

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

#### Luminaire

SR14SQLEDOA 11L 35K xx RT1414 MW xx FO  
14" square recessed LED downlight, regressed extruded aluminum door

#### Test Number

SP-01645

#### Test Date

2/14/2024

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

### Summary of Results

#### Power

Input Watts	10.6 W
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#### Lumen Output

Output Lumens	930
Efficacy	87.71 lm/W

#### Luminous Dimensions

0° - 180° Size	1.04
90° - 270° Size	1.04
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	1.23
Two luminaires, plane 90°	1.15
Four luminaires	1.32

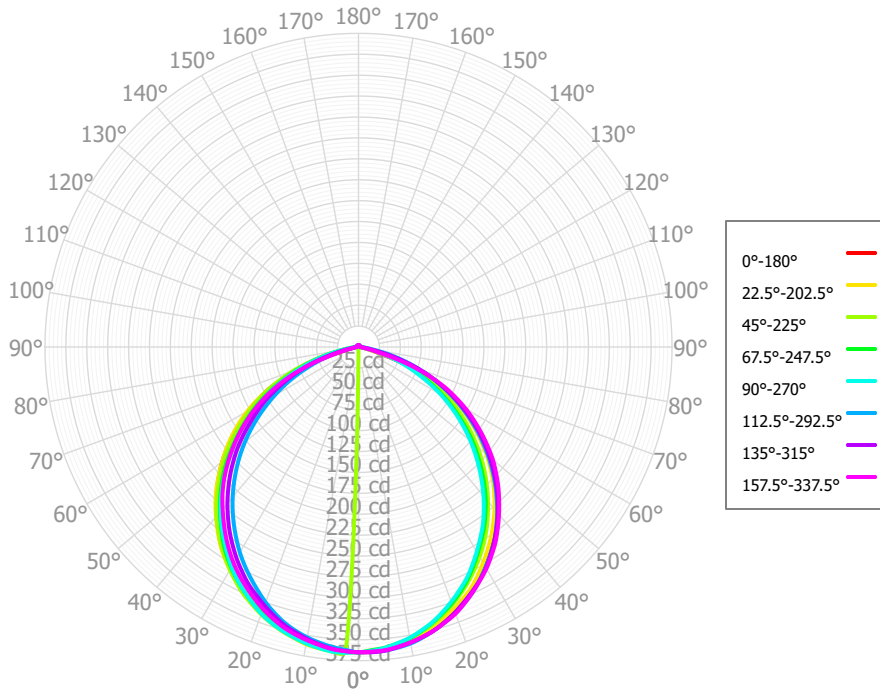
#### Full Beam Angle

0° - 180°	109°
90° - 270°	101°

### IES File Header Contents

Keyword	Value
TEST	SP-01645
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	2/14/2024
ISSUEDATE	2/28/2024
LUMCAT	SR14SQLEDOA 11L 35K xx RT1414 MW xx FO
LUMINAIRE	14" square recessed LED downlight, regressed extruded aluminum door
OTHER	Beam Angle: 109 x 101 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°	34.96	3.76%	90.00° - 100.00°	2.18	0.23%
10.00° - 20.00°	97.90	10.53%	100.00° - 110.00°	2.06	0.22%
20.00° - 30.00°	146.26	15.73%	100.00° - 120.00°	3.98	0.43%
30.00° - 40.00°	172.82	18.59%	120.00° - 130.00°	1.75	0.19%
40.00° - 50.00°	174.06	18.72%	130.00° - 140.00°	1.53	0.17%
50.00° - 60.00°	149.77	16.11%	140.00° - 150.00°	1.24	0.13%
60.00° - 70.00°	101.11	10.88%	150.00° - 160.00°	0.92	0.10%
70.00° - 80.00°	34.93	3.76%	160.00° - 170.00°	0.58	0.06%
80.00° - 90.00°	5.49	0.59%	170.00° - 180.00°	0.20	0.02%
0.00° - 90.00°	917.30	98.67%	0.00° - 180.00°	929.68	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°	365.14	365.14	365.14	365.14	365.14	365.14	365.14	365.14	365.14	365.14	0.14	365.14	365.14	365.14	365.14	365.14	365.14
2.50°	365.05	364.65	363.92	362.99	363.85	362.54	364.08	364.19	365.23	364.93	365.76	364.67	366.15	364.82	365.46	364.72	365.05
5.00°	363.71	363.90	361.64	361.08	361.31	360.11	362.31	362.71	364.16	364.44	365.53	364.09	365.59	364.42	364.65	364.08	363.71
7.50°	361.19	360.92	357.92	357.74	357.49	356.73	358.78	359.53	361.85	363.28	363.31	361.91	363.14	362.56	361.92	361.78	361.19
10.00°	358.12	357.16	353.76	353.73	353.11	352.71	354.56	356.05	358.93	361.02	360.22	359.08	360.08	360.06	358.88	358.92	358.12
12.50°	354.20	351.88	348.88	347.90	347.30	347.65	349.47	351.91	355.11	356.43	356.28	355.19	355.97	355.76	355.23	354.97	354.20
15.00°	349.21	346.13	343.06	341.32	340.92	341.48	344.10	347.00	350.90	351.63	352.01	350.51	351.41	350.73	350.65	350.69	349.21
17.50°	342.72	339.87	335.80	333.97	332.90	333.65	336.87	340.58	345.23	346.43	346.29	344.68	346.17	344.97	344.48	345.24	342.72
20.00°	335.93	333.46	327.99	326.34	324.29	324.95	329.08	333.57	338.98	340.39	340.06	338.15	339.71	338.93	337.74	339.49	335.93
22.50°	328.76	326.04	319.39	317.25	315.08	315.05	320.75	325.51	331.92	332.89	333.07	330.68	331.52	331.44	330.11	331.73	328.76
25.00°	320.79	318.37	310.20	307.67	305.68	305.01	312.26	317.14	324.57	324.97	325.84	322.68	322.96	323.48	322.30	323.50	320.79
27.50°	311.90	308.46	300.23	296.57	294.47	294.78	302.21	308.27	315.60	316.41	316.93	314.01	313.89	314.01	314.24	314.81	311.90
30.00°	302.47	298.11	289.78	285.01	282.77	283.79	291.79	298.64	306.10	307.59	307.55	304.54	303.74	304.10	305.04	306.03	302.47
32.50°	292.46	287.44	278.74	273.57	271.04	271.92	280.44	287.90	296.59	298.40	297.31	294.18	292.33	293.76	294.34	295.89	292.46
35.00°	281.83	276.72	266.86	262.16	259.30	259.72	268.90	276.66	287.08	288.22	286.85	282.72	280.78	283.30	283.15	285.53	281.83
37.50°	270.59	264.97	254.07	249.55	246.08	247.17	256.47	264.73	275.53	276.73	275.59	270.11	269.10	270.88	271.37	273.59	270.59
40.00°	258.93	253.07	241.01	236.67	232.56	234.07	243.90	252.81	263.47	265.06	264.16	257.52	256.51	258.03	259.06	261.45	258.93
42.50°	246.89	240.46	227.67	222.52	218.34	220.42	230.62	240.90	251.34	253.17	250.95	244.95	243.02	244.54	246.15	248.98	246.89
45.00°	234.09	227.77	214.00	208.13	204.01	206.50	217.25	228.08	239.20	240.36	237.42	231.55	228.84	230.92	232.78	236.47	234.09
47.50°	220.68	213.84	200.03	193.70	189.46	192.33	203.26	214.25	225.84	226.55	223.92	217.44	214.04	216.64	218.94	223.18	220.68
50.00°	206.69	199.81	185.66	179.27	174.89	177.61	189.19	199.99	212.26	212.67	210.42	202.54	199.38	202.25	204.74	209.83	206.69
52.50°	192.28	184.79	170.94	163.80	159.71	162.45	173.89	185.28	197.58	198.72	195.30	187.01	184.85	187.27	190.21	194.71	192.28
55.00°	177.05	169.71	156.13	148.20	144.47	146.99	158.48	170.11	182.73	184.26	179.99	171.78	169.55	172.22	175.05	179.49	177.05
57.50°	161.26	154.12	141.24	132.46	129.12	131.32	143.85	154.52	167.08	169.32	164.54	156.76	153.68	156.47	159.34	163.99	161.26
60.00°	144.25	138.51	125.52	116.70	113.77	115.86	129.27	138.17	151.33	153.06	149.07	141.09	137.94	140.64	143.27	148.47	144.25
62.50°	126.48	120.82	109.23	101.02	97.58	100.55	112.80	121.19	134.09	135.71	133.13	124.99	122.30	124.61	126.92	131.33	126.48
65.00°	105.51	103.07	92.87	85.33	81.33	84.78	96.25	102.91	116.71	116.94	117.15	108.40	105.98	108.56	110.57	114.13	105.51
67.50°	82.72	81.13	76.46	70.20	66.89	68.73	79.87	83.61	92.70	97.07	99.69	91.52	89.24	92.38	94.22	92.56	82.72
70.00°	57.59	59.20	58.82	55.09	52.52	54.07	63.49	61.70	68.23	73.95	82.17	75.50	73.23	76.19	76.29	70.89	57.59
72.50°	31.27	37.44	40.45	40.89	37.98	40.21	46.01	37.92	43.55	48.52	63.48	59.95	57.64	60.44	57.35	46.29	31.27
75.00°	17.41	16.55	25.93	26.71	23.47	27.48	28.73	22.16	18.87	29.52	44.79	45.12	42.85	44.69	39.32	22.59	17.41
77.50°	9.38	11.14	13.44	17.82	15.56	15.34	17.92	11.64	12.26	14.70	28.35	30.65	28.47	30.97	21.82	14.48	9.38
80.00°	5.96	6.05	7.56	9.06	7.80	9.21	7.56	6.67	6.04	7.75	12.25	20.06	18.33	17.42	12.35	6.88	5.96
82.50°	4.48	4.91	4.83	6.29	5.67	5.86	5.53	5.01	5.05	5.46	8.48	11.22	10.19	11.51	7.13	5.39	4.48
85.00°	3.46	3.81	3.34	3.60	3.60	3.86	3.58	3.68	4.05	3.88	4.84	6.72	6.19	5.78	4.45	3.95	3.46
87.50°	2.62	2.99	2.39	2.82	2.82	2.44	2.76	2.52	3.15	2.67	3.61	3.98	3.95	4.01	3.00	3.01	2.62
90.00°	2.13	2.26	2.06	2.09	2.10	1.95	2.02	2.05	2.28	2.09	2.46	2.73	2.82	2.35	2.26	2.17	2.13
92.50°	1.77	2.20	1.96	2.07	2.04	1.82	1.97	1.92	2.16	1.81	2.28	2.02	2.11	2.16	1.82	2.09	1.77
95.00°	1.68	2.14	1.85	2.06	2.00	1.78	1.94	1.96	2.04	1.77	2.10	1.86	2.01	1.99	1.82	2.01	1.68
97.50°	1.66	2.15	1.73	2.07	2.03	1.79	1.99	2.08	2.06	1.83	1.98	1.87	2.12	1.94	1.98	1.98	1.66
100.00°	1.69	2.15	1.71	2.08	2.04	1.77	2.03	2.07	2.08	1.79	1.87	1.96	2.13	1.89	2.03	1.95	1.69
102.50°	1.72	2.07	1.72	2.01	1.96	1.74	2.08	2.01	2.07	1.71	1.90	2.07	2.11	1.90	2.05	1.98	1.72
105.00°	1.72	2.00	1.87	1.94	1.88	1.83	2.10	2.07	2.06	1.65	1.94	1.98	2.10	1.92	2.01	2.00	1.72

### 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>	1104	1104	1104	1104	1077	1077	1077	1077	1026	1026	1026	980	980	980	937	937	917
	<b>1</b>	1019	979	944	912	993	957	925	896	916	889	865	878	857	837	843	826	808
	<b>2</b>	933	862	804	755	908	844	790	745	809	764	726	777	740	707	748	717	690
	<b>3</b>	854	762	691	634	830	746	681	628	717	661	615	691	643	603	666	626	591
	<b>4</b>	784	678	600	541	762	665	593	537	640	578	528	618	564	520	596	550	512
	<b>5</b>	722	607	527	468	702	596	521	465	576	510	459	556	498	453	538	488	447
	<b>6</b>	667	548	468	410	649	539	463	408	521	454	403	504	445	399	489	436	395
	<b>7</b>	619	498	419	363	603	490	415	362	474	407	358	460	400	355	447	393	352
	<b>8</b>	577	455	378	325	562	448	374	323	435	368	321	422	362	318	411	356	316
	<b>9</b>	539	418	343	293	526	412	340	292	400	335	290	390	330	288	380	325	286
	<b>10</b>	506	386	314	266	494	381	312	265	371	307	263	361	303	262	352	299	260

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	12.1 fc	15.4 ft
6.5 ft	8.6 fc	18.2 ft
7.5 ft	6.5 fc	21.0 ft
8.0 ft	5.7 fc	22.4 ft
10.0 ft	3.7 fc	28.0 ft
12.0 ft	2.5 fc	33.6 ft
14.0 ft	1.9 fc	39.2 ft
16.0 ft	1.4 fc	44.8 ft
20.0 ft	0.9 fc	56.0 ft
24.0 ft	0.6 fc	67.2 ft
28.0 ft	0.5 fc	78.5 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	3634	3634	3634
<b>45.00°</b>	3295	3012	2871
<b>55.00°</b>	3072	2709	2507
<b>65.00°</b>	2484	2187	1915
<b>75.00°</b>	669	997	902
<b>85.00°</b>	395	382	411

### 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	16.1	17.6	16.5	18.0	18.3	15.4	16.9	15.8	17.3	17.6
	3H	17.2	18.6	17.6	18.9	19.3	16.7	18.1	17.1	18.4	18.8
	4H	17.3	18.6	17.7	18.9	19.3	17.0	18.3	17.4	18.7	19.1
	6H	17.2	18.4	17.7	18.8	19.2	17.1	18.3	17.5	18.7	19.1
	8H	17.2	18.3	17.6	18.8	19.2	17.1	18.3	17.6	18.7	19.1
	12H	17.2	18.3	17.6	18.7	19.1	17.1	18.2	17.6	18.6	19.1
4H	2H	16.5	17.8	17.0	18.2	18.6	16.0	17.3	16.5	17.7	18.1
	3H	17.8	18.9	18.2	19.3	19.7	17.5	18.6	17.9	19.0	19.4
	4H	17.9	18.8	18.3	19.3	19.7	17.9	18.8	18.3	19.3	19.7
	6H	17.9	18.7	18.3	19.2	19.6	18.0	18.9	18.5	19.3	19.8
	8H	17.8	18.6	18.3	19.1	19.6	18.0	18.8	18.5	19.3	19.8
	12H	17.8	18.5	18.3	19.0	19.5	18.0	18.7	18.6	19.2	19.7
8H	4H	17.9	18.7	18.4	19.2	19.7	18.0	18.8	18.5	19.2	19.7
	6H	17.9	18.6	18.4	19.1	19.6	18.2	18.8	18.7	19.3	19.8
	8H	17.9	18.5	18.4	19.0	19.5	18.2	18.8	18.7	19.3	19.8
	12H	17.9	18.4	18.4	18.9	19.5	18.2	18.7	18.8	19.3	19.8
12H	4H	17.9	18.6	18.4	19.1	19.6	18.0	18.7	18.5	19.2	19.7
	6H	17.9	18.5	18.5	19.0	19.5	18.1	18.7	18.7	19.2	19.8
	8H	17.9	18.4	18.4	18.9	19.5	18.2	18.7	18.7	19.2	19.8

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0