

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SR12SQLEDOA 22L 35K xx RT1212 MW xx FO
12" square recessed LED downlight, regressed extruded aluminum door

Test Number

SP-01643_1

Test Date

2/12/2024

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	1674
Efficacy	90.99 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	1.23
Two luminaires, plane 90°	1.17
Four luminaires	1.31

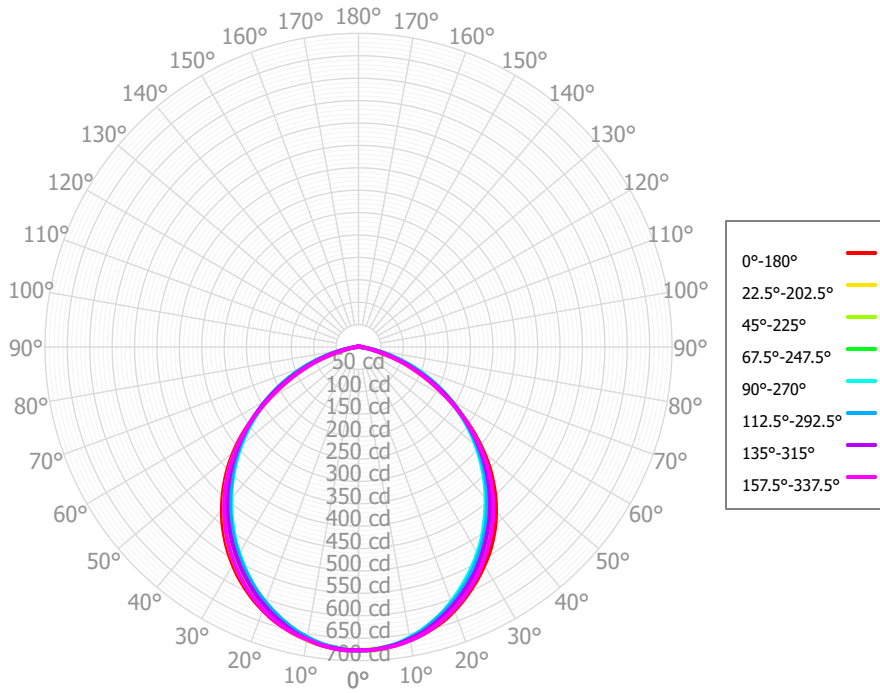
Full Beam Angle

0° - 180°	104°
90° - 270°	100°

IES File Header Contents

Keyword	Value
TEST	SP-01643_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	2/12/2024
ISSUEDATE	2/28/2024
LUMCAT	SR12SQLEDOA 22L 35K xx RT1212 MW xx FO
LUMINAIRE	12" square recessed LED downlight, regressed extruded aluminum door
OTHER	Beam Angle: 104 x 100 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°	64.88	3.88%	90.00° - 100.00°	2.32	0.14%
10.00° - 20.00°	180.70	10.79%	100.00° - 110.00°	2.02	0.12%
20.00° - 30.00°	268.07	16.01%	100.00° - 120.00°	3.97	0.24%
30.00° - 40.00°	314.25	18.77%	120.00° - 130.00°	1.79	0.11%
40.00° - 50.00°	312.98	18.69%	130.00° - 140.00°	1.53	0.09%
50.00° - 60.00°	262.37	15.67%	140.00° - 150.00°	1.25	0.07%
60.00° - 70.00°	172.61	10.31%	150.00° - 160.00°	0.93	0.06%
70.00° - 80.00°	72.36	4.32%	160.00° - 170.00°	0.57	0.03%
80.00° - 90.00°	13.49	0.81%	170.00° - 180.00°	0.20	0.01%
0.00° - 90.00°	1661.71	99.25%	0.00° - 180.00°	1674.27	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°	677.32	677.32	677.32	677.32	677.32	677.32	677.32	677.32	677.32	677.32	677.32	677.32	677.32	677.32	677.32	677.32	677.32
2.50°	676.84	675.35	678.59	677.19	677.24	676.38	676.51	678.01	677.15	676.08	675.82	677.63	676.57	676.46	676.98	677.22	676.84
5.00°	674.04	672.59	675.37	673.15	672.56	672.25	673.92	674.80	674.39	673.79	672.35	673.16	672.49	673.45	673.60	674.83	674.04
7.50°	670.40	668.93	670.18	668.45	667.12	666.22	669.97	669.38	670.60	670.46	667.84	668.12	667.74	668.48	668.96	671.00	670.40
10.00°	664.66	663.29	662.17	658.55	657.93	657.76	662.45	663.10	664.11	664.12	661.05	658.53	658.94	659.90	661.78	665.14	664.66
12.50°	658.09	656.37	652.85	648.37	648.12	647.97	653.64	656.21	656.93	656.38	652.68	648.35	649.28	649.82	653.62	657.50	658.09
15.00°	649.17	646.63	640.97	635.93	635.26	635.75	641.41	647.23	647.99	646.29	640.84	635.21	635.87	637.00	641.99	647.37	649.17
17.50°	639.32	635.77	627.90	623.11	621.72	622.19	628.52	636.73	638.01	635.12	628.08	621.69	621.67	623.42	629.02	635.97	639.32
20.00°	626.29	622.39	613.25	607.36	604.71	606.88	613.89	623.77	625.33	621.85	613.28	607.06	606.20	608.42	614.44	622.79	626.29
22.50°	612.01	607.85	597.86	591.40	587.47	590.62	598.45	609.00	611.87	607.61	597.96	592.27	590.46	592.44	599.23	608.39	612.01
25.00°	596.31	590.74	580.19	573.86	569.09	573.00	580.85	592.49	596.41	591.53	581.48	574.33	571.65	574.67	582.26	592.25	596.31
27.50°	580.05	573.01	561.46	555.97	550.44	554.60	562.70	574.70	580.10	574.58	563.93	555.96	552.20	556.10	564.59	574.77	580.05
30.00°	562.46	553.88	541.66	535.29	530.48	534.84	543.06	555.54	561.55	555.74	544.02	535.76	531.90	536.06	544.60	555.42	562.46
32.50°	544.35	533.77	521.35	514.50	510.04	514.30	522.84	535.37	542.26	536.01	523.37	515.32	511.42	515.34	523.69	535.43	544.35
35.00°	523.60	511.45	500.12	492.85	487.23	492.34	501.06	513.61	521.01	513.99	501.07	492.83	488.68	493.37	502.22	514.52	523.60
37.50°	501.80	488.48	478.45	470.94	464.34	469.58	478.85	490.68	498.83	490.90	478.31	470.07	465.46	470.82	480.53	492.31	501.80
40.00°	477.52	464.02	455.18	446.90	441.09	445.67	455.48	466.69	474.21	466.65	454.54	446.34	441.69	447.16	456.86	468.26	477.52
42.50°	452.25	439.14	431.15	422.66	417.51	421.12	431.53	441.90	448.96	441.85	430.61	422.48	417.79	423.05	432.41	443.23	452.25
45.00°	424.75	413.29	405.82	396.67	392.22	396.49	406.03	415.34	422.04	415.18	406.31	397.55	392.72	398.11	406.72	416.76	424.75
47.50°	396.35	386.30	379.87	370.80	366.83	371.83	380.03	387.45	394.16	387.62	380.76	372.47	367.39	372.64	380.54	388.77	396.35
50.00°	365.06	356.69	352.33	345.85	340.95	346.10	352.69	358.34	363.74	357.65	352.37	346.25	341.01	346.15	353.04	358.57	365.06
52.50°	332.61	326.26	324.03	320.64	314.92	319.77	324.87	328.34	332.19	326.52	323.96	319.87	314.40	319.67	325.01	327.53	332.61
55.00°	299.45	293.97	295.82	293.28	288.05	293.16	295.80	296.33	297.55	294.91	295.49	292.42	287.46	293.21	295.44	295.28	299.45
57.50°	265.99	261.77	267.64	265.86	261.05	266.38	266.35	262.82	263.18	263.06	266.13	264.83	260.45	266.29	265.26	262.54	265.99
60.00°	232.52	229.78	237.80	237.91	233.38	238.80	235.87	229.92	229.52	230.01	234.75	237.34	232.73	238.51	234.87	229.09	232.52
62.50°	199.05	197.68	207.16	210.05	205.92	210.74	205.34	197.47	197.12	196.37	203.37	209.88	204.85	210.41	204.41	196.80	199.05
65.00°	169.69	165.30	176.62	182.89	179.51	182.56	174.70	167.01	168.20	166.69	172.01	182.37	178.13	181.70	173.63	166.19	169.69
67.50°	142.00	135.06	146.12	155.73	152.97	154.31	144.69	138.06	139.56	138.91	141.61	154.86	151.66	153.41	142.73	137.17	142.00
70.00°	113.49	109.70	118.12	128.57	125.70	126.95	116.44	110.82	111.74	112.11	113.43	126.58	124.40	125.93	114.68	110.48	113.49
72.50°	84.65	84.43	91.35	101.58	98.78	100.12	89.79	84.85	83.83	85.79	87.15	98.20	96.96	98.96	87.79	84.21	84.65
75.00°	59.51	59.35	68.09	76.16	73.70	74.94	67.63	61.05	55.69	62.03	65.20	73.04	71.29	72.96	65.47	58.54	59.51
77.50°	35.91	38.29	46.57	51.57	49.93	50.70	47.00	38.87	32.52	39.53	45.11	48.34	46.02	49.67	45.03	38.27	35.91
80.00°	23.54	26.51	31.07	34.60	33.30	33.20	30.65	24.76	23.04	25.97	29.24	32.06	31.10	31.63	29.85	25.98	23.54
82.50°	15.88	16.59	18.52	18.66	18.24	19.57	16.96	16.81	14.72	16.74	16.19	17.01	18.53	17.35	16.83	16.39	15.88
85.00°	10.39	11.05	10.94	11.97	11.69	11.21	10.74	10.58	9.55	10.29	9.69	10.16	11.27	10.44	9.80	10.79	10.39
87.50°	5.82	6.40	5.84	5.75	5.82	5.92	5.61	5.65	5.21	5.22	4.60	4.51	5.22	5.26	5.27	6.40	5.82
90.00°	3.51	3.82	3.41	3.80	3.72	3.27	3.54	3.05	3.14	2.99	2.79	2.98	3.20	3.45	3.25	3.79	3.51
92.50°	2.16	1.96	2.30	2.05	1.90	2.14	1.97	2.23	1.64	2.17	1.58	2.06	2.11	2.20	2.27	2.23	2.16
95.00°	1.80	1.78	1.90	2.18	1.71	1.79	1.86	1.92	1.74	1.99	1.76	1.96	1.90	2.03	1.98	2.20	1.80
97.50°	1.86	1.66	1.84	2.29	1.55	1.90	1.83	1.98	1.80	2.14	1.85	1.99	1.89	1.92	1.98	2.18	1.86
100.00°	1.79	1.67	1.81	2.22	1.65	1.83	2.02	1.96	1.78	2.07	1.72	2.07	1.99	1.92	1.86	2.17	1.79
102.50°	1.68	1.72	1.80	2.14	1.75	1.65	2.16	1.86	1.78	1.90	1.65	2.16	2.12	1.98	1.69	2.14	1.68
105.00°	1.71	1.87	1.77	1.99	1.82	1.67	2.13	1.82	1.88	1.79	1.73	2.14	2.16	2.16	1.77	2.10	1.71

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

RCR	ptc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	pcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	0	1990	1990	1990	1990	1942	1942	1942	1942	1853	1853	1853	1772	1772	1772	1697	1697	1662
	1	1836	1764	1699	1640	1790	1725	1666	1613	1652	1604	1560	1585	1546	1510	1524	1492	1460
	2	1681	1553	1447	1359	1637	1521	1424	1342	1460	1379	1309	1404	1337	1277	1352	1297	1268
	3	1539	1374	1246	1144	1498	1347	1228	1133	1296	1195	1111	1249	1163	1090	1205	1133	1107
	4	1414	1224	1084	978	1376	1201	1071	970	1158	1045	956	1118	1021	942	1081	997	975
	5	1304	1098	954	848	1268	1079	944	843	1042	923	832	1008	904	822	977	886	867
	6	1206	992	847	744	1174	975	839	740	944	823	733	915	808	726	888	793	776
	7	1120	901	759	660	1091	887	753	657	861	740	652	836	727	646	813	715	701
	8	1044	824	686	591	1018	812	680	589	789	670	584	768	660	580	748	650	637
	9	976	758	624	533	952	747	619	532	728	610	528	709	602	525	691	594	582
	10	916	700	571	485	894	691	567	483	674	560	481	658	552	478	642	545	536

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	22.4 fc	14.1 ft
6.5 ft	16.0 fc	16.6 ft
7.5 ft	12.0 fc	19.2 ft
8.0 ft	10.6 fc	20.5 ft
10.0 ft	6.8 fc	25.6 ft
12.0 ft	4.7 fc	30.7 ft
14.0 ft	3.5 fc	35.8 ft
16.0 ft	2.6 fc	40.9 ft
20.0 ft	1.7 fc	51.1 ft
24.0 ft	1.2 fc	61.4 ft
28.0 ft	0.9 fc	71.6 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	9415	9415	9415
45.00°	8349	7977	7710
55.00°	7257	7169	6980
65.00°	5581	5809	5904
75.00°	3196	3657	3958
85.00°	1657	1745	1865

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	18.7	20.2	19.1	20.6	20.9	18.8	20.3	19.1	20.6	21.0
	3H	19.9	21.3	20.3	21.6	22.0	20.2	21.6	20.6	21.9	22.3
	4H	20.2	21.5	20.6	21.8	22.2	20.6	21.9	21.0	22.2	22.6
	6H	20.2	21.4	20.7	21.8	22.2	20.7	21.9	21.1	22.3	22.7
	8H	20.2	21.4	20.7	21.8	22.2	20.7	21.9	21.2	22.3	22.7
	12H	20.2	21.3	20.7	21.7	22.2	20.7	21.8	21.2	22.2	22.7
4H	2H	19.2	20.5	19.6	20.9	21.3	19.2	20.5	19.6	20.9	21.3
	3H	20.5	21.6	21.0	22.0	22.5	20.8	21.9	21.2	22.3	22.7
	4H	20.9	21.8	21.3	22.3	22.7	21.3	22.3	21.7	22.7	23.1
	6H	21.0	21.8	21.5	22.3	22.8	21.5	22.4	22.0	22.8	23.3
	8H	21.0	21.8	21.5	22.3	22.7	21.5	22.3	22.0	22.8	23.3
	12H	21.0	21.7	21.5	22.2	22.7	21.6	22.3	22.1	22.8	23.3
8H	4H	21.0	21.8	21.5	22.3	22.7	21.4	22.2	21.9	22.6	23.1
	6H	21.2	21.8	21.7	22.3	22.8	21.7	22.3	22.2	22.8	23.3
	8H	21.2	21.8	21.7	22.3	22.8	21.7	22.3	22.3	22.8	23.3
	12H	21.3	21.8	21.8	22.3	22.9	21.8	22.3	22.3	22.8	23.4
12H	4H	21.0	21.7	21.5	22.2	22.7	21.4	22.1	21.9	22.6	23.1
	6H	21.2	21.8	21.7	22.2	22.8	21.7	22.2	22.2	22.7	23.3
	8H	21.2	21.8	21.8	22.3	22.8	21.7	22.2	22.3	22.8	23.3

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0