Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SR12SQLEDOA 44L 35K xx FT1212 MW xx FO

12" square recessed LED downlight, flush extruded aluminum door

Test Number

SP-01642_3

Test Date

2/9/2024

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

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Summary of Results

Power

Input Watts	33.7 W

Lumen Output

Output Lumens	2736
Efficacy	81.2 lm/W

Luminous Dimensions

0° - 180° Size	0.85
90° - 270° Size	0.85
Height	0

Spacing Criterion

Two luminaires, plane 0°	1.24
Two luminaires, plane 90°	1.2
Four luminaires	1.34

Full Beam Angle

0° - 180°	109°
90° - 270°	109°

IES File Header Contents

Keyword	Value
TEST	SP-01642_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 FT1212 MW xx FO
LUMINAIRE	12" square recessed LED downlight, flush extruded aluminum door
OTHER	Beam Angle: 109 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

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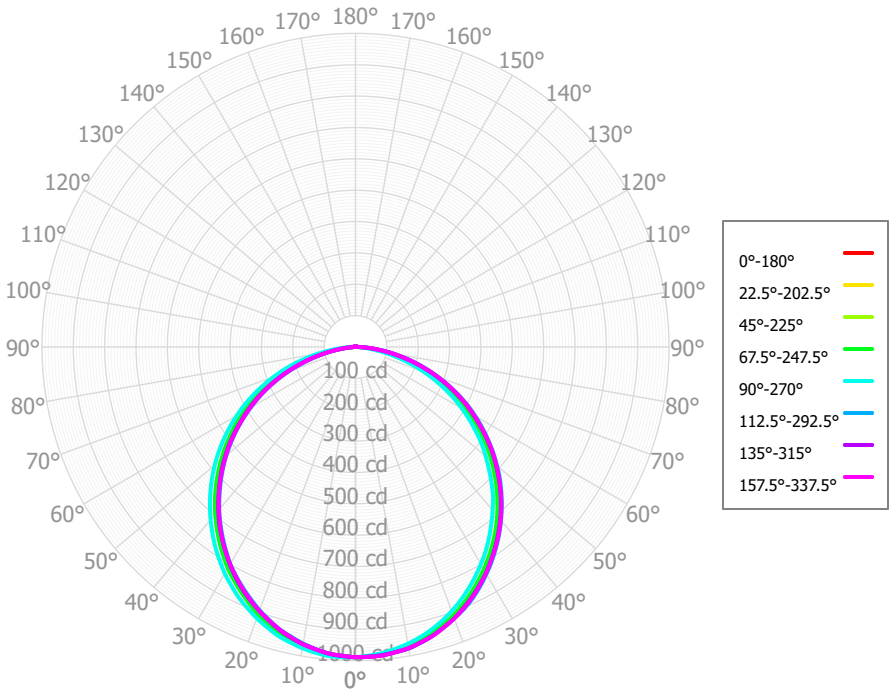
Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	94.82	3.47%	90.00° - 100.00°	3.14	0.11%
10.00° - 20.00°	265.74	9.71%	100.00° - 110.00°	2.14	0.08%
20.00° - 30.00°	398.61	14.57%	100.00° - 120.00°	4.19	0.15%
30.00° - 40.00°	475.17	17.36%	120.00° - 130.00°	1.95	0.07%
40.00° - 50.00°	487.91	17.83%	130.00° - 140.00°	1.72	0.06%
50.00° - 60.00°	437.35	15.98%	140.00° - 150.00°	1.43	0.05%
60.00° - 70.00°	330.79	12.09%	150.00° - 160.00°	1.02	0.04%
70.00° - 80.00°	184.42	6.74%	160.00° - 170.00°	0.65	0.02%
80.00° - 90.00°	47.33	1.73%	170.00° - 180.00°	0.23	0.01%
0.00° - 90.00°	2722.14	99.48%	0.00° - 180.00°	2736.47	100.00%

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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°	989.39	989.39	989.39	989.39	989.39	989.39	989.39	989.39	989.39	989.39	989.39	989.39	989.39	989.39	989.39	989.39	989.39
2.50°	988.89	987.99	987.61	987.75	985.41	985.53	986.71	985.39	987.89	985.61	986.94	987.10	990.35	987.52	989.19	988.93	988.89
5.00°	986.57	985.87	984.06	984.71	979.59	982.26	981.40	981.50	983.85	981.96	983.22	983.88	989.35	986.03	986.32	988.02	986.57
7.50°	979.94	980.76	977.21	977.39	971.14	971.88	972.46	972.56	974.65	973.95	977.23	976.15	983.26	981.74	981.54	981.89	979.94
10.00°	972.93	972.72	969.69	968.81	960.96	960.75	962.29	963.22	964.37	964.23	968.49	967.94	975.70	975.67	976.44	974.95	972.93
12.50°	961.75	961.56	957.88	957.29	948.45	946.82	949.84	948.54	951.43	950.48	955.12	955.27	965.03	965.44	965.13	964.86	961.75
15.00°	950.27	948.35	945.60	944.46	933.54	932.61	934.66	933.41	937.14	935.64	940.56	942.30	953.79	953.18	953.28	953.30	950.27
17.50°	934.63	933.48	928.90	929.37	916.18	913.44	915.70	915.41	920.41	919.76	924.48	925.20	937.48	937.47	937.23	937.80	934.63
20.00°	918.40	915.57	911.89	911.70	896.52	893.90	896.02	896.49	901.79	903.71	905.94	907.53	920.68	921.27	920.87	921.13	918.40
22.50°	897.82	895.81	890.82	890.70	875.08	871.19	875.58	873.98	880.62	880.59	885.04	885.04	901.15	904.44	900.40	902.18	897.82
25.00°	876.56	873.15	869.35	868.19	851.27	848.25	852.82	850.83	857.47	856.88	862.15	862.38	881.38	884.26	879.57	881.26	876.56
27.50°	852.33	849.18	844.55	844.20	826.08	824.20	828.17	825.97	832.29	831.72	837.81	838.98	857.95	860.80	856.23	857.50	852.33
30.00°	827.33	823.84	819.31	818.78	799.55	798.80	801.09	800.01	805.66	806.39	811.48	814.41	834.09	835.68	832.18	832.56	827.33
32.50°	800.05	798.07	791.88	792.30	772.44	769.19	772.52	771.96	777.90	778.52	784.03	786.20	806.95	809.33	805.18	806.30	800.05
35.00°	771.88	769.96	763.87	764.06	742.36	739.18	743.14	742.35	748.23	750.22	755.36	757.29	779.30	781.33	777.55	778.98	771.88
37.50°	741.83	741.36	734.04	734.82	711.38	708.28	713.40	710.50	717.42	718.92	726.19	726.83	749.42	752.41	748.17	750.77	741.83
40.00°	710.68	710.00	703.27	703.32	680.42	676.20	680.53	678.22	685.77	687.12	694.38	695.68	719.04	721.89	718.08	720.38	710.68
42.50°	677.77	678.31	670.41	670.88	649.46	642.19	646.67	645.46	653.76	653.24	661.81	663.42	687.16	690.73	686.52	688.60	677.77
45.00°	645.08	645.00	636.93	637.17	613.70	607.93	612.58	611.20	619.94	619.12	627.91	629.69	654.63	657.99	654.00	655.10	645.08
47.50°	612.62	611.57	602.42	603.09	577.43	573.37	578.44	575.66	585.58	584.31	593.76	594.13	620.73	624.81	620.00	620.79	612.62
50.00°	578.03	576.64	567.59	567.40	542.23	537.61	542.57	539.63	549.66	548.88	558.18	558.29	586.06	589.36	585.09	586.01	578.03
52.50°	541.52	541.38	532.34	531.43	506.94	500.73	506.50	503.28	513.43	512.20	522.47	522.18	550.19	553.49	549.11	551.07	541.52
55.00°	504.08	503.08	496.02	494.24	468.39	462.88	467.99	465.42	475.39	475.15	484.15	485.20	513.38	516.34	511.75	513.19	504.08
57.50°	466.01	464.88	458.68	456.93	429.84	424.33	429.40	426.84	437.15	437.53	445.78	447.61	475.44	479.08	473.19	474.65	466.01
60.00°	428.10	427.24	419.58	418.82	391.35	385.77	391.55	388.16	398.61	399.26	407.25	408.61	437.14	441.43	435.19	437.09	428.10
62.50°	390.27	389.05	379.21	380.60	352.53	347.19	353.43	349.43	360.00	360.25	368.55	368.84	398.49	403.62	397.56	399.64	390.27
65.00°	350.25	349.05	339.15	340.59	312.19	307.19	312.87	309.87	319.75	320.27	328.66	328.41	358.66	362.85	358.11	359.89	350.25
67.50°	309.42	309.19	299.24	300.54	271.92	266.63	272.37	270.12	279.50	279.46	288.70	287.74	318.01	322.13	317.76	320.01	309.42
70.00°	269.59	269.69	259.20	260.21	231.90	225.75	232.21	229.97	239.30	238.97	248.43	247.25	277.69	281.88	276.84	279.59	269.59
72.50°	230.01	229.60	219.10	219.93	192.19	184.80	192.11	189.76	199.22	198.68	208.11	206.82	237.54	241.70	235.72	239.23	230.01
75.00°	190.42	188.52	179.22	179.96	153.19	146.01	152.23	150.69	159.65	159.57	167.62	166.84	197.64	201.89	195.31	199.49	190.42
77.50°	150.83	148.93	139.40	140.72	115.53	107.60	113.95	111.77	121.33	121.05	128.73	126.95	157.83	162.57	155.08	160.05	150.83
80.00°	112.74	111.26	103.62	103.64	80.04	74.63	79.42	78.13	86.92	86.62	93.13	92.60	120.13	124.71	118.24	122.25	112.74
82.50°	74.78	77.03	68.53	69.24	49.19	42.12	48.93	45.61	55.08	53.63	60.80	58.71	82.97	88.62	81.90	86.01	74.78
85.00°	47.29	46.18	41.95	40.47	24.05	23.34	25.34	24.70	28.97	30.20	33.55	35.24	53.88	56.22	52.06	55.19	47.29
87.50°	21.02	24.20	16.10	18.68	9.25	5.68	9.86	6.65	10.65	9.03	14.88	12.89	26.04	29.83	22.81	28.84	21.02
90.00°	10.93	8.78	8.78	7.86	4.12	3.66	4.76	4.01	5.11	4.44	6.30	7.00	13.68	12.79	12.54	13.35	10.93
92.50°	2.22	2.94	2.07	1.98	2.05	1.89	2.27	1.96	2.05	2.20	2.18	1.88	2.45	3.20	3.03	3.25	2.22
95.00°	2.03	2.41	1.84	1.95	2.17	1.87	2.31	1.99	2.04	1.93	2.04	2.06	2.20	2.36	2.49	2.73	2.03
97.50°	1.87	2.13	1.67	1.92	2.06	1.85	2.29	2.00	2.09	1.79	1.96	2.19	1.97	1.97	2.01	2.34	1.87
100.00°	1.81	1.96	2.00	1.91	1.82	1.87	2.22	1.97	2.18	1.85	1.91	2.13	1.98	1.98	1.90	2.11	1.81
102.50°	1.80	1.96	2.27	1.97	1.76	1.88	2.15	2.00	2.19	1.90	1.99	2.04	2.01	2.06	1.88	2.00	1.80
105.00°	1.91	2.01	2.28	2.09	1.77	1.87	2.07	2.10	2.14	1.84	2.15	1.89	2.23	2.18	2.22	2.02	1.91

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Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

	ρfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	ρcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	ρw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	3254	3254	3254	3254	3177	3177	3177	3177	3033	3033	3033	2900	2900	2900	2779	2779	2779	2722
	1	2975	2845	2728	2623	2899	2781	2675	2579	2662	2575	2495	2553	2482	2416	2452	2395	2342	2343
	2	2705	2480	2294	2138	2632	2427	2256	2111	2327	2184	2060	2236	2116	2010	2151	2052	1963	2005
	3	2467	2178	1956	1778	2397	2134	1927	1761	2050	1873	1728	1973	1822	1696	1901	1774	1665	1733
	4	2259	1931	1690	1507	2194	1893	1669	1496	1822	1628	1473	1757	1588	1451	1696	1551	1430	1516
RCR	5	2077	1725	1480	1298	2018	1694	1463	1290	1634	1430	1275	1578	1399	1259	1526	1370	1244	1340
	6	1919	1554	1309	1134	1865	1527	1296	1128	1476	1270	1117	1429	1245	1105	1384	1222	1095	1195
	7	1780	1410	1170	1001	1731	1387	1159	997	1343	1138	989	1302	1118	980	1264	1099	972	1076
	8	1657	1287	1054	894	1613	1267	1045	890	1230	1028	884	1194	1011	878	1161	996	871	976
	9	1548	1181	956	805	1509	1164	949	802	1132	935	797	1102	921	792	1073	908	787	891
	10	1452	1090	874	730	1416	1076	868	728	1048	856	724	1021	844	720	996	833	716	818

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	32.7 fc	15.5 ft
6.5 ft	23.4 fc	18.3 ft
7.5 ft	17.6 fc	21.2 ft
8.0 ft	15.5 fc	22.6 ft
10.0 ft	9.9 fc	28.2 ft
12.0 ft	6.9 fc	33.9 ft
14.0 ft	5.0 fc	39.5 ft
16.0 ft	3.9 fc	45.1 ft
20.0 ft	2.5 fc	56.4 ft
24.0 ft	1.7 fc	67.7 ft
28.0 ft	1.3 fc	79.0 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	14740	14740	14740
45.00°	13591	13419	12930
55.00°	13093	12884	12166
65.00°	12347	11956	11005
75.00°	10961	10316	8818
85.00°	8084	7170	4110

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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	21.2	22.8	21.6	23.1	23.5	20.7	22.4	21.1	22.7	23.0
	3H	23.1	24.5	23.4	24.9	25.2	22.5	24.0	22.9	24.3	24.7
	4H	23.7	25.1	24.2	25.5	25.9	23.2	24.5	23.6	24.9	25.3
	6H	24.2	25.5	24.7	25.9	26.3	23.6	24.9	24.0	25.3	25.7
	8H	24.4	25.6	24.8	26.0	26.4	23.7	25.0	24.2	25.4	25.8
	12H	24.5	25.7	24.9	26.1	26.5	23.8	25.0	24.3	25.4	25.8
4H	2H	21.8	23.2	22.2	23.6	24.0	21.4	22.7	21.8	23.1	23.5
	3H	23.9	25.1	24.3	25.5	25.9	23.3	24.5	23.7	24.9	25.3
	4H	24.7	25.8	25.2	26.2	26.7	24.0	25.1	24.5	25.5	26.0
	6H	25.4	26.3	25.8	26.7	27.2	24.6	25.5	25.0	25.9	26.4
	8H	25.6	26.4	26.0	26.9	27.4	24.7	25.6	25.2	26.0	26.5
	12H	25.7	26.5	26.2	27.0	27.5	24.9	25.6	25.3	26.1	26.6
8H	4H	25.1	25.9	25.5	26.4	26.8	24.3	25.2	24.8	25.6	26.1
	6H	25.8	26.5	26.3	27.0	27.5	24.9	25.6	25.4	26.1	26.6
	8H	26.1	26.7	26.6	27.2	27.7	25.1	25.7	25.6	26.3	26.8
	12H	26.3	26.9	26.8	27.4	27.9	25.3	25.8	25.8	26.3	26.9
12H	4H	25.1	25.9	25.6	26.3	26.8	24.3	25.1	24.8	25.6	26.0
	6H	25.9	26.5	26.4	27.0	27.5	24.9	25.6	25.5	26.1	26.6
	8H	26.2	26.8	26.7	27.3	27.8	25.2	25.7	25.7	26.2	26.8

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0

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