

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

#### Luminaire

SR14SQLEDOA 22L 35K xx FT1414 MW xx FO  
14" square recessed LED downlight, flush extruded aluminum door

#### Test Number

SP-01644\_1

#### Test Date

2/20/2024

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

### Summary of Results

#### Power

Input Watts	18.4 W
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#### Lumen Output

Output Lumens	1602
Efficacy	87.04 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°	1.23
Four luminaires	1.34

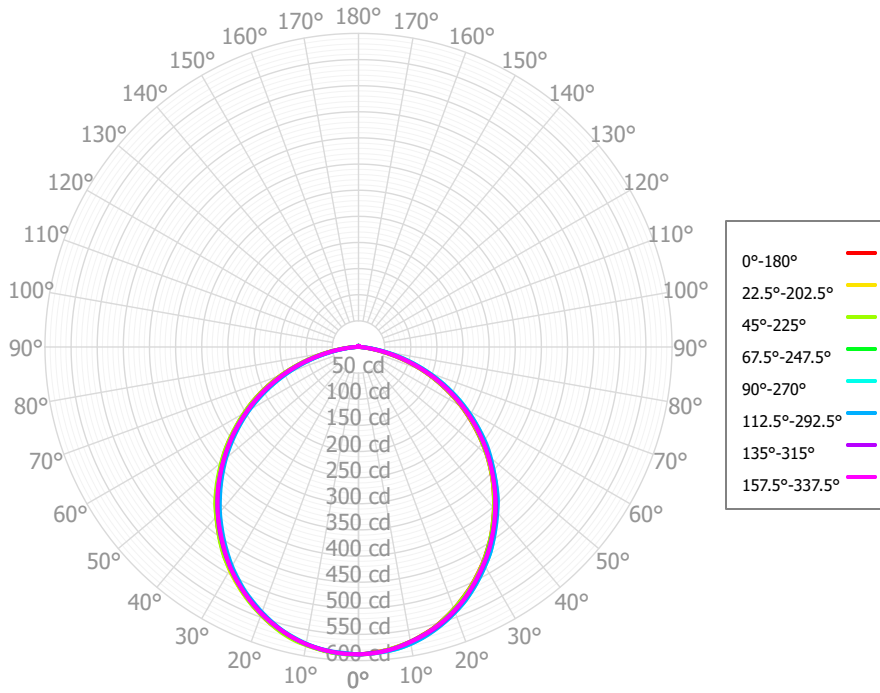
#### Full Beam Angle

0° - 180°	108°
90° - 270°	108°

### IES File Header Contents

Keyword	Value
TEST	SP-01644_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	2/20/2024
ISSUEDATE	2/28/2024
LUMCAT	SR14SQLEDOA 22L 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°	56.38	3.52%	90.00° - 100.00°	2.48	0.15%
10.00° - 20.00°	157.99	9.87%	100.00° - 110.00°	2.17	0.14%
20.00° - 30.00°	236.74	14.78%	100.00° - 120.00°	4.18	0.26%
30.00° - 40.00°	281.41	17.57%	120.00° - 130.00°	1.86	0.12%
40.00° - 50.00°	287.55	17.95%	130.00° - 140.00°	1.62	0.10%
50.00° - 60.00°	255.51	15.95%	140.00° - 150.00°	1.34	0.08%
60.00° - 70.00°	189.75	11.85%	150.00° - 160.00°	0.97	0.06%
70.00° - 80.00°	100.67	6.29%	160.00° - 170.00°	0.61	0.04%
80.00° - 90.00°	22.25	1.39%	170.00° - 180.00°	0.21	0.01%
0.00° - 90.00°	1588.26	99.17%	0.00° - 180.00°	1601.52	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°	588.18	588.18	588.18	588.18	588.18	588.18	588.18	588.18	588.18	588.18	588.18	588.18	588.18	588.18	588.18	588.18	588.18
2.50°	585.74	586.44	587.27	587.11	587.36	586.24	587.23	588.02	588.13	588.02	588.61	588.13	588.30	586.63	586.38	587.28	585.74
5.00°	583.04	583.33	583.22	584.20	585.17	584.89	585.33	585.81	586.79	586.56	586.72	586.15	586.13	585.00	583.89	584.10	583.04
7.50°	578.30	578.41	578.21	580.12	582.25	581.66	581.94	582.29	583.15	582.92	583.47	582.64	581.90	581.97	579.07	579.48	578.30
10.00°	572.45	572.85	572.76	574.13	576.81	577.22	576.97	577.58	578.45	578.31	579.33	577.67	576.32	576.88	572.63	573.28	572.45
12.50°	564.78	566.52	565.24	567.06	569.30	570.18	570.76	570.92	572.69	571.27	574.21	570.99	569.40	570.09	565.82	566.17	564.78
15.00°	556.31	557.70	556.96	557.77	560.57	561.81	562.67	562.81	565.12	563.38	566.44	562.99	561.77	561.45	558.80	557.37	556.31
17.50°	545.36	546.48	545.80	547.50	551.01	551.35	553.39	553.45	556.12	554.12	556.29	553.41	552.39	551.58	549.00	547.78	545.36
20.00°	533.57	534.65	533.82	536.03	540.06	540.04	542.46	543.33	545.26	544.50	545.42	542.84	542.29	540.46	537.97	536.40	533.57
22.50°	520.36	522.34	520.72	524.13	528.35	527.55	530.69	531.32	533.21	533.06	534.03	530.97	529.96	528.67	524.81	524.37	520.36
25.00°	506.80	508.22	507.40	509.93	514.37	514.69	517.69	518.40	520.25	521.31	520.73	518.44	516.95	514.72	510.92	509.80	506.80
27.50°	491.63	492.97	492.34	495.14	499.42	499.71	504.19	504.11	506.83	507.43	506.33	504.24	502.04	499.84	495.73	494.56	491.63
30.00°	476.19	476.98	477.06	478.65	484.00	484.22	488.83	489.31	491.97	493.31	491.90	489.39	486.69	484.26	480.20	478.87	476.19
32.50°	459.09	460.61	459.58	461.86	468.44	466.96	472.91	472.09	476.53	475.93	477.46	472.26	469.92	468.44	463.07	463.10	459.09
35.00°	441.82	442.59	441.93	443.74	449.89	449.41	455.56	454.19	459.23	458.37	460.09	454.46	452.92	450.45	445.66	444.76	441.82
37.50°	422.58	423.91	422.82	425.48	430.61	430.99	437.87	436.50	441.34	439.57	441.67	436.59	434.45	431.93	427.33	426.11	422.58
40.00°	403.25	404.11	403.66	406.93	411.77	412.49	418.72	418.84	422.78	420.76	423.67	418.71	415.84	413.25	408.90	406.57	403.25
42.50°	383.23	383.96	383.71	388.36	393.00	392.42	399.35	399.65	404.06	401.74	405.78	399.25	394.94	394.54	388.00	386.97	383.23
45.00°	363.13	363.63	363.63	367.50	371.95	372.28	378.76	380.25	383.24	382.48	385.15	379.56	373.96	373.01	366.97	365.89	363.13
47.50°	341.80	343.25	342.13	346.52	350.68	351.60	358.07	358.80	362.11	361.20	363.98	358.51	353.56	351.20	345.91	344.77	341.80
50.00°	320.26	321.52	320.46	323.40	328.81	330.82	336.54	337.19	341.11	339.85	342.51	337.35	333.04	330.55	324.77	323.14	320.26
52.50°	297.06	299.60	297.74	300.39	306.91	308.69	314.96	315.37	320.13	318.13	320.99	315.31	310.88	309.91	302.28	301.41	297.06
55.00°	273.87	276.54	275.05	278.37	284.73	286.53	292.39	293.48	297.25	296.21	298.21	293.22	288.62	286.34	279.68	278.63	273.87
57.50°	250.70	253.39	252.46	256.08	262.48	264.08	269.78	270.07	274.32	273.57	275.34	270.38	265.69	262.77	256.16	255.71	250.70
60.00°	227.27	229.04	229.31	232.28	239.13	241.25	246.58	246.70	252.05	250.66	252.60	247.45	242.51	239.13	232.59	231.94	227.27
62.50°	202.93	204.70	204.41	208.41	215.68	216.59	223.23	223.78	229.66	227.01	229.81	223.45	218.17	215.40	208.75	208.02	202.93
65.00°	178.65	181.49	179.62	184.25	191.51	191.98	198.89	200.60	205.76	202.89	205.57	199.36	193.85	190.93	184.87	183.50	178.65
67.50°	154.57	158.16	155.08	160.10	167.22	167.54	174.67	175.81	181.69	177.74	181.28	174.77	169.58	166.43	160.83	158.95	154.57
70.00°	130.29	133.41	130.93	135.97	142.35	143.19	150.99	150.99	156.48	152.93	156.45	150.21	145.23	141.79	136.52	134.30	130.29
72.50°	105.58	108.88	107.51	112.16	117.86	119.11	127.18	126.01	131.41	128.75	131.80	125.76	120.66	117.24	111.48	110.22	105.58
75.00°	81.39	85.84	84.01	89.06	94.75	95.39	102.94	101.48	106.97	104.89	108.15	101.60	96.52	92.97	87.17	87.43	81.39
77.50°	58.09	63.13	60.39	66.45	71.86	72.40	79.24	78.38	83.03	81.51	84.46	78.42	73.24	69.49	64.47	64.88	58.09
80.00°	37.78	41.95	39.69	44.73	49.57	50.76	56.91	56.12	60.83	59.27	60.65	56.11	51.40	48.17	43.36	42.78	37.78
82.50°	21.60	23.22	22.59	26.65	30.16	31.31	36.79	35.86	40.24	38.36	38.81	36.01	31.94	29.33	25.04	24.75	21.60
85.00°	10.44	12.61	11.04	13.73	17.00	16.54	21.03	19.30	23.82	22.05	22.89	19.36	17.13	15.78	11.85	12.76	10.44
87.50°	4.89	4.57	5.09	5.67	7.41	8.04	9.52	9.79	10.97	10.05	10.32	9.52	8.46	6.28	5.86	5.24	4.89
90.00°	2.14	3.04	2.35	3.22	3.91	3.18	4.82	3.62	5.41	4.04	5.48	3.16	3.52	3.63	2.49	3.10	2.14
92.50°	1.99	2.05	2.22	2.08	1.93	2.26	2.09	2.52	1.95	2.57	2.27	2.34	2.58	2.14	2.12	2.01	1.99
95.00°	1.89	2.15	2.13	2.16	2.01	1.95	1.91	1.94	1.94	1.98	2.04	1.90	2.17	2.27	1.90	1.96	1.89
97.50°	1.84	2.25	2.07	2.16	2.08	2.18	1.86	1.99	1.97	1.94	1.94	1.96	2.25	2.32	1.85	2.00	1.84
100.00°	1.87	2.34	2.07	2.10	2.12	2.16	1.97	2.05	2.05	1.91	2.06	1.96	2.28	2.28	1.89	2.11	1.87
102.50°	1.95	2.30	2.11	2.10	2.17	1.96	2.01	2.10	2.02	1.87	2.12	1.90	2.29	2.15	2.01	2.13	1.95
105.00°	1.91	2.09	2.22	2.13	2.21	1.89	1.98	2.03	1.88	1.91	2.10	1.89	2.28	1.94	2.11	2.09	1.91

### 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>	1903	1903	1903	1903	1858	1858	1858	1858	1772	1772	1772	1694	1694	1694	1622	1622	1588
	<b>1</b>	1744	1669	1602	1542	1699	1632	1571	1516	1561	1511	1466	1497	1456	1418	1437	1404	1374
	<b>2</b>	1587	1458	1351	1261	1544	1426	1328	1244	1367	1285	1213	1313	1244	1184	1263	1206	1155
	<b>3</b>	1448	1282	1153	1050	1408	1256	1136	1040	1206	1104	1020	1160	1073	1000	1118	1044	982
	<b>4</b>	1327	1137	998	891	1289	1115	985	884	1073	960	871	1034	937	858	998	914	845
	<b>5</b>	1221	1017	874	769	1186	998	864	764	962	844	754	929	826	745	899	808	735
	<b>6</b>	1128	916	774	672	1096	900	766	668	870	750	661	842	735	654	815	721	647
	<b>7</b>	1046	831	691	594	1018	817	685	591	792	673	586	767	660	581	745	649	575
	<b>8</b>	974	759	623	530	948	747	618	528	725	608	524	704	598	520	684	588	516
	<b>9</b>	910	697	566	477	887	687	561	476	667	553	472	649	545	469	632	537	466
	<b>10</b>	854	643	517	433	833	634	513	432	618	506	429	602	499	427	587	492	424

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	19.4 fc	15.2 ft
6.5 ft	13.9 fc	18.0 ft
7.5 ft	10.5 fc	20.7 ft
8.0 ft	9.2 fc	22.1 ft
10.0 ft	5.9 fc	27.6 ft
12.0 ft	4.1 fc	33.2 ft
14.0 ft	3.0 fc	38.7 ft
16.0 ft	2.3 fc	44.2 ft
20.0 ft	1.5 fc	55.3 ft
24.0 ft	1.0 fc	66.3 ft
28.0 ft	0.8 fc	77.4 ft

### Average Luminaire Luminance [cd/m<sup>2</sup>]

	0.00°	45.00°	90.00°
0.00°	6085	6085	6085
45.00°	5313	5320	5442
55.00°	4940	4961	5136
65.00°	4374	4397	4688
75.00°	3253	3358	3788
85.00°	1240	1311	2019

### 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	17.5	19.1	17.9	19.5	19.8	17.9	19.5	18.3	19.8	20.1
	3H	19.1	20.6	19.5	20.9	21.3	19.6	21.0	20.0	21.4	21.7
	4H	19.6	21.0	20.0	21.4	21.8	20.2	21.5	20.6	21.9	22.3
	6H	19.9	21.1	20.3	21.5	21.9	20.5	21.8	21.0	22.2	22.6
	8H	19.9	21.1	20.4	21.5	22.0	20.6	21.8	21.0	22.2	22.6
	12H	19.9	21.1	20.4	21.5	21.9	20.6	21.8	21.1	22.2	22.6
4H	2H	18.1	19.5	18.5	19.8	20.2	18.5	19.9	19.0	20.3	20.7
	3H	19.9	21.1	20.3	21.5	21.9	20.5	21.6	20.9	22.0	22.4
	4H	20.5	21.6	21.0	22.0	22.5	21.2	22.2	21.6	22.6	23.1
	6H	20.9	21.8	21.4	22.3	22.7	21.6	22.5	22.1	23.0	23.4
	8H	21.0	21.8	21.4	22.3	22.7	21.7	22.6	22.2	23.0	23.5
	12H	21.0	21.7	21.5	22.2	22.7	21.8	22.5	22.3	23.0	23.5
8H	4H	20.8	21.6	21.3	22.1	22.6	21.5	22.3	21.9	22.8	23.2
	6H	21.2	21.9	21.7	22.4	22.9	22.0	22.7	22.5	23.2	23.7
	8H	21.3	21.9	21.8	22.4	22.9	22.2	22.8	22.7	23.3	23.8
	12H	21.4	21.9	21.9	22.4	23.0	22.3	22.8	22.8	23.4	23.9
12H	4H	20.8	21.5	21.3	22.0	22.5	21.5	22.2	22.0	22.7	23.2
	6H	21.2	21.9	21.8	22.3	22.9	22.1	22.7	22.6	23.2	23.7
	8H	21.4	21.9	21.9	22.4	23.0	22.3	22.8	22.8	23.3	23.9

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0