

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

#### Luminaire

SR12SQLEDOA 44L 35K xx RT1212 MW xx FO  
12" square recessed LED downlight, regressed extruded aluminum door

#### Test Number

SP-01643\_3

#### Test Date

2/9/2024

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

### Summary of Results

#### Power

Input Watts	33.7 W
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#### Lumen Output

Output Lumens	3209
Efficacy	95.24 lm/W

#### Luminous Dimensions

0° - 180° Size	0.88
90° - 270° Size	0.88
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	1.19
Two luminaires, plane 90°	1.18
Four luminaires	1.28

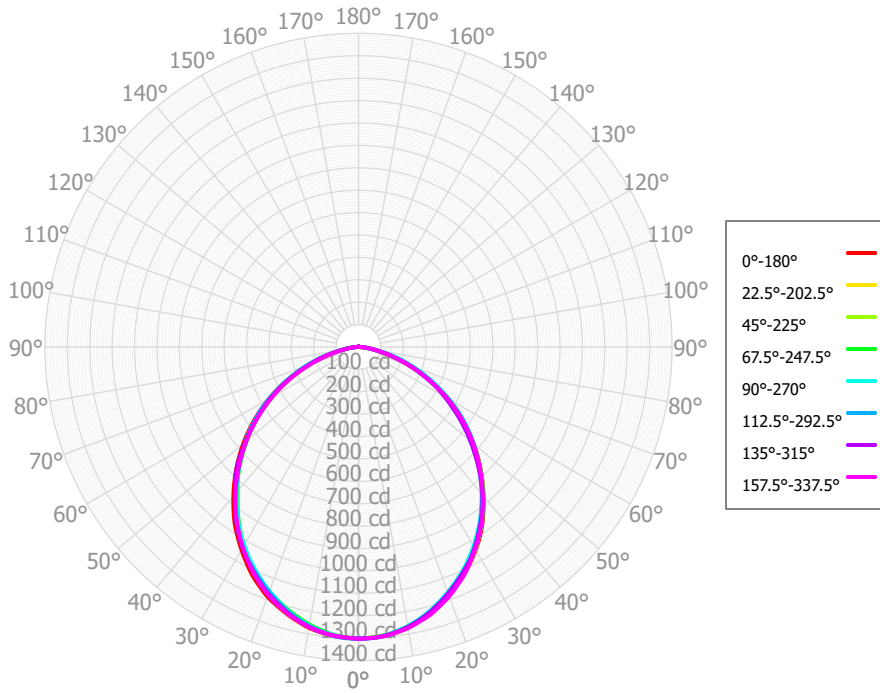
#### Full Beam Angle

0° - 180°	102°
90° - 270°	101°

### IES File Header Contents

Keyword	Value
TEST	SP-01643_3
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	2/9/2024
ISSUEDATE	2/28/2024
LUMCAT	SR12SQLEDOA 44L 35K xx RT1212 MW xx FO
LUMINAIRE	12" square recessed LED downlight, regressed extruded aluminum door
OTHER	Beam Angle: 102 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°	124.49	3.88%	90.00° - 100.00°	2.36	0.07%
10.00° - 20.00°	345.46	10.76%	100.00° - 110.00°	1.59	0.05%
20.00° - 30.00°	510.04	15.89%	100.00° - 120.00°	3.09	0.10%
30.00° - 40.00°	593.47	18.49%	120.00° - 130.00°	1.39	0.04%
40.00° - 50.00°	586.61	18.28%	130.00° - 140.00°	1.29	0.04%
50.00° - 60.00°	498.64	15.54%	140.00° - 150.00°	1.12	0.03%
60.00° - 70.00°	343.79	10.71%	150.00° - 160.00°	0.81	0.03%
70.00° - 80.00°	160.47	5.00%	160.00° - 170.00°	0.51	0.02%
80.00° - 90.00°	35.73	1.11%	170.00° - 180.00°	0.17	0.01%
0.00° - 90.00°	3198.69	99.67%	0.00° - 180.00°	3209.43	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°	1302.32	1302.32	1302.32	1302.32	1302.32	1302.32	1302.32	1302.32	1302.32	1302.32	1302.32	1302.32	1302.32	1302.32	1302.32	1302.32	1302.32
2.50°	1299.74	1299.41	1297.90	1299.61	1300.69	1301.19	1298.85	1298.62	1299.44	1298.75	1298.24	1297.09	1299.23	1301.27	1300.77	1300.56	1299.74
5.00°	1295.11	1294.88	1292.35	1294.97	1293.43	1295.01	1293.59	1293.31	1294.98	1293.47	1292.59	1289.45	1291.57	1296.19	1294.90	1297.21	1295.11
7.50°	1285.03	1284.24	1282.53	1282.04	1281.43	1281.91	1283.76	1282.76	1285.04	1282.10	1281.14	1275.29	1279.59	1283.96	1284.55	1286.42	1285.03
10.00°	1272.43	1272.82	1268.74	1266.18	1266.26	1266.21	1269.67	1270.50	1273.51	1269.37	1267.21	1258.65	1263.73	1269.21	1269.37	1274.70	1272.43
12.50°	1254.47	1253.53	1248.92	1246.47	1245.59	1245.84	1250.51	1251.71	1254.99	1251.62	1247.33	1237.55	1243.95	1248.68	1250.66	1256.46	1254.47
15.00°	1234.14	1233.54	1226.04	1225.60	1221.71	1222.52	1227.20	1231.40	1234.81	1231.67	1225.29	1214.86	1219.76	1226.45	1226.80	1237.67	1234.14
17.50°	1209.46	1208.45	1199.10	1198.69	1194.32	1194.59	1201.56	1206.34	1211.21	1204.88	1198.08	1189.66	1191.68	1202.01	1199.65	1211.39	1209.46
20.00°	1182.32	1183.09	1169.98	1170.30	1165.17	1165.13	1174.25	1179.23	1186.97	1176.54	1169.30	1162.09	1161.38	1177.04	1170.21	1184.75	1182.32
22.50°	1151.27	1150.99	1138.34	1141.13	1133.64	1133.58	1142.80	1146.66	1155.64	1144.18	1136.22	1131.25	1129.34	1146.35	1139.51	1152.46	1151.27
25.00°	1118.60	1118.67	1104.26	1111.82	1101.08	1101.88	1108.74	1112.22	1123.27	1109.87	1102.05	1098.07	1095.22	1114.54	1107.46	1119.97	1118.60
27.50°	1083.66	1081.07	1067.68	1077.04	1064.85	1069.99	1072.58	1073.53	1084.63	1071.19	1064.96	1062.05	1059.68	1075.89	1074.77	1080.86	1083.66
30.00°	1046.62	1043.21	1031.63	1041.44	1027.25	1033.93	1035.26	1033.53	1045.33	1030.82	1027.27	1022.79	1021.77	1036.22	1036.10	1041.63	1046.62
32.50°	1007.03	1000.22	996.05	1000.93	986.67	993.50	994.08	990.95	1004.50	987.18	986.31	980.09	982.47	992.93	994.96	1000.20	1007.03
35.00°	963.78	956.96	954.53	959.88	945.16	949.66	951.08	947.43	963.57	943.64	944.82	935.11	939.38	949.25	952.26	958.30	963.78
37.50°	916.61	910.52	908.31	913.88	901.18	902.65	905.56	902.29	916.33	900.26	899.00	888.02	894.34	903.10	909.01	911.09	916.61
40.00°	868.63	863.79	862.89	867.53	856.54	854.19	859.02	855.54	868.86	854.68	852.68	842.32	848.62	856.78	860.36	863.77	868.63
42.50°	819.89	814.70	818.01	818.39	809.80	804.55	814.14	806.37	820.65	805.92	802.41	797.76	802.58	809.14	810.13	815.66	819.89
45.00°	770.75	765.53	766.27	769.17	762.60	755.35	769.83	756.32	772.37	756.27	751.84	750.43	754.83	761.44	757.14	767.28	770.75
47.50°	721.28	715.80	710.34	719.46	713.98	706.47	715.36	705.13	721.91	705.50	702.27	701.13	706.44	715.94	703.49	717.34	721.28
50.00°	670.39	665.79	657.14	669.77	665.12	657.90	657.99	653.94	671.35	655.15	652.73	652.02	658.51	670.32	651.34	667.13	670.39
52.50°	618.47	614.47	605.38	620.73	615.59	609.52	604.37	602.75	619.45	605.27	602.59	603.05	610.73	620.73	599.48	615.67	618.47
55.00°	565.42	562.62	552.36	571.56	565.98	561.09	551.64	550.28	567.40	551.89	552.41	552.58	559.52	570.80	546.42	563.87	565.42
57.50°	511.67	508.70	498.76	520.39	513.81	512.63	500.45	496.53	513.94	495.07	500.81	501.29	507.38	515.53	493.18	510.84	511.67
60.00°	457.90	455.14	447.32	468.79	461.43	457.77	449.55	443.25	460.45	440.14	449.19	448.75	456.09	460.46	443.76	456.96	457.90
62.50°	404.12	402.76	396.74	413.28	410.88	399.90	397.57	390.39	406.75	386.84	397.41	395.60	404.97	407.27	394.76	400.45	404.12
65.00°	349.68	349.58	344.34	358.33	360.43	346.83	345.43	337.19	352.85	333.26	345.47	344.69	353.92	354.45	341.82	345.25	349.68
67.50°	294.92	294.27	291.35	307.05	308.86	295.70	292.63	283.72	297.85	279.46	291.87	294.69	302.88	304.10	288.60	293.52	294.92
70.00°	241.29	241.11	240.58	256.40	257.31	246.20	239.78	232.53	243.35	229.76	239.03	245.12	253.05	254.19	239.40	242.59	241.29
72.50°	188.11	192.91	190.43	208.91	207.19	197.26	195.17	182.90	190.90	182.82	191.71	195.70	203.38	206.54	190.35	193.48	188.11
75.00°	140.45	147.20	147.64	162.12	157.48	151.74	151.10	138.75	141.30	139.37	146.07	150.84	155.93	159.98	148.78	146.90	140.45
77.50°	94.69	106.44	106.50	118.31	115.06	107.19	112.05	97.85	101.40	97.96	109.64	107.31	108.69	118.05	107.59	105.22	94.69
80.00°	67.30	72.40	76.51	78.57	74.25	75.58	73.18	68.89	66.56	68.39	75.65	75.89	78.15	79.83	78.19	71.31	67.30
82.50°	45.24	49.92	48.51	52.90	51.55	47.06	50.94	46.06	46.16	44.82	52.32	47.35	48.49	54.46	49.45	50.40	45.24
85.00°	27.56	30.14	29.11	30.06	29.81	28.00	29.01	27.70	27.75	26.80	30.91	28.53	30.99	31.62	30.46	31.46	27.56
87.50°	10.93	14.39	10.87	15.45	15.58	10.75	15.55	11.31	14.17	11.20	16.45	11.56	13.87	16.08	12.74	15.37	10.93
90.00°	5.27	4.51	5.63	4.55	3.27	5.39	2.93	4.88	4.39	4.95	5.07	6.09	7.81	4.52	7.07	5.30	5.27
92.50°	1.68	2.32	1.66	2.80	2.22	1.77	2.01	2.21	2.52	2.18	3.01	2.30	2.01	2.71	2.09	2.91	1.68
95.00°	1.28	1.31	1.33	1.65	1.35	1.50	1.21	1.54	1.33	1.55	1.48	1.72	2.00	1.55	1.89	1.56	1.28
97.50°	1.36	1.66	1.22	1.78	1.34	1.58	1.47	1.50	1.37	1.58	1.32	1.48	1.98	1.79	1.73	1.40	1.36
100.00°	1.41	1.68	1.39	1.89	1.31	1.63	1.70	1.30	1.36	1.46	1.22	1.51	1.99	1.86	1.80	1.33	1.41
102.50°	1.45	1.36	1.56	1.97	1.22	1.68	1.64	1.04	1.26	1.29	1.26	1.56	1.99	1.62	1.88	1.37	1.45
105.00°	1.70	1.20	1.52	1.97	1.12	1.53	1.55	1.18	1.23	1.26	1.28	1.54	1.95	1.55	2.01	1.41	1.70

### 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>	3818	3818	3818	3818	3728	3728	3728	3728	3560	3560	3560	3406	3406	3406	3265	3265	3199
	<b>1</b>	3514	3372	3245	3130	3427	3299	3183	3078	3161	3066	2979	3035	2958	2886	2919	2857	2796
	<b>2</b>	3213	2963	2757	2584	3129	2902	2713	2553	2788	2629	2492	2682	2550	2434	2585	2476	2378
	<b>3</b>	2941	2619	2370	2171	2862	2568	2337	2151	2472	2274	2112	2383	2215	2074	2301	2159	2037
	<b>4</b>	2701	2332	2061	1855	2628	2289	2036	1841	2208	1989	1815	2133	1943	1789	2063	1900	1765
	<b>5</b>	2490	2091	1813	1608	2423	2055	1794	1598	1987	1756	1580	1923	1721	1562	1863	1687	1545
	<b>6</b>	2304	1889	1611	1411	2243	1858	1595	1404	1800	1566	1391	1746	1537	1378	1695	1510	1366
	<b>7</b>	2139	1717	1444	1252	2084	1691	1431	1247	1641	1408	1237	1595	1385	1228	1551	1362	1218
	<b>8</b>	1994	1571	1304	1121	1944	1548	1294	1117	1505	1275	1110	1465	1256	1103	1427	1238	1096
	<b>9</b>	1865	1444	1186	1012	1820	1425	1178	1009	1388	1162	1004	1353	1147	998	1320	1131	993
	<b>10</b>	1750	1335	1086	921	1709	1318	1079	918	1286	1066	914	1256	1053	909	1227	1040	905

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	43.1 fc	13.6 ft
6.5 ft	30.8 fc	16.0 ft
7.5 ft	23.2 fc	18.5 ft
8.0 ft	20.3 fc	19.7 ft
10.0 ft	13.0 fc	24.7 ft
12.0 ft	9.0 fc	29.6 ft
14.0 ft	6.6 fc	34.5 ft
16.0 ft	5.1 fc	39.4 ft
20.0 ft	3.3 fc	49.3 ft
24.0 ft	2.3 fc	59.2 ft
28.0 ft	1.7 fc	69.0 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	18102	18102	18102
<b>45.00°</b>	15151	15063	14990
<b>55.00°</b>	13702	13385	13716
<b>65.00°</b>	11501	11325	11854
<b>75.00°</b>	7543	7929	8457
<b>85.00°</b>	4395	4643	4754

### 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	21.1	22.6	21.4	22.9	23.3	21.0	22.6	21.4	22.9	23.2
	3H	22.5	23.9	22.8	24.2	24.6	22.5	23.9	22.9	24.2	24.6
	4H	22.8	24.2	23.3	24.5	24.9	23.0	24.3	23.4	24.6	25.0
	6H	23.0	24.3	23.4	24.6	25.0	23.2	24.4	23.6	24.8	25.2
	8H	23.1	24.2	23.5	24.6	25.0	23.2	24.4	23.7	24.8	25.2
	12H	23.1	24.2	23.5	24.6	25.0	23.3	24.4	23.7	24.8	25.2
4H	2H	21.6	22.9	22.0	23.2	23.6	21.5	22.9	21.9	23.2	23.6
	3H	23.1	24.3	23.6	24.7	25.1	23.2	24.3	23.6	24.7	25.1
	4H	23.6	24.6	24.1	25.1	25.5	23.7	24.7	24.2	25.2	25.6
	6H	23.9	24.8	24.4	25.2	25.7	24.1	24.9	24.5	25.4	25.8
	8H	24.0	24.8	24.4	25.2	25.7	24.1	24.9	24.6	25.4	25.9
	12H	24.0	24.7	24.5	25.2	25.7	24.2	24.9	24.7	25.4	25.9
8H	4H	23.8	24.6	24.3	25.1	25.6	23.9	24.7	24.4	25.2	25.6
	6H	24.2	24.8	24.7	25.3	25.8	24.3	25.0	24.8	25.5	25.9
	8H	24.3	24.9	24.8	25.4	25.9	24.4	25.0	24.9	25.5	26.0
	12H	24.4	24.9	24.9	25.4	26.0	24.5	25.0	25.0	25.5	26.1
12H	4H	23.8	24.6	24.3	25.0	25.5	23.9	24.6	24.4	25.1	25.6
	6H	24.2	24.8	24.7	25.3	25.8	24.3	24.9	24.8	25.4	25.9
	8H	24.3	24.9	24.8	25.4	25.9	24.5	25.0	25.0	25.5	26.1

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0