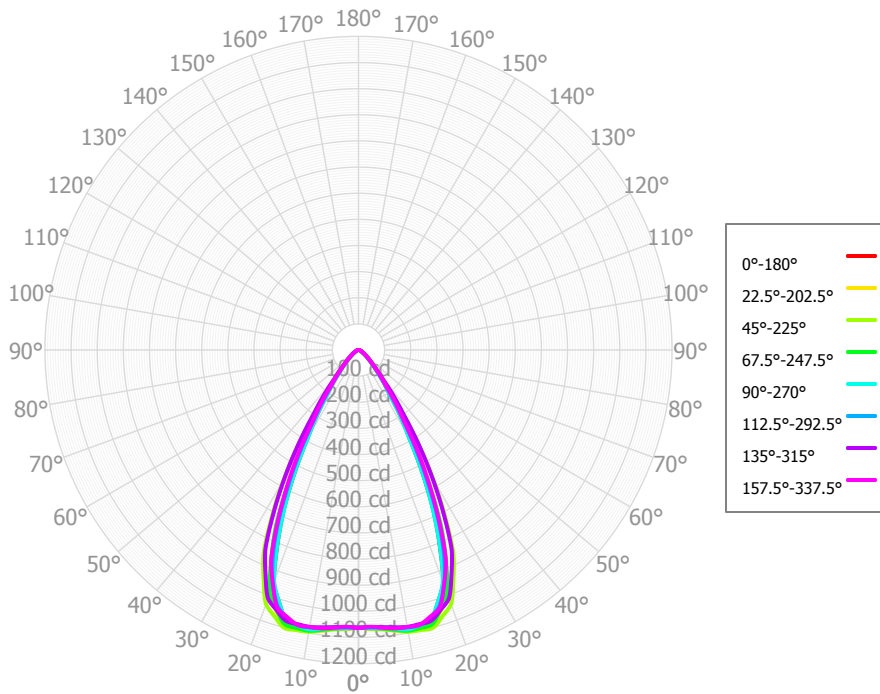
#### Full Beam Angle

0° - 180°	54°
90° - 270°	54°

### IES File Header Contents

Keyword	Value
TEST	SP-00944
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/6/2019
ISSUEDATE	11/13/2019
LUMCAT	IF03SMx xx DWDD1020 DLWFGPMW
LUMINAIRE	Nom 3" Infinium Square Downlight, 20L dim to warm 27HK emitter
OTHER	Beam angle: 53.6 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°	104.24	10.36%	90.00° - 100.00°	0.10	0.01%
10.00° - 20.00°	297.63	29.57%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	332.93	33.08%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	162.45	16.14%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	60.80	6.04%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	27.04	2.69%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	12.86	1.28%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	6.33	0.63%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	2.03	0.20%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1,006.31	99.99%	0.00° - 180.00°	1,006.41	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°	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10	1,063.10
2.50°	1,067.40	1,066.70	1,069.04	1,065.37	1,065.58	1,063.47	1,060.79	1,061.18	1,067.40	1,066.70	1,069.04	1,065.37	1,065.58	1,063.47	1,060.79	1,061.18	1,067.40
5.00°	1,070.76	1,073.06	1,072.43	1,071.01	1,067.42	1,065.85	1,065.34	1,066.92	1,070.76	1,073.06	1,072.43	1,071.01	1,067.42	1,065.85	1,065.34	1,066.92	1,070.76
7.50°	1,078.77	1,083.28	1,083.02	1,080.45	1,075.31	1,073.00	1,070.72	1,074.59	1,078.77	1,083.28	1,083.02	1,080.45	1,075.31	1,073.00	1,070.72	1,074.59	1,078.77
10.00°	1,087.16	1,090.41	1,094.81	1,090.92	1,085.59	1,077.70	1,076.24	1,076.88	1,087.16	1,090.41	1,094.81	1,090.92	1,085.59	1,077.70	1,076.24	1,076.88	1,087.16
12.50°	1,079.82	1,096.06	1,098.11	1,090.06	1,079.12	1,078.52	1,074.96	1,077.76	1,079.82	1,096.06	1,098.11	1,090.06	1,079.12	1,078.52	1,074.96	1,077.76	1,079.82
15.00°	1,070.85	1,076.79	1,100.58	1,086.95	1,067.61	1,063.57	1,073.04	1,057.53	1,070.85	1,076.79	1,100.58	1,086.95	1,067.61	1,063.57	1,073.04	1,057.53	1,070.85
17.50°	1,012.30	1,048.23	1,068.77	1,042.37	1,011.45	1,028.41	1,043.45	1,033.48	1,012.30	1,048.23	1,068.77	1,042.37	1,011.45	1,028.41	1,043.45	1,033.48	1,012.30
20.00°	948.13	969.50	1,035.20	992.51	945.12	960.41	1,012.28	956.54	948.13	969.50	1,035.20	992.51	945.12	960.41	1,012.28	956.54	948.13
22.50°	814.41	876.13	948.82	873.83	814.46	857.39	929.89	873.71	814.41	876.13	948.82	873.83	814.46	857.39	929.89	873.71	814.41
25.00°	678.90	737.12	858.98	750.76	673.95	729.26	843.83	736.07	678.90	737.12	858.98	750.76	673.95	729.26	843.83	736.07	678.90
27.50°	530.36	588.54	715.90	596.53	529.74	579.45	704.76	595.25	530.36	588.54	715.90	596.53	529.74	579.45	704.76	595.25	530.36
30.00°	391.23	454.30	572.82	443.47	385.21	445.19	565.86	460.34	391.23	454.30	572.82	443.47	385.21	445.19	565.86	460.34	391.23
32.50°	297.05	322.03	429.67	331.16	293.96	321.77	428.29	328.18	297.05	322.03	429.67	331.16	293.96	321.77	428.29	328.18	297.05
35.00°	213.38	242.67	295.99	224.15	205.43	234.99	299.69	247.31	213.38	242.67	295.99	224.15	205.43	234.99	299.69	247.31	213.38
37.50°	165.74	167.61	212.31	170.14	161.26	169.27	217.14	170.65	165.74	167.61	212.31	170.14	161.26	169.27	217.14	170.65	165.74
40.00°	123.88	131.43	139.24	120.05	118.50	126.76	144.39	132.08	123.88	131.43	139.24	120.05	118.50	126.76	144.39	132.08	123.88
42.50°	97.51	96.64	105.62	94.74	94.31	94.78	107.25	96.32	97.51	96.64	105.62	94.74	94.31	94.78	107.25	96.32	97.51
45.00°	74.81	78.16	76.56	71.38	71.32	73.90	75.75	76.64	74.81	78.16	76.56	71.38	71.32	73.90	75.75	76.64	74.81
47.50°	59.74	60.24	60.16	56.39	56.90	56.90	59.64	58.63	59.74	60.24	60.16	56.39	56.90	56.90	59.64	58.63	59.74
50.00°	46.85	49.25	46.22	43.03	43.59	45.56	45.72	47.29	46.85	49.25	46.22	43.03	43.59	45.56	45.72	47.29	46.85
52.50°	37.54	38.75	37.74	34.79	35.79	35.75	36.59	37.00	37.54	38.75	37.74	34.79	35.79	35.75	36.59	37.00	37.54
55.00°	29.73	31.53	30.01	27.42	28.51	28.84	28.84	29.77	29.73	31.53	30.01	27.42	28.51	28.84	28.84	29.77	29.73
57.50°	23.98	24.82	23.59	22.21	23.07	22.48	23.46	23.42	23.98	24.82	23.59	22.21	23.07	22.48	23.46	23.42	23.98
60.00°	19.29	20.40	18.43	17.68	18.22	18.31	18.79	19.16	19.29	20.40	18.43	17.68	18.22	18.31	18.79	19.16	19.29
62.50°	15.76	16.40	15.05	14.47	14.92	14.41	15.11	15.54	15.76	16.40	15.05	14.47	14.92	14.41	15.11	15.54	15.76
65.00°	13.11	13.81	12.16	11.82	12.05	12.35	12.33	13.09	13.11	13.81	12.16	11.82	12.05	12.35	12.33	13.09	13.11
67.50°	11.25	11.33	9.81	10.00	10.05	10.44	10.56	11.05	11.25	11.33	9.81	10.00	10.05	10.44	10.56	11.05	11.25
70.00°	9.26	9.05	8.37	8.49	8.23	8.81	8.69	9.50	9.26	9.05	8.37	8.49	8.23	8.81	8.69	9.50	9.26
72.50°	7.21	7.60	7.44	7.23	6.61	7.25	6.78	7.84	7.21	7.60	7.44	7.23	6.61	7.25	6.78	7.84	7.21
75.00°	5.85	6.59	6.26	5.49	5.22	5.81	6.36	6.16	5.85	6.59	6.26	5.49	5.22	5.81	6.36	6.16	5.85
77.50°	4.64	4.65	5.09	4.11	3.97	4.78	5.39	4.60	4.64	4.65	5.09	4.11	3.97	4.78	5.39	4.60	4.64
80.00°	3.58	3.52	3.85	3.35	2.92	3.62	3.83	3.55	3.58	3.52	3.85	3.35	2.92	3.62	3.83	3.55	3.58
82.50°	2.54	2.43	2.42	2.31	2.34	2.40	2.21	2.45	2.54	2.43	2.42	2.31	2.34	2.40	2.21	2.45	2.54
85.00°	1.58	1.70	1.59	1.78	1.23	1.70	1.66	1.46	1.58	1.70	1.59	1.78	1.23	1.70	1.66	1.46	1.58
87.50°	1.40	1.39	1.28	1.29	1.24	1.44	1.52	1.38	1.40	1.39	1.28	1.29	1.24	1.44	1.52	1.38	1.40
90.00°	0.64	0.81	0.67	0.65	0.95	0.66	0.55	0.71	0.64	0.81	0.67	0.65	0.95	0.66	0.55	0.71	0.64
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>	1,198	1,198	1,198	1,198	1,170	1,170	1,170	1,170	1,118	1,118	1,118	1,071	1,071	1,071	1,027	1,027	1,006
	<b>1</b>	1,140	1,111	1,085	1,062	1,115	1,089	1,066	1,045	1,048	1,030	1,012	1,011	996	982	976	965	945
	<b>2</b>	1,082	1,031	989	954	1,059	1,014	976	943	981	950	923	951	925	903	923	902	884
	<b>3</b>	1,026	960	909	868	1,006	946	899	861	919	879	847	895	861	833	872	844	821
	<b>4</b>	974	896	839	796	955	885	832	791	863	818	782	843	804	773	824	791	764
	<b>5</b>	924	839	779	735	908	830	774	732	811	763	726	795	752	719	779	742	713
	<b>6</b>	878	788	727	683	863	780	722	681	764	714	676	750	706	671	737	698	667
	<b>7</b>	835	741	680	637	822	734	677	636	722	670	632	710	663	629	698	657	625
	<b>8</b>	795	699	639	597	783	693	636	596	682	630	593	672	625	591	662	620	588
	<b>9</b>	758	661	601	561	747	656	599	560	646	594	558	637	590	556	629	586	554
	<b>10</b>	724	626	567	528	713	622	566	528	613	562	526	606	558	525	598	555	523

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	35.1 fc	5.6 ft
6.5 ft	25.2 fc	6.7 ft
7.5 ft	18.9 fc	7.7 ft
8.0 ft	16.6 fc	8.2 ft
10.0 ft	10.6 fc	10.3 ft
12.0 ft	7.4 fc	12.3 ft
14.0 ft	5.4 fc	14.4 ft
16.0 ft	4.2 fc	16.4 ft
20.0 ft	2.7 fc	20.5 ft
24.0 ft	1.8 fc	24.6 ft
28.0 ft	1.4 fc	28.7 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	446,995	446,995	446,995
<b>45.00°</b>	44,483	45,523	42,409
<b>55.00°</b>	21,795	21,996	20,896
<b>65.00°</b>	13,045	12,098	11,988
<b>75.00°</b>	9,497	10,171	8,475
<b>85.00°</b>	7,598	7,669	5,939

### 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>	16.4	17.4	16.7	17.7	18.0	15.9	16.9	16.2	17.2	17.5
	<b>3H</b>	17.3	18.2	17.6	18.5	18.9	16.7	17.6	17.1	18.0	18.3
	<b>4H</b>	17.6	18.4	18.0	18.8	19.2	17.0	17.8	17.4	18.2	18.6
	<b>6H</b>	17.8	18.5	18.2	18.9	19.3	17.2	17.9	17.6	18.3	18.7
	<b>8H</b>	17.8	18.6	18.3	18.9	19.4	17.2	18.0	17.7	18.3	18.8
	<b>12H</b>	17.9	18.5	18.3	18.9	19.4	17.3	17.9	17.7	18.3	18.8
<b>4H</b>	<b>2H</b>	16.5	17.4	16.9	17.7	18.1	16.1	16.9	16.5	17.3	17.7
	<b>3H</b>	17.6	18.3	18.0	18.7	19.1	17.1	17.8	17.5	18.2	18.6
	<b>4H</b>	18.0	18.6	18.5	19.1	19.5	17.5	18.1	18.0	18.6	19.0
	<b>6H</b>	18.3	18.9	18.8	19.3	19.8	17.8	18.3	18.3	18.8	19.3
	<b>8H</b>	18.4	18.9	18.9	19.4	19.8	17.9	18.4	18.4	18.8	19.3
	<b>12H</b>	18.5	18.9	19.0	19.4	19.9	17.9	18.4	18.4	18.9	19.3
<b>8H</b>	<b>4H</b>	18.1	18.6	18.6	19.1	19.5	17.7	18.1	18.1	18.6	19.1
	<b>6H</b>	18.5	18.9	19.0	19.4	19.9	18.1	18.5	18.6	19.0	19.4
	<b>8H</b>	18.7	19.0	19.2	19.6	20.0	18.2	18.6	18.7	19.1	19.6
	<b>12H</b>	18.8	19.1	19.3	19.6	20.2	18.3	18.6	18.9	19.1	19.7
<b>12H</b>	<b>4H</b>	18.1	18.5	18.6	19.0	19.5	17.6	18.1	18.1	18.6	19.0
	<b>6H</b>	18.5	18.9	19.1	19.4	19.9	18.1	18.4	18.6	18.9	19.4
	<b>8H</b>	18.7	19.0	19.2	19.5	20.1	18.3	18.6	18.8	19.1	19.6

Corrected UGR values based on total output lumens

SHR = 1.0