

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

IF03SMx xx DWDD1020 DLSPGPMW

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

### **Test Number**

SP-00944\_1

### **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	871
Efficacy	40.14 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.35
Two luminaires, plane 90°	0.34
Four luminaires	0.4

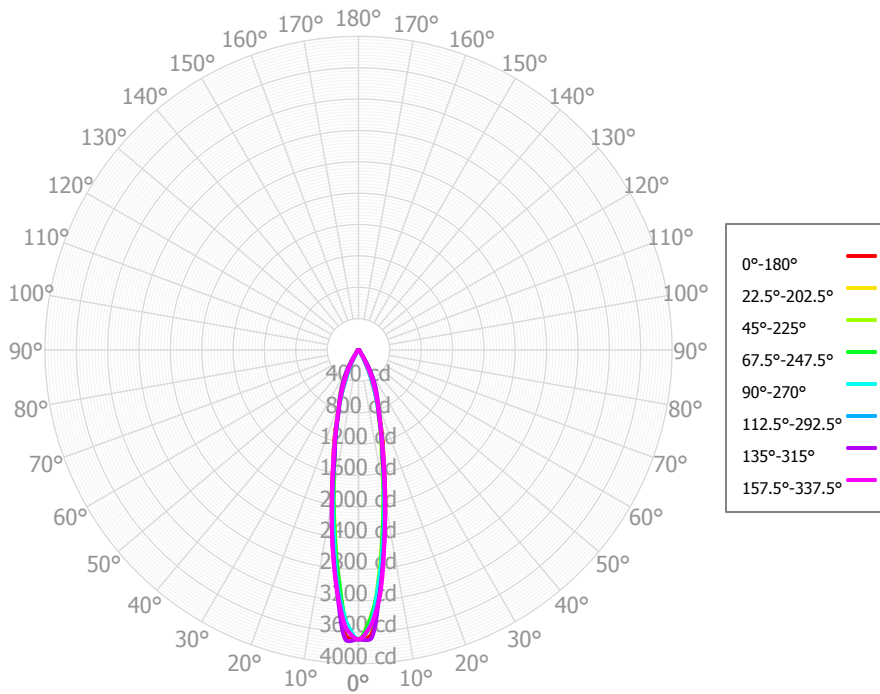
#### Full Beam Angle

0° - 180°	21°
90° - 270°	20°

### IES File Header Contents

Keyword	Value
TEST	SP-00944_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/6/2019
ISSUEDATE	11/13/2019
LUMCAT	IF03SMx xx DWDD1020 DLSPGPMW
LUMINAIRE	Nom 3" Infinium Square Downlight, 20L dim to warm 27HK emitter
OTHER	Beam angle: 21.0 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°	252.75	29.02%	90.00° - 100.00°	0.10	0.01%
10.00° - 20.00°	315.87	36.26%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	183.47	21.06%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	51.29	5.89%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	18.50	2.12%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	20.07	2.30%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	16.55	1.90%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	9.88	1.13%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	2.60	0.30%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	870.97	99.99%	0.00° - 180.00°	871.07	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°	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41	3,691.41
2.50°	3,644.99	3,433.19	3,535.24	3,437.07	3,515.22	3,561.70	3,705.24	3,558.54	3,656.11	3,511.08	3,525.75	3,502.04	3,481.22	3,520.97	3,686.90	3,524.29	3,644.99
5.00°	3,051.48	3,021.31	2,926.48	2,994.08	2,960.09	3,059.99	3,112.10	3,103.32	3,051.02	2,972.59	2,974.06	2,910.11	3,035.63	3,118.94	3,105.72	3,147.16	3,051.48
7.50°	2,457.97	2,414.86	2,335.95	2,360.30	2,413.14	2,497.59	2,519.44	2,539.23	2,440.06	2,426.16	2,308.45	2,350.65	2,389.24	2,471.96	2,506.50	2,517.54	2,457.97
10.00°	1,968.45	1,883.55	1,832.99	1,842.47	1,878.52	1,894.52	1,962.00	1,933.53	1,964.02	1,873.89	1,831.43	1,833.00	1,876.90	1,905.26	1,959.66	1,936.91	1,968.45
12.50°	1,479.77	1,465.43	1,366.55	1,424.00	1,434.89	1,449.73	1,405.37	1,503.63	1,490.76	1,458.06	1,400.58	1,411.32	1,463.02	1,471.39	1,414.87	1,501.60	1,479.77
15.00°	1,182.14	1,116.21	1,089.46	1,104.87	1,132.25	1,115.70	1,126.99	1,143.25	1,189.95	1,145.28	1,115.66	1,118.66	1,140.48	1,113.98	1,126.71	1,119.41	1,182.14
17.50°	887.39	875.47	835.98	873.25	868.24	872.34	848.62	893.14	893.94	899.77	868.89	868.57	888.00	886.85	850.57	900.75	887.39
20.00°	682.46	665.84	711.42	687.91	666.81	694.28	721.35	688.94	685.86	706.53	723.74	677.36	667.95	685.24	726.42	698.81	682.46
22.50°	479.52	506.64	589.74	544.49	484.51	535.51	594.69	527.64	481.21	544.19	606.29	506.97	473.46	528.45	611.16	551.42	479.52
25.00°	337.38	362.93	484.64	409.98	334.14	391.23	487.48	384.79	341.17	406.90	498.60	366.21	319.28	382.77	499.48	409.54	337.38
27.50°	197.28	245.11	378.68	283.91	209.44	269.67	380.55	271.49	204.15	288.43	393.69	245.79	197.81	257.50	388.04	286.39	197.28
30.00°	134.07	151.22	267.29	183.84	129.59	165.67	278.21	171.56	138.05	185.67	288.69	155.63	117.47	155.63	279.83	176.94	134.07
32.50°	74.00	99.17	163.27	109.03	70.65	97.37	175.97	110.33	75.79	114.47	183.66	88.78	71.95	98.09	171.87	116.92	74.00
35.00°	55.60	59.96	108.40	60.72	49.36	57.89	117.51	67.18	56.88	70.75	117.62	57.61	44.74	54.74	113.76	65.77	55.60
37.50°	39.22	43.88	58.34	39.27	33.22	35.16	60.34	44.88	40.84	44.16	63.78	35.10	33.49	39.13	59.96	47.91	39.22
40.00°	31.93	31.49	42.52	26.37	26.65	26.32	43.56	32.78	34.31	32.92	40.69	26.43	25.56	27.52	41.07	32.61	31.93
42.50°	25.19	26.04	28.09	22.36	21.47	21.41	28.42	26.90	28.50	25.74	27.58	20.55	20.62	24.13	25.50	27.57	25.19
45.00°	22.69	22.14	24.61	20.06	18.97	19.84	26.53	24.17	25.94	22.38	23.53	19.27	18.30	21.71	24.37	23.53	22.69
47.50°	20.48	21.25	21.69	19.60	17.65	19.60	25.28	23.23	23.66	21.05	22.59	18.98	18.44	21.35	24.79	23.66	20.48
50.00°	22.58	21.29	23.41	19.83	18.70	20.53	24.45	23.23	23.42	21.66	24.04	20.41	19.08	21.53	25.28	23.76	22.58
52.50°	25.03	23.22	24.95	20.85	19.48	20.70	23.65	23.07	23.37	22.73	26.34	22.00	20.22	22.90	25.79	23.66	25.03
55.00°	22.43	23.93	24.71	21.31	19.71	20.15	21.83	22.82	23.35	24.23	27.34	23.87	21.10	23.56	24.50	23.26	22.43
57.50°	19.38	22.07	24.20	21.13	19.62	19.47	19.94	21.50	23.33	24.39	27.86	24.37	21.71	22.59	22.97	21.41	19.38
60.00°	18.47	19.95	20.94	20.37	18.82	18.67	19.05	19.58	21.12	23.18	24.25	22.38	20.61	21.07	20.60	19.67	18.47
62.50°	17.77	17.26	17.79	18.93	18.03	17.84	18.24	17.99	18.65	20.59	19.03	20.14	17.75	18.23	18.10	18.50	17.77
65.00°	17.74	14.97	16.04	17.02	17.27	16.98	16.63	16.59	16.86	16.54	16.51	17.45	15.86	15.90	16.64	17.30	17.74
67.50°	17.78	13.53	14.34	14.58	15.52	15.25	14.98	14.95	15.11	14.35	15.00	14.63	14.95	14.69	15.34	15.99	17.78
70.00°	14.66	12.85	12.98	12.60	12.07	12.85	13.85	13.19	12.09	13.69	12.11	11.62	12.24	13.10	13.83	14.48	14.66
72.50°	11.76	13.13	11.79	10.94	9.56	10.97	12.46	11.53	9.80	11.85	9.39	9.78	8.46	10.98	12.43	12.50	11.76
75.00°	10.28	11.47	10.89	8.36	7.72	9.08	10.60	9.72	9.05	9.65	9.32	8.62	7.37	9.14	11.66	10.44	10.28
77.50°	8.20	9.03	8.78	6.07	5.89	6.63	8.38	7.57	7.29	7.49	8.45	7.33	6.14	7.22	9.25	8.24	8.20
80.00°	5.90	6.16	6.07	4.47	4.20	4.88	5.60	5.52	5.45	5.88	6.80	5.04	4.40	4.60	5.87	5.19	5.90
82.50°	4.28	3.42	3.20	2.79	2.77	3.44	2.88	3.41	3.45	4.45	4.35	2.97	2.94	2.72	3.63	3.41	4.28
85.00°	1.74	1.32	1.72	1.68	1.80	1.81	1.53	1.73	1.72	2.31	1.78	1.80	1.64	1.61	2.27	1.77	1.74
87.50°	1.56	1.19	1.02	1.06	1.29	1.96	1.71	1.03	1.64	1.43	1.56	1.10	1.42	1.22	1.26	1.41	1.56
90.00°	1.44	1.44	1.41	1.02	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.38	1.78	1.57	1.14	1.44
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>	1,037	1,037	1,037	1,037	1,013	1,013	1,013	1,013	968	968	968	927	927	927	889	889	871
	<b>1</b>	993	971	951	933	972	952	935	919	917	903	890	885	874	864	855	847	830
	<b>2</b>	952	914	883	857	933	899	871	847	872	849	829	846	827	811	822	807	792
	<b>3</b>	914	865	828	798	897	853	819	791	831	802	779	811	787	767	792	772	757
	<b>4</b>	879	823	782	751	864	813	775	746	795	763	738	779	751	729	763	740	727
	<b>5</b>	847	786	743	712	834	778	738	708	763	729	702	749	720	696	737	711	699
	<b>6</b>	817	752	709	678	805	746	706	676	734	698	672	722	691	668	712	685	673
	<b>7</b>	789	723	680	650	779	717	677	648	707	671	645	698	666	642	689	660	650
	<b>8</b>	763	696	653	624	754	691	651	623	683	646	621	675	642	618	667	638	628
	<b>9</b>	739	671	630	602	731	667	628	601	660	624	599	653	620	597	647	617	608
	<b>10</b>	716	649	608	581	709	645	606	580	639	603	579	633	600	577	627	598	589

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	122.0 fc	2.1 ft
6.5 ft	87.4 fc	2.4 ft
7.5 ft	65.6 fc	2.8 ft
8.0 ft	57.7 fc	3.0 ft
10.0 ft	36.9 fc	3.7 ft
12.0 ft	25.6 fc	4.5 ft
14.0 ft	18.8 fc	5.2 ft
16.0 ft	14.4 fc	6.0 ft
20.0 ft	9.2 fc	7.5 ft
24.0 ft	6.4 fc	9.0 ft
28.0 ft	4.7 fc	10.5 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	1,552,108	1,552,108	1,552,108
<b>45.00°</b>	13,492	14,636	11,280
<b>55.00°</b>	16,440	18,113	14,450
<b>65.00°</b>	17,650	15,958	17,177
<b>75.00°</b>	16,704	17,691	12,549
<b>85.00°</b>	8,404	8,296	8,677

### 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>	16.1	17.1	16.5	17.4	17.7	16.3	17.3	16.7	17.6	17.9
	<b>3H</b>	18.3	19.2	18.7	19.6	19.9	18.1	19.0	18.5	19.3	19.7
	<b>4H</b>	19.2	20.0	19.6	20.3	20.7	18.6	19.4	19.0	19.8	20.2
	<b>6H</b>	19.7	20.5	20.1	20.8	21.2	18.9	19.7	19.4	20.1	20.5
	<b>8H</b>	19.8	20.6	20.3	20.9	21.4	19.0	19.7	19.5	20.1	20.5
	<b>12H</b>	19.9	20.6	20.3	21.0	21.4	19.0	19.7	19.5	20.1	20.5
<b>4H</b>	<b>2H</b>	16.7	17.5	17.1	17.9	18.2	16.8	17.7	17.2	18.0	18.4
	<b>3H</b>	19.1	19.8	19.5	20.2	20.6	18.8	19.5	19.2	19.9	20.3
	<b>4H</b>	20.1	20.7	20.5	21.1	21.6	19.5	20.1	19.9	20.5	21.0
	<b>6H</b>	20.8	21.3	21.2	21.7	22.2	19.9	20.5	20.4	20.9	21.4
	<b>8H</b>	20.9	21.4	21.4	21.9	22.3	20.0	20.5	20.5	21.0	21.5
	<b>12H</b>	21.0	21.4	21.5	21.9	22.4	20.1	20.5	20.6	21.0	21.5
<b>8H</b>	<b>4H</b>	20.4	20.9	20.9	21.3	21.8	19.8	20.3	20.3	20.7	21.2
	<b>6H</b>	21.2	21.5	21.7	22.1	22.5	20.4	20.8	20.9	21.3	21.8
	<b>8H</b>	21.4	21.7	21.9	22.2	22.7	20.6	20.9	21.1	21.4	21.9
	<b>12H</b>	21.5	21.8	22.0	22.3	22.9	20.7	21.0	21.2	21.5	22.0
<b>12H</b>	<b>4H</b>	20.4	20.8	20.9	21.3	21.8	19.8	20.2	20.3	20.7	21.2
	<b>6H</b>	21.2	21.5	21.7	22.0	22.5	20.4	20.8	21.0	21.3	21.8
	<b>8H</b>	21.4	21.7	22.0	22.2	22.8	20.7	20.9	21.2	21.4	22.0

Corrected UGR values based on total output lumens

SHR = 1.0