

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

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## **Spectrum Lighting Photometric Lab**

### **Luminaire**

IF03SMx xx DWDD1020 DLNFGPMW

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

### **Test Number**

SP-00944\_2

### **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	908
Efficacy	41.84 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.45
Two luminaires, plane 90°	0.45
Four luminaires	0.51

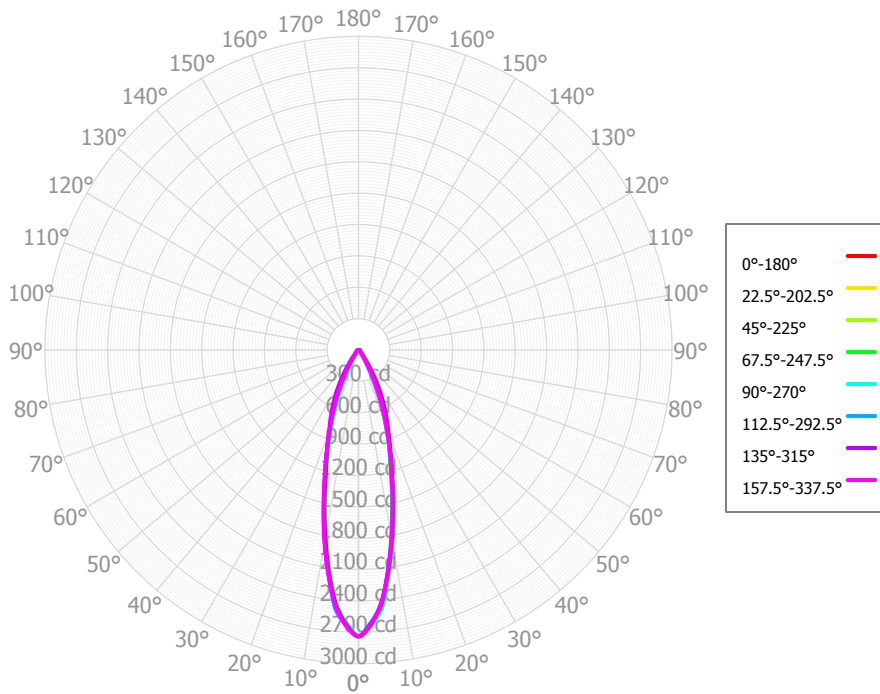
#### Full Beam Angle

0° - 180°	28°
90° - 270°	28°

### IES File Header Contents

Keyword	Value
TEST	SP-00944_2
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/6/2019
ISSUEDATE	11/13/2019
LUMCAT	IF03SMx xx DWDD1020 DLNFGPMW
LUMINAIRE	Nom 3" Infinium Square Downlight, 20L dim to warm 27HK emitter
OTHER	Beam angle: 27.8 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°	215.60	23.75%	90.00° - 100.00°	0.10	0.01%
10.00° - 20.00°	338.64	37.30%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	215.78	23.77%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	67.23	7.41%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	24.01	2.64%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	17.99	1.98%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	15.49	1.71%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	10.24	1.13%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	2.76	0.30%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	907.75	99.99%	0.00° - 180.00°	907.85	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°	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12	2,739.12
2.50°	2,632.20	2,635.94	2,635.76	2,643.28	2,636.17	2,639.60	2,634.53	2,646.98	2,629.56	2,640.09	2,623.25	2,642.12	2,619.11	2,617.01	2,629.39	2,639.12	2,632.20
5.00°	2,491.35	2,457.99	2,480.04	2,444.10	2,495.05	2,499.81	2,452.41	2,471.23	2,483.94	2,472.48	2,458.51	2,457.47	2,465.43	2,459.04	2,453.53	2,442.32	2,491.35
7.50°	2,172.43	2,159.79	2,150.41	2,154.38	2,173.63	2,178.99	2,159.25	2,183.49	2,173.62	2,165.32	2,138.87	2,168.06	2,153.28	2,145.00	2,147.39	2,158.14	2,172.43
10.00°	1,853.80	1,822.46	1,821.15	1,802.49	1,851.65	1,856.53	1,822.79	1,869.97	1,862.02	1,849.10	1,798.20	1,848.50	1,837.81	1,827.97	1,835.97	1,822.71	1,853.80
12.50°	1,538.31	1,509.53	1,492.86	1,486.83	1,526.95	1,526.13	1,511.34	1,532.73	1,541.02	1,519.11	1,486.47	1,505.06	1,522.65	1,517.44	1,517.59	1,516.11	1,538.31
15.00°	1,233.14	1,202.43	1,200.49	1,191.69	1,222.99	1,219.70	1,207.29	1,247.51	1,234.17	1,230.63	1,176.82	1,222.18	1,213.66	1,214.19	1,242.88	1,223.33	1,233.14
17.50°	992.70	976.55	985.87	971.68	990.79	996.43	1,001.23	1,000.99	999.25	993.78	988.89	977.89	977.74	992.74	1,016.02	994.11	992.70
20.00°	760.48	763.91	804.51	785.24	771.68	790.06	815.98	802.38	775.32	794.31	804.84	779.92	747.37	777.42	837.02	788.57	760.48
22.50°	564.89	590.68	680.10	625.59	587.95	629.57	689.62	632.39	591.07	632.97	686.05	605.44	553.95	602.80	700.50	615.31	564.89
25.00°	385.20	421.57	558.82	475.16	417.94	477.07	572.03	484.09	420.38	483.81	567.30	451.47	373.10	435.64	566.89	451.08	385.20
27.50°	256.99	298.59	441.80	343.76	276.76	341.38	456.72	346.39	286.38	344.72	448.96	305.91	248.35	301.63	435.37	321.66	256.99
30.00°	151.74	178.36	328.79	217.44	165.78	225.58	341.59	241.47	175.43	236.41	332.99	204.89	142.07	184.43	317.68	199.52	151.74
32.50°	103.10	125.95	220.34	144.15	105.07	142.94	246.96	149.01	114.48	148.59	232.01	117.79	96.85	121.57	208.18	135.74	103.10
35.00°	66.02	75.57	140.55	80.81	63.43	83.84	154.13	99.30	69.77	95.65	141.24	79.63	60.70	71.16	135.25	79.96	66.02
37.50°	51.97	59.28	87.23	58.24	48.02	57.16	105.29	61.86	52.94	61.82	94.14	52.60	47.69	52.49	79.45	60.10	51.97
40.00°	40.71	44.00	56.20	40.46	37.15	39.81	58.98	46.14	40.37	45.45	55.21	41.92	37.09	38.07	53.25	42.85	40.71
42.50°	33.90	36.93	41.81	33.78	31.31	32.85	44.32	35.11	33.66	36.60	42.82	33.90	31.32	32.12	37.81	36.36	33.90
45.00°	28.82	30.35	32.99	27.81	26.05	27.83	30.99	30.73	28.94	31.44	32.93	30.38	26.67	27.20	30.47	30.21	28.82
47.50°	25.94	26.31	27.61	23.95	21.31	24.56	26.85	27.31	26.49	27.49	29.21	27.28	23.79	23.93	25.43	27.35	25.94
50.00°	23.09	22.60	24.19	20.20	18.94	21.77	23.29	24.37	24.73	25.56	26.23	24.50	21.36	21.63	22.79	24.58	23.09
52.50°	20.29	20.19	21.74	18.29	18.35	19.32	22.36	21.48	23.60	24.15	24.69	21.76	19.50	20.59	20.65	22.99	20.29
55.00°	18.70	18.61	20.20	16.57	17.36	18.23	21.36	20.71	21.80	22.65	23.17	20.44	18.02	19.34	19.80	21.28	18.70
57.50°	18.15	19.39	19.01	16.68	16.14	17.96	20.12	20.01	19.49	21.15	21.69	19.14	16.94	17.86	19.13	18.82	18.15
60.00°	17.55	19.69	18.33	16.70	15.46	16.63	18.77	19.11	17.88	19.70	19.93	18.10	16.34	16.46	17.35	16.73	17.55
62.50°	16.91	18.94	17.81	16.21	15.04	14.81	17.18	18.14	16.70	18.26	17.79	16.97	16.15	15.12	15.49	16.30	16.91
65.00°	16.33	17.90	16.82	15.57	14.18	14.37	15.74	16.31	15.67	17.81	16.14	15.11	14.91	14.06	14.31	15.88	16.33
67.50°	15.78	16.36	15.74	14.37	13.16	14.45	14.60	14.71	14.70	17.24	14.98	13.49	12.95	13.20	13.15	15.49	15.78
70.00°	14.20	15.08	14.01	13.09	11.78	12.58	12.93	14.17	13.26	14.56	13.19	12.64	11.01	12.17	12.17	14.72	14.20
72.50°	12.27	14.06	12.30	11.66	10.24	10.38	10.74	12.95	11.66	12.57	11.10	11.29	9.09	11.03	11.17	13.42	12.27
75.00°	10.16	11.42	10.93	10.24	7.87	8.38	10.05	10.89	9.73	11.79	10.53	9.44	7.23	8.63	10.15	11.02	10.16
77.50°	7.87	8.56	9.49	8.57	6.49	7.14	8.52	8.61	7.85	8.75	8.67	7.49	5.88	6.68	7.55	8.09	7.87
80.00°	5.42	6.00	7.56	5.87	5.63	5.82	5.34	6.51	5.85	6.32	5.92	5.80	4.60	5.05	4.80	4.72	5.42
82.50°	3.34	3.73	4.13	4.07	3.47	2.87	3.13	4.51	3.60	4.81	3.79	4.00	2.77	3.16	2.73	3.19	3.34
85.00°	1.80	1.32	1.72	1.93	1.72	2.12	1.69	2.39	1.81	2.85	2.04	2.04	1.89	1.61	1.34	1.69	1.80
87.50°	1.33	1.43	1.42	1.64	1.75	1.18	1.26	1.37	1.53	1.83	1.71	2.04	1.46	1.26	1.12	1.40	1.33
90.00°	1.56	1.25	1.45	1.71	1.53	1.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	1.30	1.56
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>	1,081	1,081	1,081	1,081	1,056	1,056	1,056	1,056	1,009	1,009	1,009	966	966	966	926	926	926	908
	<b>1</b>	1,034	1,010	989	970	1,012	991	971	954	954	939	925	920	908	897	889	880	872	863
	<b>2</b>	989	948	915	887	969	933	903	877	904	879	858	877	857	839	852	836	822	820
	<b>3</b>	947	895	855	822	930	883	846	816	859	828	803	838	812	790	818	797	778	781
	<b>4</b>	909	848	804	770	894	838	798	766	820	785	757	802	772	748	786	761	740	747
	<b>5</b>	873	807	761	727	860	799	756	724	784	746	718	769	737	711	756	728	705	715
	<b>6</b>	840	770	724	690	828	764	720	688	751	712	683	739	705	679	727	698	674	686
	<b>7</b>	809	737	690	658	798	731	687	656	721	681	653	710	675	649	701	670	646	659
	<b>8</b>	780	707	661	629	770	702	658	628	693	653	625	684	649	623	676	644	620	634
	<b>9</b>	753	679	634	603	744	675	632	602	667	628	600	660	624	599	653	621	597	611
	<b>10</b>	728	654	609	580	720	650	608	579	644	605	578	637	602	576	631	598	575	590

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	90.5 fc	2.7 ft
6.5 ft	64.8 fc	3.2 ft
7.5 ft	48.7 fc	3.7 ft
8.0 ft	42.8 fc	4.0 ft
10.0 ft	27.4 fc	4.9 ft
12.0 ft	19.0 fc	5.9 ft
14.0 ft	14.0 fc	6.9 ft
16.0 ft	10.7 fc	7.9 ft
20.0 ft	6.8 fc	9.9 ft
24.0 ft	4.8 fc	11.9 ft
28.0 ft	3.5 fc	13.8 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	1,151,706	1,151,706	1,151,706
<b>45.00°</b>	17,136	19,617	15,489
<b>55.00°</b>	13,711	14,810	12,728
<b>65.00°</b>	16,248	16,737	14,109
<b>75.00°</b>	16,511	17,754	12,784
<b>85.00°</b>	8,691	8,295	8,299

### 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	15.5	16.5	16.8	14.9	15.9	15.3	16.2	16.5
	<b>3H</b>	17.8	18.7	18.2	19.0	19.4	17.0	17.9	17.4	18.3	18.6
	<b>4H</b>	18.8	19.6	19.2	19.9	20.3	17.7	18.6	18.2	18.9	19.3
	<b>6H</b>	19.3	20.0	19.7	20.4	20.8	18.3	19.0	18.7	19.4	19.8
	<b>8H</b>	19.4	20.1	19.8	20.5	20.9	18.4	19.1	18.8	19.5	19.9
	<b>12H</b>	19.4	20.1	19.9	20.5	20.9	18.5	19.1	18.9	19.5	20.0
<b>4H</b>	<b>2H</b>	15.9	16.7	16.3	17.0	17.4	15.7	16.5	16.1	16.9	17.2
	<b>3H</b>	18.7	19.4	19.1	19.8	20.2	18.0	18.7	18.4	19.1	19.5
	<b>4H</b>	19.8	20.4	20.2	20.8	21.3	18.9	19.5	19.3	19.9	20.3
	<b>6H</b>	20.4	20.9	20.9	21.4	21.9	19.5	20.0	20.0	20.5	20.9
	<b>8H</b>	20.5	21.0	21.0	21.5	22.0	19.7	20.2	20.2	20.6	21.1
	<b>12H</b>	20.6	21.0	21.1	21.5	22.0	19.8	20.2	20.2	20.7	21.1
<b>8H</b>	<b>4H</b>	20.1	20.6	20.6	21.0	21.5	19.3	19.8	19.8	20.2	20.7
	<b>6H</b>	20.8	21.2	21.3	21.7	22.2	20.1	20.4	20.6	21.0	21.4
	<b>8H</b>	21.0	21.4	21.5	21.9	22.4	20.3	20.6	20.8	21.2	21.7
	<b>12H</b>	21.1	21.4	21.6	21.9	22.5	20.4	20.7	21.0	21.2	21.8
<b>12H</b>	<b>4H</b>	20.1	20.5	20.6	21.0	21.5	19.3	19.7	19.8	20.2	20.7
	<b>6H</b>	20.9	21.2	21.4	21.7	22.2	20.1	20.5	20.7	20.9	21.5
	<b>8H</b>	21.1	21.4	21.6	21.9	22.5	20.4	20.7	20.9	21.2	21.8

Corrected UGR values based on total output lumens

SHR = 1.0