

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

#### Luminaire

SR14SQLEDOA 33L 35K xx FT1414 MW xx FO  
14" square recessed LED downlight, flush extruded aluminum door

#### Test Number

SP-01644\_2

#### Test Date

2/14/2024

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

### Summary of Results

#### Power

Input Watts	26 W
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#### Lumen Output

Output Lumens	2302
Efficacy	88.55 lm/W

#### Luminous Dimensions

0° - 180° Size	1.02
90° - 270° Size	1.02
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	1.2
Two luminaires, plane 90°	1.21
Four luminaires	1.33

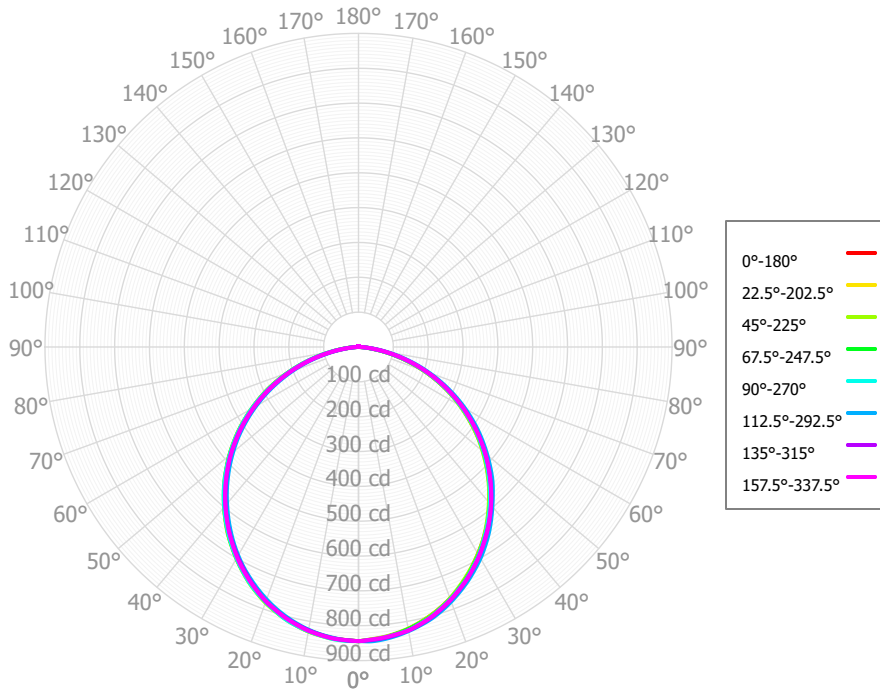
#### Full Beam Angle

0° - 180°	108°
90° - 270°	108°

### IES File Header Contents

Keyword	Value
TEST	SP-01644_2
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	2/14/2024
ISSUEDATE	2/28/2024
LUMCAT	SR14SQLEDOA 33L 35K xx FT1414 MW xx FO
LUMINAIRE	14" square recessed LED downlight, flush extruded aluminum door
OTHER	Beam Angle: 108 deg
OTHER	80 CRI, 3500K tested
OTHER	CCT Output Multipliers: 30K x .97, 40K x 1.02, 50K x 1.01
OTHER	Total luminaire wattages are approximate
OTHER	This report prepared by Spectrum Lighting

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	80.85	3.51%	90.00° - 100.00°	2.70	0.12%
10.00° - 20.00°	226.58	9.84%	100.00° - 110.00°	2.27	0.10%
20.00° - 30.00°	339.42	14.74%	100.00° - 120.00°	4.44	0.19%
30.00° - 40.00°	403.62	17.53%	120.00° - 130.00°	1.98	0.09%
40.00° - 50.00°	412.98	17.94%	130.00° - 140.00°	1.75	0.08%
50.00° - 60.00°	368.07	15.99%	140.00° - 150.00°	1.41	0.06%
60.00° - 70.00°	274.58	11.93%	150.00° - 160.00°	1.05	0.05%
70.00° - 80.00°	148.19	6.44%	160.00° - 170.00°	0.65	0.03%
80.00° - 90.00°	33.82	1.47%	170.00° - 180.00°	0.22	0.01%
0.00° - 90.00°	2288.11	99.38%	0.00° - 180.00°	2302.31	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°	844.22	844.22	844.22	844.22	844.22	844.22	844.22	844.22	844.22	844.22	844.22	844.22	844.22	844.22	844.22	844.22	844.22
2.50°	840.94	842.09	839.83	842.12	842.43	842.63	842.66	842.07	842.29	843.35	842.10	842.69	844.24	845.65	842.10	840.57	840.94
5.00°	836.97	838.67	835.72	838.00	838.02	838.09	839.51	839.86	839.17	841.10	840.05	839.73	841.68	842.10	838.86	837.12	836.97
7.50°	830.53	831.51	829.28	830.68	831.94	832.34	833.39	834.30	833.12	835.82	835.28	834.36	835.44	836.02	833.47	831.87	830.53
10.00°	822.28	823.19	821.11	822.65	825.44	824.25	825.87	827.31	825.80	829.15	829.13	827.67	828.52	828.12	826.25	826.07	822.28
12.50°	811.13	812.82	810.55	812.29	814.39	813.85	815.96	817.31	816.97	819.56	819.74	817.34	819.88	818.53	816.32	815.35	811.13
15.00°	798.74	801.90	798.39	801.52	802.41	801.48	805.07	805.85	807.58	808.38	808.90	806.04	809.30	807.86	804.25	803.34	798.74
17.50°	784.60	787.03	784.27	786.37	786.90	787.38	791.66	791.69	794.20	794.25	795.58	792.40	794.45	793.84	789.37	788.22	784.60
20.00°	768.80	771.29	767.78	770.60	770.81	771.13	777.35	776.30	779.53	779.02	781.30	777.52	779.03	777.92	773.13	772.40	768.80
22.50°	750.93	751.85	748.70	751.80	752.57	753.18	758.46	758.88	761.78	762.00	763.77	760.03	762.48	760.30	755.31	754.33	750.93
25.00°	731.05	731.75	728.71	732.67	734.06	733.80	738.16	740.15	743.17	743.23	745.13	741.59	744.13	741.84	735.95	735.86	731.05
27.50°	708.91	710.82	707.84	710.88	712.23	713.41	716.50	719.51	721.93	721.91	723.72	721.36	722.66	721.52	714.99	714.63	708.91
30.00°	686.26	689.77	685.70	688.89	690.09	690.78	694.49	697.24	700.07	699.81	701.50	699.89	700.36	700.39	692.43	693.01	686.26
32.50°	663.08	665.52	662.46	665.79	665.11	666.76	670.92	672.86	676.75	676.69	677.94	676.35	676.78	676.80	668.37	669.14	663.08
35.00°	638.32	640.94	637.00	642.65	639.96	641.08	647.01	647.55	653.15	652.30	654.07	651.54	652.25	652.26	643.92	645.03	638.32
37.50°	612.16	614.11	609.83	615.13	613.25	614.47	620.82	621.18	626.43	626.45	627.56	624.86	626.45	625.43	619.13	618.34	612.16
40.00°	584.85	587.13	582.37	587.55	586.49	587.08	594.21	594.20	599.24	599.04	600.52	597.36	600.03	597.84	592.37	591.47	584.85
42.50°	556.63	559.29	554.72	559.47	557.80	559.32	565.50	566.59	571.14	570.03	572.44	568.80	572.85	570.79	564.16	563.16	556.63
45.00°	527.70	531.42	525.53	531.27	529.08	530.22	536.49	538.02	542.92	541.14	544.18	540.29	544.13	543.91	534.87	534.80	527.70
47.50°	498.24	501.54	495.39	500.61	499.43	500.55	507.48	508.54	513.12	512.37	514.38	511.86	513.75	513.68	504.87	505.21	498.24
50.00°	467.56	471.60	465.00	469.94	469.68	470.06	478.47	477.61	483.18	482.30	484.39	481.43	482.90	482.65	474.43	475.55	467.56
52.50°	436.09	439.37	434.47	439.22	438.34	439.26	446.70	445.46	451.43	451.16	452.99	448.91	451.59	451.27	443.72	442.94	436.09
55.00°	403.60	407.11	401.98	408.29	406.80	406.70	414.73	413.17	419.59	418.15	421.47	416.59	419.69	419.82	411.52	410.32	403.60
57.50°	370.52	374.19	368.55	375.62	373.14	373.56	380.75	380.77	386.12	383.78	388.13	384.46	387.26	386.83	378.54	377.66	370.52
60.00°	337.98	341.17	335.61	342.63	339.50	339.85	346.69	347.22	352.61	349.64	354.69	351.02	353.74	353.60	344.90	344.88	337.98
62.50°	305.72	307.03	302.88	307.50	306.09	305.99	313.03	312.91	319.50	315.67	321.21	316.50	319.38	319.31	310.95	310.64	305.72
65.00°	271.17	272.99	269.03	272.66	272.52	271.34	279.35	278.48	286.29	281.33	287.73	282.25	284.63	284.89	277.18	276.41	271.17
67.50°	235.62	239.79	234.77	239.33	237.98	236.50	244.38	243.97	250.09	246.77	251.90	248.18	249.62	250.13	243.49	242.27	235.62
70.00°	201.12	206.39	199.77	205.66	203.43	201.93	209.44	209.11	213.97	212.06	216.10	213.16	215.24	215.34	208.64	208.15	201.12
72.50°	167.00	171.58	164.52	170.47	168.89	167.42	174.93	174.05	179.21	177.29	181.21	177.50	181.25	181.14	173.38	174.11	167.00
75.00°	133.68	137.14	132.08	135.86	134.68	133.17	140.55	139.55	144.51	142.25	146.42	143.24	147.86	146.96	139.62	140.39	133.68
77.50°	100.62	104.73	100.39	103.43	101.89	98.97	107.92	105.30	110.41	107.09	113.16	109.79	114.79	114.47	106.30	108.33	100.62
80.00°	71.48	73.43	70.94	72.42	70.40	69.60	75.83	75.05	77.17	76.53	80.35	79.33	83.24	82.04	76.21	77.15	71.48
82.50°	43.43	47.00	42.01	45.80	43.41	40.79	48.38	46.37	50.25	47.80	52.16	50.40	52.41	54.85	46.95	49.91	43.43
85.00°	24.77	23.78	23.82	23.20	20.71	23.45	23.09	26.54	25.54	27.79	25.82	29.18	30.54	28.15	27.65	25.85	24.77
87.50°	8.34	12.45	7.61	11.43	10.64	7.04	12.22	9.78	13.51	10.76	13.90	11.46	12.42	15.58	10.44	13.60	8.34
90.00°	4.16	3.69	3.98	2.98	3.24	4.30	2.98	4.46	3.46	5.09	3.54	4.91	5.46	3.71	5.49	4.05	4.16
92.50°	2.35	3.00	2.20	2.30	2.71	2.23	2.53	2.51	2.66	2.76	2.61	2.81	2.54	2.92	2.62	2.99	2.35
95.00°	2.19	2.48	2.16	1.94	2.31	2.04	2.14	2.19	2.00	2.15	1.84	2.13	1.83	2.18	2.22	2.20	2.19
97.50°	2.29	2.44	2.31	2.22	2.21	1.88	2.00	2.28	1.91	1.96	1.84	1.93	1.82	2.02	2.14	2.18	2.29
100.00°	2.23	2.41	2.40	2.33	2.09	1.82	1.94	2.20	1.85	2.06	1.86	1.89	1.89	1.91	2.27	2.17	2.23
102.50°	2.15	2.39	2.48	2.15	1.93	1.78	2.20	2.10	1.86	2.21	1.95	1.89	1.99	2.29	2.42	2.18	2.15
105.00°	2.10	2.37	2.29	2.09	1.91	2.01	2.37	2.06	1.91	2.17	1.99	2.07	2.07	2.57	2.47	2.24	2.10

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

<b>RCR</b>	<b>ptc</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>	2737	2737	2737	2737	2672	2672	2672	2672	2550	2550	2550	2439	2439	2439	2336	2336	2288
	<b>1</b>	2506	2399	2302	2215	2442	2345	2257	2178	2245	2173	2106	2152	2094	2039	2067	2020	1976
	<b>2</b>	2281	2094	1939	1809	2219	2049	1907	1786	1965	1846	1742	1888	1788	1700	1816	1734	1660
	<b>3</b>	2081	1841	1655	1507	2023	1803	1631	1492	1733	1585	1464	1667	1542	1436	1607	1501	1410
	<b>4</b>	1906	1632	1431	1278	1852	1601	1413	1268	1541	1378	1249	1486	1345	1231	1434	1313	1213
	<b>5</b>	1753	1459	1254	1102	1704	1433	1239	1095	1382	1212	1082	1335	1186	1068	1291	1161	1056
	<b>6</b>	1620	1315	1110	963	1575	1292	1098	958	1249	1077	948	1209	1056	938	1171	1035	929
	<b>7</b>	1503	1193	992	851	1462	1173	983	847	1137	965	840	1102	948	833	1070	932	826
	<b>8</b>	1399	1089	894	760	1362	1072	886	757	1041	872	751	1011	858	746	983	844	740
	<b>9</b>	1308	1000	811	684	1274	986	805	682	958	793	677	933	782	673	908	770	669
	<b>10</b>	1226	923	741	621	1196	911	736	619	887	726	615	864	716	612	843	707	609

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	27.9 fc	15.2 ft
6.5 ft	20.0 fc	18.0 ft
7.5 ft	15.0 fc	20.8 ft
8.0 ft	13.2 fc	22.1 ft
10.0 ft	8.4 fc	27.7 ft
12.0 ft	5.9 fc	33.2 ft
14.0 ft	4.3 fc	38.7 ft
16.0 ft	3.3 fc	44.3 ft
20.0 ft	2.1 fc	55.3 ft
24.0 ft	1.5 fc	66.4 ft
28.0 ft	1.1 fc	77.5 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	8734	8734	8734
<b>45.00°</b>	7721	7689	7741
<b>55.00°</b>	7280	7251	7338
<b>65.00°</b>	6638	6586	6671
<b>75.00°</b>	5344	5280	5384
<b>85.00°</b>	2941	2827	2458

### UGR CIE 190:2010

Ceiling reflectance		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall reflectance		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Plane reflectance		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
2H	2H	19.0	20.6	19.4	20.9	21.2	19.1	20.7	19.4	21.0	21.3
	3H	20.7	22.1	21.1	22.5	22.9	20.8	22.2	21.2	22.6	23.0
	4H	21.3	22.6	21.7	23.0	23.4	21.4	22.8	21.8	23.1	23.5
	6H	21.6	22.9	22.0	23.3	23.7	21.8	23.0	22.2	23.4	23.8
	8H	21.7	22.9	22.1	23.3	23.7	21.9	23.1	22.3	23.5	23.9
	12H	21.8	22.9	22.2	23.3	23.7	21.9	23.1	22.4	23.5	23.9
4H	2H	19.6	21.0	20.0	21.3	21.7	19.7	21.1	20.1	21.4	21.8
	3H	21.5	22.7	21.9	23.1	23.5	21.6	22.8	22.1	23.2	23.6
	4H	22.2	23.2	22.7	23.7	24.1	22.3	23.4	22.8	23.8	24.3
	6H	22.7	23.6	23.2	24.0	24.5	22.8	23.7	23.3	24.2	24.7
	8H	22.8	23.7	23.3	24.1	24.6	23.0	23.8	23.4	24.3	24.7
	12H	22.9	23.6	23.4	24.1	24.6	23.0	23.8	23.5	24.3	24.8
8H	4H	22.5	23.3	23.0	23.8	24.3	22.6	23.5	23.1	23.9	24.4
	6H	23.1	23.8	23.6	24.3	24.7	23.2	23.9	23.7	24.4	24.9
	8H	23.2	23.8	23.7	24.4	24.9	23.4	24.0	23.9	24.5	25.0
	12H	23.3	23.9	23.9	24.4	25.0	23.5	24.0	24.0	24.5	25.1
12H	4H	22.5	23.3	23.0	23.7	24.2	22.6	23.4	23.1	23.9	24.4
	6H	23.1	23.7	23.6	24.2	24.7	23.2	23.9	23.8	24.3	24.9
	8H	23.3	23.8	23.8	24.4	24.9	23.4	24.0	24.0	24.5	25.1

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0