

## Indoor Distribution Test Report

# Spectrum Lighting Inc.

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## Spectrum Lighting Photometric Lab

### Luminaire

IF03SMx xx PC 835 030 DLFLGN MW  
Nom 3" Square Infinium recessed downlight

### Test Number

SP-00762\_1\_M-30L

### Test Date

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

### Summary of Results

#### Power

Input Watts	20.4 W
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#### Lumen Output

Output Lumens	1409
Efficacy	69.07 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.65
Two luminaires, plane 90°	0.66
Four luminaires	0.7

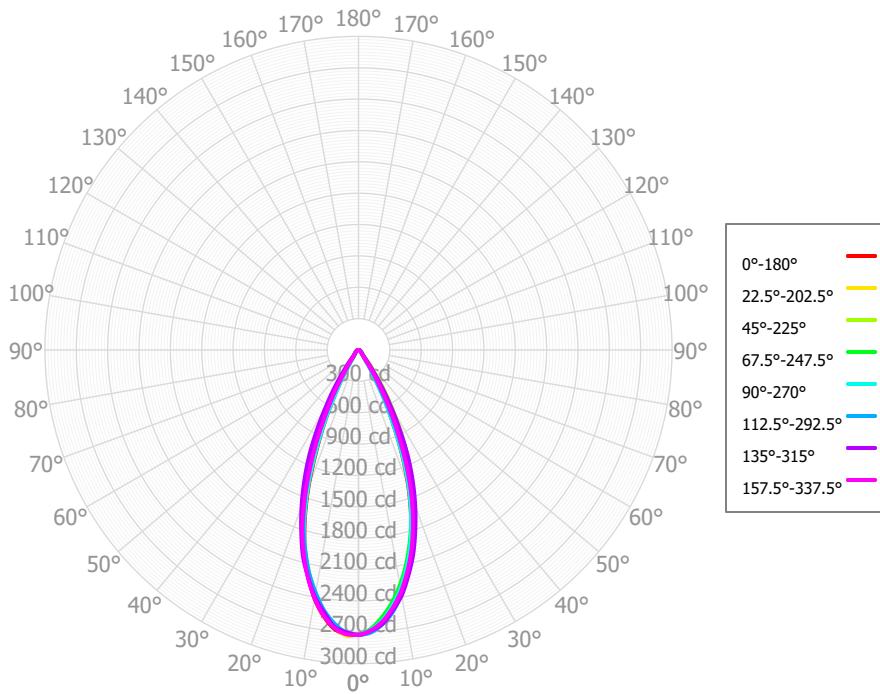
#### Full Beam Angle

0° - 180°	41°
90° - 270°	41°

### IES File Header Contents

Keyword	Value
TEST	SP-00762_1_M-30L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	2/11/2019
UPDATE	2/28/2019
LUMCAT	IF03SMx xx PC 835 030 DLFLGN MW
LUMINAIRE	Nom 3" Square Infinium recessed downlight
OTHER	Beam Angle: 41 degrees
OTHER	Flood optic, Open aperture / no lens
OTHER	Aluminum bezel
LAMPCAT	N/A
LAMP	N/A, CRI: 80, Philips
OTHER	CCT Multiplier: 27K x 0.96, 30K x 0.98, 40K x 1.04
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting, scaled from 20L
_CRI	80
_LAMPMULT	N/A, 30L only
_CCTMULT	27K x 0.96, 30K x 0.98, 40K x 1.04
_CCTMULTA	27HK x 0.87, 30HK x 0.81

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	245.15	17.40%	90.00° - 100.00°	0.13	0.01%
10.00° - 20.00°	538.11	38.19%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	414.85	29.44%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	115.13	8.17%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	36.66	2.60%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	24.97	1.77%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	19.47	1.38%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	11.55	0.82%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	2.91	0.21%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1408.80	99.99%	0.00° - 180.00°	1408.93	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°	2725.57	2725.57	2725.57	2725.57	2725.57	2725.57	2725.57	2725.57	2725.57	2725.57	2725.57	2725.57	2725.57	2725.57	2725.57	2725.57	2725.57
2.50°	2683.28	2687.89	2676.41	2671.11	2680.16	2708.91	2702.76	2722.00	2725.08	2735.48	2707.80	2706.80	2701.18	2705.94	2690.33	2687.45	2683.28
5.00°	2603.89	2585.16	2586.15	2567.97	2599.29	2628.72	2657.51	2667.27	2676.71	2656.01	2647.48	2638.19	2641.67	2634.16	2631.28	2610.09	2603.89
7.50°	2477.64	2468.25	2454.62	2441.32	2472.24	2515.97	2530.94	2562.22	2567.81	2561.37	2523.52	2536.37	2531.71	2526.51	2512.88	2491.78	2477.64
10.00°	2330.06	2306.54	2307.06	2283.97	2321.36	2358.77	2400.73	2415.49	2418.19	2384.58	2372.89	2380.89	2385.00	2370.95	2383.98	2346.86	2330.06
12.50°	2139.11	2130.82	2135.63	2103.21	2130.90	2184.18	2227.16	2233.38	2220.74	2199.31	2186.43	2203.85	2199.62	2190.84	2207.73	2165.62	2139.11
15.00°	1932.80	1919.86	1957.12	1897.26	1924.36	1974.79	2049.81	2020.00	1985.23	1971.34	1984.57	1990.21	1979.26	1984.05	2022.47	1965.18	1932.80
17.50°	1672.90	1692.46	1743.93	1680.34	1676.59	1755.03	1820.96	1785.09	1712.79	1740.85	1765.42	1765.09	1728.52	1749.48	1806.28	1731.80	1672.90
20.00°	1398.44	1432.57	1523.10	1453.82	1415.71	1493.00	1591.29	1503.69	1405.41	1442.10	1537.18	1483.02	1429.72	1489.65	1586.11	1484.43	1398.44
22.50°	1098.00	1167.15	1306.57	1197.13	1108.56	1221.34	1355.12	1196.14	1070.07	1144.29	1300.63	1187.81	1096.51	1199.41	1355.52	1208.06	1098.00
25.00°	792.40	893.01	1090.69	918.33	790.31	936.06	1115.56	911.54	774.75	863.09	1047.32	891.63	786.50	886.71	1112.91	922.20	792.40
27.50°	550.45	646.28	865.74	664.65	534.68	648.67	858.74	637.36	505.37	590.84	781.57	595.29	489.86	614.78	845.70	673.73	550.45
30.00°	316.73	435.66	639.99	425.81	289.41	433.49	616.10	429.23	314.96	394.89	558.56	388.12	298.59	367.15	602.13	434.76	316.73
32.50°	201.37	270.20	459.35	261.51	181.15	224.84	425.20	244.42	166.23	217.26	361.97	189.98	156.44	218.36	398.35	275.58	201.37
35.00°	94.47	153.07	281.38	132.33	87.14	148.11	257.81	152.10	100.85	138.62	228.80	130.99	98.20	118.10	237.63	130.62	94.47
37.50°	73.25	86.32	180.73	81.41	69.38	77.42	157.50	84.83	70.81	73.57	126.95	78.17	71.03	77.22	135.42	88.79	73.25
40.00°	54.11	63.47	85.41	60.33	55.37	64.41	82.20	65.85	58.69	62.70	82.48	65.74	57.55	59.20	73.48	58.41	54.11
42.50°	48.09	50.20	65.99	51.93	48.65	51.86	62.32	56.43	52.44	53.41	60.24	53.66	47.91	50.29	55.98	50.05	48.09
45.00°	42.18	43.90	48.14	47.21	42.09	45.91	47.44	49.93	47.40	48.79	49.68	47.79	43.74	44.05	44.42	42.99	42.18
47.50°	37.52	39.47	42.63	41.58	38.66	40.25	41.34	43.81	42.68	43.97	42.71	42.02	40.70	39.17	38.35	38.01	37.52
50.00°	33.02	36.15	36.96	35.76	35.18	37.04	35.93	37.81	37.79	38.70	35.97	37.17	36.63	34.59	33.41	32.99	33.02
52.50°	29.66	31.97	30.52	30.82	31.33	33.56	31.53	31.81	32.88	34.00	29.27	32.64	32.41	31.32	29.32	27.11	29.66
55.00°	26.15	27.38	24.98	26.01	27.49	28.69	27.60	28.58	28.52	30.37	26.94	29.87	29.53	28.24	26.26	21.70	26.15
57.50°	21.95	24.01	22.78	23.94	23.71	24.43	24.23	25.44	24.23	27.00	25.28	27.11	26.75	24.36	23.83	21.01	21.95
60.00°	18.69	21.10	21.23	22.10	20.61	22.43	22.38	23.64	21.41	24.05	24.22	24.39	23.36	20.42	21.11	20.17	18.69
62.50°	18.66	19.94	21.52	21.09	20.28	20.72	21.99	21.99	18.69	22.08	23.21	21.91	20.05	19.03	18.25	18.50	18.66
65.00°	18.47	19.28	21.32	20.09	19.85	19.82	20.84	22.16	19.45	21.33	21.01	20.16	20.28	17.75	17.29	17.15	18.47
67.50°	17.89	18.92	20.02	18.92	19.09	19.06	19.10	21.52	19.79	20.24	18.70	17.84	19.97	16.75	17.08	17.03	17.89
70.00°	16.28	18.61	18.61	17.58	17.15	18.54	17.25	17.62	17.60	18.88	15.85	14.54	17.08	15.53	14.74	15.82	16.28
72.50°	13.16	15.60	17.07	15.46	13.23	15.22	15.27	13.54	14.00	14.84	12.80	11.68	13.90	13.47	12.10	12.52	13.16
75.00°	11.29	12.74	14.81	12.61	10.31	10.16	11.94	9.24	8.64	10.30	9.54	8.97	10.39	10.70	10.95	10.98	11.29
77.50°	9.70	10.28	12.21	8.99	7.95	7.63	8.41	5.90	5.96	5.99	5.88	5.48	6.73	7.37	8.57	9.78	9.70
80.00°	6.66	6.82	9.52	6.79	5.98	4.99	5.23	4.05	4.07	3.09	3.71	3.86	4.21	4.24	5.47	5.97	6.66
82.50°	4.68	4.40	5.96	4.32	3.76	3.26	3.61	2.87	2.62	2.03	2.41	2.52	2.39	3.01	4.12	3.83	4.68
85.00°	2.58	3.14	3.20	2.25	1.96	2.60	2.77	1.70	1.85	1.83	1.96	1.72	1.91	2.24	2.68	2.64	2.58
87.50°	1.76	2.27	1.70	1.79	1.74	1.80	1.76	1.69	1.49	2.09	1.63	1.77	1.57	1.78	1.94	1.48	1.76
90.00°	1.84	1.63	1.57	2.20	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.14	2.04	2.16	1.84
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>	1677	1677	1677	1677	1638	1638	1638	1638	1565	1565	1565	1499	1499	1499	1438	1438	1409
	<b>1</b>	1603	1566	1533	1503	1569	1536	1506	1479	1479	1455	1434	1427	1408	1391	1379	1364	1337
	<b>2</b>	1532	1468	1415	1370	1501	1444	1396	1355	1399	1359	1325	1357	1325	1297	1319	1293	1268
	<b>3</b>	1465	1382	1317	1266	1438	1362	1303	1256	1326	1277	1236	1292	1251	1217	1261	1227	1204
	<b>4</b>	1402	1305	1235	1181	1378	1290	1224	1174	1260	1204	1160	1233	1185	1147	1207	1167	1145
	<b>5</b>	1343	1237	1163	1109	1321	1224	1155	1104	1200	1140	1094	1177	1125	1085	1156	1111	1092
	<b>6</b>	1288	1176	1100	1046	1268	1165	1094	1043	1145	1082	1036	1126	1071	1029	1108	1060	1042
	<b>7</b>	1236	1120	1044	991	1219	1111	1040	989	1094	1030	984	1078	1021	979	1063	1012	996
	<b>8</b>	1188	1069	994	943	1172	1061	990	941	1047	983	937	1033	975	933	1020	968	953
	<b>9</b>	1142	1022	948	899	1128	1016	945	897	1003	939	894	991	933	892	980	928	914
	<b>10</b>	1100	979	907	859	1087	973	904	858	963	899	855	953	894	853	943	890	877

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	90.1 fc	4.1 ft
6.5 ft	64.5 fc	4.8 ft
7.5 ft	48.5 fc	5.6 ft
8.0 ft	42.6 fc	5.9 ft
10.0 ft	27.3 fc	7.4 ft
12.0 ft	18.9 fc	8.9 ft
14.0 ft	13.9 fc	10.4 ft
16.0 ft	10.6 fc	11.9 ft
20.0 ft	6.8 fc	14.8 ft
24.0 ft	4.7 fc	17.8 ft
28.0 ft	3.5 fc	20.7 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	1146007	1146007	1146007
<b>45.00°</b>	25084	28627	25028
<b>55.00°</b>	19167	18309	20151
<b>65.00°</b>	18378	21216	19746
<b>75.00°</b>	18340	24060	16742
<b>85.00°</b>	12445	15440	9446

### 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>	14.8	15.8	15.2	16.1	16.4	15.8	16.7	16.1	17.1	17.4
	<b>3H</b>	17.3	18.2	17.7	18.5	18.9	17.9	18.8	18.3	19.1	19.5
	<b>4H</b>	18.1	18.9	18.6	19.3	19.7	18.5	19.3	18.9	19.6	20.0
	<b>6H</b>	18.8	19.5	19.2	19.9	20.3	18.8	19.5	19.2	19.9	20.3
	<b>8H</b>	18.9	19.6	19.3	20.0	20.4	18.8	19.5	19.2	19.9	20.3
	<b>12H</b>	19.0	19.6	19.4	20.0	20.5	18.8	19.5	19.2	19.9	20.3
<b>4H</b>	<b>2H</b>	15.6	16.4	16.0	16.7	17.1	16.4	17.2	16.8	17.6	18.0
	<b>3H</b>	18.3	18.9	18.7	19.3	19.7	18.7	19.4	19.1	19.8	20.2
	<b>4H</b>	19.2	19.8	19.7	20.2	20.7	19.3	19.9	19.8	20.3	20.8
	<b>6H</b>	19.9	20.4	20.4	20.9	21.3	19.7	20.2	20.1	20.6	21.1
	<b>8H</b>	20.1	20.6	20.6	21.0	21.5	19.7	20.2	20.2	20.6	21.1
	<b>12H</b>	20.2	20.6	20.7	21.1	21.6	19.7	20.1	20.2	20.6	21.1
<b>8H</b>	<b>4H</b>	19.6	20.0	20.1	20.5	21.0	19.5	20.0	20.0	20.4	20.9
	<b>6H</b>	20.4	20.8	20.9	21.3	21.8	19.9	20.3	20.4	20.8	21.3
	<b>8H</b>	20.6	20.9	21.1	21.5	22.0	20.0	20.3	20.5	20.8	21.3
	<b>12H</b>	20.8	21.1	21.3	21.6	22.1	20.1	20.4	20.6	20.9	21.4
<b>12H</b>	<b>4H</b>	19.6	20.0	20.1	20.5	20.9	19.5	19.9	20.0	20.4	20.8
	<b>6H</b>	20.4	20.8	21.0	21.2	21.8	19.9	20.2	20.4	20.7	21.2
	<b>8H</b>	20.7	21.0	21.2	21.5	22.1	20.0	20.3	20.5	20.8	21.4

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0