Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SR12SQLEDOA 33L 35K xx FT1212 MW xx FO

12" square recessed LED downlight, flush extruded aluminum door

Test Number

SP-01642_2

Test Date

2/9/2024

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

Summary of Results

Power

Input Watts	26 W

Lumen Output

Output Lumens	2075
Efficacy	79.8 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	1.21
Two luminaires, plane 90°	1.23
Four luminaires	1.34

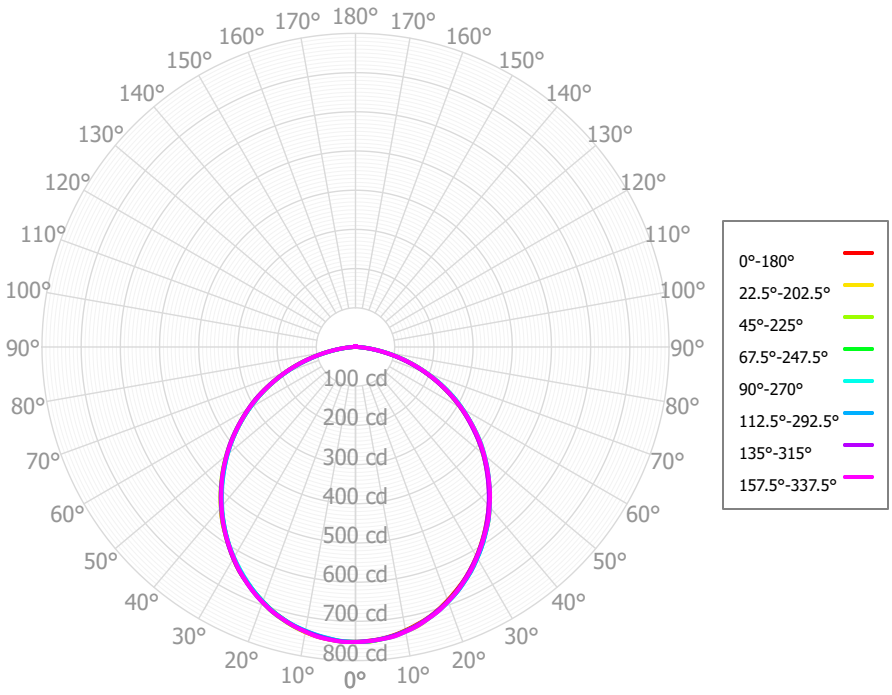
Full Beam Angle

0° - 180°	109°
90° - 270°	109°

IES File Header Contents

Keyword	Value
TEST	SP-01642_2
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	2/9/2024
ISSUEDATE	2/28/2024
LUMCAT	SR12SQLEDOA 33L 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

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	72.15	3.48%	90.00° - 100.00°	2.72	0.13%
10.00° - 20.00°	202.26	9.75%	100.00° - 110.00°	2.22	0.11%
20.00° - 30.00°	303.31	14.62%	100.00° - 120.00°	4.34	0.21%
30.00° - 40.00°	361.42	17.42%	120.00° - 130.00°	1.96	0.09%
40.00° - 50.00°	370.72	17.87%	130.00° - 140.00°	1.73	0.08%
50.00° - 60.00°	331.62	15.98%	140.00° - 150.00°	1.40	0.07%
60.00° - 70.00°	249.58	12.03%	150.00° - 160.00°	1.03	0.05%
70.00° - 80.00°	136.85	6.60%	160.00° - 170.00°	0.65	0.03%
80.00° - 90.00°	32.80	1.58%	170.00° - 180.00°	0.22	0.01%
0.00° - 90.00°	2060.71	99.32%	0.00° - 180.00°	2074.76	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°	752.58	752.58	752.58	752.58	752.58	752.58	752.58	752.58	752.58	752.58	752.58	752.58	752.58	752.58	752.58	752.58	752.58
2.50°	750.54	752.26	752.73	752.10	751.71	752.09	752.23	753.08	752.02	752.30	753.08	751.59	751.13	751.69	750.93	751.80	750.54
5.00°	747.52	748.78	749.00	748.52	748.98	747.05	748.83	749.88	749.76	748.94	748.98	748.02	747.32	748.08	747.99	748.85	747.52
7.50°	741.99	744.46	743.83	743.62	745.10	741.57	743.48	745.68	745.49	744.70	743.41	743.36	742.33	743.63	743.30	745.55	741.99
10.00°	734.16	737.60	735.81	736.34	737.87	735.02	736.68	737.64	738.70	738.07	737.00	736.64	735.49	736.27	736.08	737.78	734.16
12.50°	725.17	730.14	726.81	728.22	729.14	727.36	729.16	729.02	729.87	729.88	730.29	728.40	727.52	728.12	727.14	729.36	725.17
15.00°	715.22	718.13	716.10	717.14	718.14	717.30	719.14	718.41	718.88	718.04	719.88	717.58	717.96	717.21	715.95	717.99	715.22
17.50°	702.50	705.20	704.20	705.14	706.23	705.73	708.03	706.89	706.33	705.44	708.35	705.26	706.05	705.67	703.67	706.30	702.50
20.00°	687.76	690.84	690.41	690.35	692.02	691.29	693.76	692.70	691.99	691.24	693.49	690.64	691.15	691.65	690.11	691.23	687.76
22.50°	671.99	676.25	675.09	674.82	676.99	675.84	678.28	677.62	676.50	676.11	677.76	675.41	674.92	677.14	674.43	675.90	671.99
25.00°	655.55	659.02	657.63	657.62	659.64	658.72	661.12	660.23	660.24	659.28	660.54	659.35	657.17	659.96	656.54	658.24	655.55
27.50°	637.06	641.45	639.04	640.03	641.58	640.58	643.41	641.86	643.55	641.28	643.00	641.58	638.72	642.35	637.71	640.48	637.06
30.00°	617.37	620.64	619.06	620.53	621.58	620.90	623.30	621.29	623.57	621.39	622.74	621.67	619.55	622.10	617.99	619.86	617.37
32.50°	596.31	599.52	598.11	600.67	601.07	600.02	602.48	600.40	601.91	600.55	601.98	600.59	599.11	601.52	597.14	599.18	596.31
35.00°	574.52	578.63	576.07	578.30	579.44	577.51	580.06	578.89	580.25	578.30	580.39	578.18	577.49	579.41	575.32	577.92	574.52
37.50°	551.92	557.76	553.39	555.55	557.58	554.64	557.25	556.17	558.61	555.26	558.67	555.32	554.11	557.17	552.28	556.57	551.92
40.00°	528.94	532.62	530.05	531.12	532.90	531.34	533.19	531.29	534.19	531.18	534.46	531.99	529.29	531.91	528.30	532.45	528.94
42.50°	504.21	507.31	505.08	506.49	507.72	506.27	508.87	506.44	508.64	506.61	509.96	507.41	504.13	506.48	503.24	508.19	504.21
45.00°	478.76	481.39	478.60	480.84	482.12	479.24	482.94	481.62	482.78	481.49	484.10	481.70	478.71	481.00	477.43	481.86	478.76
47.50°	452.25	455.46	451.95	455.10	456.46	452.64	456.74	455.61	456.80	455.19	458.12	455.07	452.43	455.51	451.35	455.50	452.25
50.00°	425.36	429.19	425.14	427.99	430.10	426.47	429.84	427.93	429.13	427.63	430.37	427.71	425.56	427.71	425.12	428.79	425.36
52.50°	397.22	402.76	397.68	400.81	403.66	399.09	402.83	399.83	400.93	399.49	402.53	399.35	397.97	399.90	396.87	401.79	397.22
55.00°	368.68	372.75	369.75	372.36	373.77	370.63	373.81	371.20	372.40	370.78	373.55	370.25	369.94	371.57	367.51	372.43	368.68
57.50°	339.61	342.84	340.69	343.88	343.60	341.76	344.59	342.37	343.79	341.97	344.55	340.89	340.75	343.20	338.68	343.00	339.61
60.00°	310.39	314.25	310.87	313.78	315.34	312.55	315.76	313.30	315.00	313.09	314.91	311.35	310.94	314.10	310.13	313.15	310.39
62.50°	280.27	285.46	281.25	283.67	287.18	282.54	286.96	283.17	286.18	282.38	285.23	281.31	281.27	284.83	280.08	283.24	280.27
65.00°	249.94	254.73	251.74	253.20	256.46	251.97	255.13	251.95	255.15	250.25	254.17	250.99	251.68	253.50	249.40	252.99	249.94
67.50°	219.44	224.04	220.84	222.70	225.68	220.66	223.17	221.14	223.71	218.86	223.15	220.33	220.35	222.19	218.60	222.67	219.44
70.00°	188.90	193.56	189.20	191.52	193.68	188.87	192.40	190.71	192.42	187.97	192.72	189.49	188.28	191.21	187.76	192.03	188.90
72.50°	158.16	163.16	158.84	160.40	161.75	157.93	161.65	159.74	161.16	157.46	162.27	158.95	156.76	160.27	157.16	161.38	158.16
75.00°	127.38	133.21	129.08	130.01	132.27	127.48	130.91	128.35	130.27	127.18	131.53	128.55	125.45	129.68	126.66	130.71	127.38
77.50°	98.13	103.39	100.21	99.88	102.87	98.68	100.34	98.92	99.42	97.43	101.10	98.75	96.07	99.49	97.22	100.88	98.13
80.00°	69.06	74.22	71.71	72.12	74.90	70.73	73.58	70.97	72.58	67.95	73.31	69.19	67.32	71.43	68.09	73.65	69.06
82.50°	45.57	47.09	47.39	45.56	47.66	46.54	47.30	46.66	46.09	43.74	46.66	45.21	43.85	44.93	44.02	48.20	45.57
85.00°	22.56	28.06	24.60	27.05	28.65	24.05	28.09	24.78	27.38	22.17	27.31	23.24	21.83	25.54	21.20	27.67	22.56
87.50°	12.68	12.05	12.95	10.73	11.19	12.13	10.24	12.00	9.08	10.93	10.39	12.06	11.38	9.29	11.16	11.58	12.68
90.00°	3.58	6.48	4.83	5.99	6.28	4.41	5.78	4.74	5.39	4.25	5.96	4.22	3.61	5.10	3.76	6.14	3.58
92.50°	2.78	2.31	2.77	2.12	2.03	2.25	1.86	2.18	2.10	2.17	2.32	2.29	2.16	1.88	2.29	2.40	2.78
95.00°	2.23	2.30	2.39	2.16	2.04	2.06	2.01	2.15	2.16	1.85	2.10	1.97	1.96	1.90	1.85	2.20	2.23
97.50°	2.18	2.27	2.27	2.14	2.04	1.94	2.13	2.02	2.22	1.84	1.94	2.05	2.02	1.94	2.04	2.11	2.18
100.00°	2.13	2.15	2.20	1.93	2.02	1.84	1.98	1.86	2.06	1.93	2.06	2.22	2.13	2.04	2.32	2.22	2.13
102.50°	2.11	2.10	2.21	1.80	2.00	1.92	1.85	1.80	1.91	2.00	2.19	2.26	2.19	2.10	2.27	2.27	2.11
105.00°	2.08	2.17	2.24	1.96	2.01	2.06	1.85	1.78	2.17	2.07	2.38	2.26	2.26	2.06	2.18	2.23	2.08

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	2467	2467	2467	2467	2408	2408	2408	2408	2297	2297	2297	2197	2197	2197	2104	2104	2104	2061
	1	2257	2159	2071	1992	2199	2110	2031	1958	2019	1954	1894	1936	1883	1833	1859	1816	1776	1777
	2	2053	1883	1743	1625	1997	1843	1714	1604	1767	1658	1565	1697	1606	1527	1632	1557	1491	1522
	3	1872	1654	1486	1352	1819	1621	1465	1339	1557	1423	1313	1498	1384	1289	1443	1347	1265	1316
	4	1714	1466	1285	1146	1666	1438	1269	1138	1384	1237	1120	1334	1207	1103	1287	1178	1087	1151
RCR	5	1577	1311	1125	988	1532	1287	1112	982	1241	1087	969	1198	1063	957	1159	1041	946	1018
	6	1457	1181	995	863	1416	1160	985	858	1121	965	849	1085	946	841	1051	928	832	908
	7	1351	1071	889	762	1314	1053	881	759	1020	865	752	989	850	746	960	835	739	817
	8	1258	978	801	680	1225	963	795	678	934	781	673	907	769	668	882	756	663	741
	9	1175	898	727	612	1145	885	722	610	860	711	606	837	700	602	815	690	599	677
	10	1102	828	665	555	1075	817	660	554	796	651	551	775	642	548	756	633	544	622

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	24.9 fc	15.4 ft
6.5 ft	17.8 fc	18.2 ft
7.5 ft	13.4 fc	21.0 ft
8.0 ft	11.8 fc	22.4 ft
10.0 ft	7.5 fc	28.0 ft
12.0 ft	5.2 fc	33.6 ft
14.0 ft	3.8 fc	39.2 ft
16.0 ft	2.9 fc	44.8 ft
20.0 ft	1.9 fc	56.0 ft
24.0 ft	1.3 fc	67.2 ft
28.0 ft	1.0 fc	78.4 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	11212	11212	11212
45.00°	10087	10084	10158
55.00°	9576	9604	9708
65.00°	8811	8874	9041
75.00°	7332	7430	7614
85.00°	3857	4205	4898

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	20.0	21.6	20.3	21.9	22.2	20.0	21.6	20.3	21.9	22.2
	3H	21.7	23.2	22.1	23.5	23.9	21.7	23.2	22.1	23.5	23.9
	4H	22.3	23.7	22.8	24.1	24.5	22.3	23.7	22.7	24.1	24.5
	6H	22.7	24.0	23.2	24.4	24.8	22.7	24.0	23.2	24.4	24.8
	8H	22.9	24.1	23.3	24.5	24.9	22.8	24.1	23.3	24.5	24.9
	12H	22.9	24.1	23.3	24.5	24.9	22.9	24.1	23.3	24.5	24.9
4H	2H	20.6	22.0	21.0	22.3	22.7	20.6	22.0	21.0	22.3	22.7
	3H	22.6	23.7	23.0	24.1	24.5	22.6	23.7	23.0	24.1	24.5
	4H	23.3	24.3	23.8	24.8	25.2	23.3	24.3	23.7	24.8	25.2
	6H	23.8	24.7	24.3	25.2	25.7	23.8	24.7	24.3	25.2	25.6
	8H	24.0	24.8	24.4	25.3	25.8	23.9	24.8	24.4	25.2	25.7
	12H	24.1	24.8	24.5	25.3	25.8	24.0	24.8	24.5	25.3	25.8
8H	4H	23.6	24.4	24.1	24.9	25.4	23.6	24.4	24.0	24.9	25.4
	6H	24.2	24.9	24.7	25.4	25.9	24.2	24.9	24.7	25.4	25.9
	8H	24.4	25.0	24.9	25.6	26.1	24.4	25.0	24.9	25.5	26.0
	12H	24.5	25.1	25.1	25.6	26.2	24.5	25.1	25.0	25.6	26.1
12H	4H	23.6	24.4	24.1	24.9	25.3	23.6	24.4	24.1	24.8	25.3
	6H	24.3	24.9	24.8	25.4	25.9	24.2	24.9	24.8	25.3	25.9
	8H	24.5	25.0	25.0	25.6	26.1	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