Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SR10SQLEDOA 30L 35K xx FT1010 MW xx FO

10" square recessed LED downlight, flush extruded aluminum door

Test Number

SP-01640_2

Test Date

1/30/2024

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

Summary of Results

Power

Input Watts	23.8 W

Lumen Output

Output Lumens	1458
Efficacy	61.26 lm/W

Luminous Dimensions

0° - 180° Size	0.69
90° - 270° Size	0.69
Height	0

Spacing Criterion

Two luminaires, plane 0°	1.19
Two luminaires, plane 90°	1.19
Four luminaires	1.31

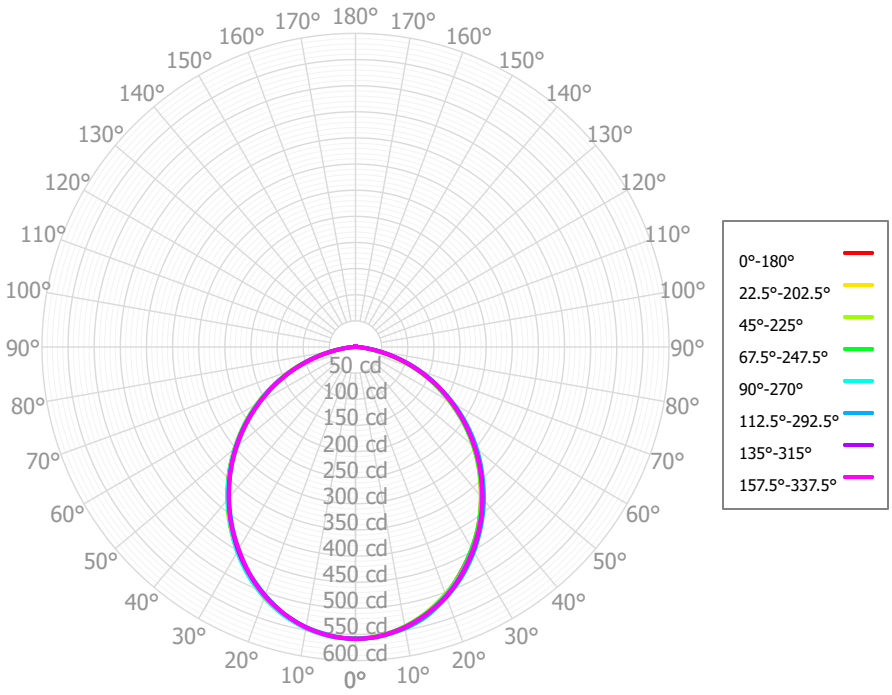
Full Beam Angle

0° - 180°	105°
90° - 270°	105°

IES File Header Contents

Keyword	Value
TEST	SP-01640_2
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/30/2024
ISSUEDATE	2/28/2024
LUMCAT	SR10SQLEDOA 30L 35K xx FT1010 MW xx FO
LUMINAIRE	10" square recessed LED downlight, flush extruded aluminum door
OTHER	Beam Angle: 105 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
0.00° - 10.00°	53.43	3.66%
10.00° - 20.00°	148.88	10.21%
20.00° - 30.00°	220.82	15.14%
30.00° - 40.00°	259.13	17.77%
40.00° - 50.00°	261.12	17.91%
50.00° - 60.00°	228.81	15.69%
60.00° - 70.00°	167.64	11.50%
70.00° - 80.00°	87.85	6.03%
80.00° - 90.00°	19.28	1.32%
0.00° - 90.00°	1446.95	99.24%

Zone	Lumens	% Fixture
90.00° - 100.00°	2.01	0.14%
100.00° - 110.00°	1.80	0.12%
100.00° - 120.00°	3.53	0.24%
120.00° - 130.00°	1.56	0.11%
130.00° - 140.00°	1.37	0.09%
140.00° - 150.00°	1.11	0.08%
150.00° - 160.00°	0.82	0.06%
160.00° - 170.00°	0.50	0.03%
170.00° - 180.00°	0.18	0.01%
0.00° - 180.00°	1458.04	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°	558.40	558.40	558.40	558.40	558.40	558.40	558.40	558.40	558.40	558.40	558.40	558.40	558.40	558.40	558.40	558.40	558.40
2.50°	557.29	556.70	556.36	557.33	557.20	557.11	557.70	557.20	557.10	557.12	557.41	557.38	558.02	558.15	557.72	557.42	557.29
5.00°	554.41	554.29	553.83	554.75	554.90	553.81	555.10	554.71	554.90	555.04	555.54	555.33	556.21	556.09	554.83	554.84	554.41
7.50°	549.45	550.02	549.09	549.62	551.19	549.34	550.62	550.57	551.49	550.82	551.12	551.22	552.10	552.04	550.39	550.21	549.45
10.00°	543.36	544.28	543.19	543.45	545.88	544.08	544.79	545.06	546.45	545.39	545.90	545.87	546.71	546.99	544.85	544.34	543.36
12.50°	535.43	536.19	534.95	535.74	537.97	536.71	537.20	537.63	538.73	537.83	539.30	538.59	539.55	540.54	537.35	537.11	535.43
15.00°	526.54	527.08	525.52	526.88	528.81	527.99	528.34	528.64	530.12	529.10	531.43	530.20	531.46	532.17	528.50	528.45	526.54
17.50°	515.89	516.37	514.61	516.33	517.70	517.18	517.88	518.40	520.09	518.49	521.45	519.68	521.22	521.23	518.58	518.29	515.89
20.00°	504.35	504.72	502.97	504.75	505.82	505.08	506.42	507.18	508.73	506.89	510.38	507.95	509.87	509.68	507.96	506.92	504.35
22.50°	490.62	491.67	490.16	491.72	492.74	492.13	493.76	493.89	495.35	494.12	497.53	495.36	497.14	497.33	495.05	494.32	490.62
25.00°	475.83	477.84	476.79	477.26	478.95	478.67	480.08	479.04	481.51	480.75	483.65	482.31	483.73	483.84	480.68	480.19	475.83
27.50°	460.76	462.88	461.43	460.86	464.11	463.32	465.23	463.32	467.01	466.15	468.14	467.28	468.58	468.93	465.56	464.56	460.76
30.00°	445.57	447.23	445.19	444.68	448.60	446.90	449.34	446.99	451.58	450.95	452.20	451.21	452.62	453.13	449.98	448.46	445.57
32.50°	428.74	430.59	428.29	428.81	432.15	429.82	432.27	430.79	434.84	433.93	435.61	433.95	435.11	436.24	433.21	431.88	428.74
35.00°	411.15	412.94	411.10	411.82	414.76	412.36	414.50	414.69	417.27	416.06	418.50	416.09	416.90	418.89	415.72	414.61	411.15
37.50°	392.59	393.93	392.40	393.38	396.05	394.40	395.97	396.68	398.57	398.01	400.63	398.20	398.79	401.00	397.04	396.70	392.59
40.00°	373.60	374.76	373.08	374.58	377.26	376.17	377.29	377.35	380.06	379.89	381.96	380.30	380.73	382.30	377.66	377.64	373.60
42.50°	354.30	355.41	353.74	355.30	358.35	357.08	358.46	357.96	361.82	360.27	362.16	360.91	361.54	362.69	358.58	357.55	354.30
45.00°	334.86	335.79	334.38	335.64	338.78	337.55	339.14	338.53	342.59	339.98	342.33	340.84	341.86	343.05	339.65	337.71	334.86
47.50°	314.96	315.83	313.97	315.53	318.34	316.82	319.31	318.50	322.08	319.91	322.46	320.34	321.68	323.39	319.15	318.09	314.96
50.00°	294.88	295.27	293.15	294.95	298.01	295.50	299.02	298.07	301.38	299.93	302.28	299.64	301.29	303.13	297.81	297.88	294.88
52.50°	274.06	274.01	272.59	273.82	277.82	274.53	278.27	276.91	280.42	279.31	281.67	279.42	280.07	282.22	276.86	277.16	274.06
55.00°	252.95	252.58	252.12	252.31	257.05	253.73	256.92	255.29	259.35	258.44	260.72	259.41	258.52	260.78	256.09	255.78	252.95
57.50°	230.99	230.98	230.47	230.39	235.59	232.36	234.99	233.71	238.15	236.98	239.33	238.17	236.90	238.79	234.87	233.87	230.99
60.00°	208.71	209.48	208.40	209.19	213.87	210.72	213.28	212.14	216.47	215.28	217.89	216.43	215.25	216.56	213.43	212.42	208.71
62.50°	187.21	188.10	186.62	188.78	191.83	189.05	191.77	190.68	194.22	193.37	196.39	194.18	193.49	194.07	191.60	191.34	187.21
65.00°	165.99	166.67	164.95	167.44	169.89	167.37	170.16	169.27	172.34	171.37	174.45	171.73	171.67	172.25	169.60	169.57	165.99
67.50°	144.27	145.21	142.96	145.14	148.06	145.67	148.47	147.39	150.88	149.39	151.98	149.39	149.56	151.07	147.78	147.29	144.27
70.00°	122.38	123.40	120.88	123.17	126.36	123.97	126.78	125.25	128.97	127.42	129.95	127.09	127.35	129.53	126.04	125.68	122.38
72.50°	101.33	101.21	99.79	101.54	104.79	102.17	105.07	103.40	106.55	105.47	108.44	105.38	105.17	107.66	104.23	104.56	101.33
75.00°	80.55	79.99	79.00	80.42	83.57	80.32	83.83	81.72	85.13	83.54	87.01	83.88	83.00	86.08	82.39	83.66	80.55
77.50°	60.06	59.75	59.11	59.81	62.72	60.77	62.98	61.36	64.77	63.52	65.67	63.57	62.62	64.78	62.18	62.92	60.06
80.00°	39.67	41.33	39.48	41.45	44.02	42.13	44.39	41.69	45.96	44.15	46.74	43.69	42.80	45.49	42.68	43.97	39.67
82.50°	24.71	24.74	24.92	25.24	27.56	26.80	27.66	26.56	28.73	28.32	30.43	28.26	27.51	27.96	27.45	26.23	24.71
85.00°	11.41	13.05	11.80	13.71	15.17	12.72	15.47	13.70	15.94	13.61	17.46	14.36	13.58	15.43	13.96	14.42	11.41
87.50°	5.77	6.11	6.12	6.53	6.82	6.32	6.88	6.93	7.57	6.99	7.99	7.62	7.04	7.08	7.16	6.56	5.77
90.00°	2.35	2.44	2.44	2.68	2.42	2.74	2.68	3.08	3.01	2.83	2.89	3.23	2.64	2.83	2.98	2.92	2.35
92.50°	1.53	1.85	1.75	1.79	1.83	1.77	1.84	1.84	2.11	1.89	2.22	2.03	1.58	1.93	1.84	1.99	1.53
95.00°	1.44	1.59	1.83	1.42	1.55	1.71	1.50	1.80	1.61	1.88	1.79	1.82	1.44	1.60	1.86	1.65	1.44
97.50°	1.56	1.65	1.81	1.51	1.58	1.72	1.54	1.76	1.49	1.81	1.58	1.76	1.42	1.73	1.82	1.69	1.56
100.00°	1.75	1.65	1.78	1.66	1.57	1.75	1.59	1.71	1.42	1.72	1.52	1.75	1.45	1.72	1.77	1.68	1.75
102.50°	1.72	1.60	1.79	1.88	1.54	1.75	1.64	1.75	1.42	1.65	1.60	1.76	1.70	1.61	1.82	1.64	1.72
105.00°	1.63	1.62	1.82	1.94	1.53	1.74	1.67	1.84	1.50	1.58	1.64	1.77	2.02	1.56	1.90	1.68	1.63

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	1733	1733	1733	1733	1692	1692	1692	1692	1614	1614	1614	1543	1543	1543	1478	1478	1478	1447
	1	1590	1523	1463	1409	1549	1489	1434	1385	1425	1380	1339	1366	1330	1296	1312	1283	1256	1255
	2	1449	1332	1236	1155	1410	1304	1215	1140	1251	1176	1112	1201	1139	1085	1156	1105	1059	1080
	3	1323	1173	1057	965	1287	1150	1042	955	1105	1013	937	1063	985	919	1025	959	902	937
	4	1214	1042	917	821	1179	1022	905	814	984	883	802	949	861	790	916	841	778	822
RCR	5	1117	933	804	709	1086	916	795	705	884	778	696	854	761	687	826	745	679	728
	6	1033	841	713	621	1004	827	706	618	800	692	611	774	678	605	751	665	599	651
	7	959	764	638	550	933	752	632	547	729	621	542	707	610	538	686	599	533	587
	8	893	698	576	491	870	688	571	490	668	562	486	649	553	482	631	544	479	533
	9	835	642	523	443	814	633	519	442	615	511	439	599	504	436	583	497	433	487
	10	783	593	478	402	764	585	475	401	570	469	399	555	462	397	542	456	394	448

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	18.5 fc	14.2 ft
6.5 ft	13.2 fc	16.8 ft
7.5 ft	9.9 fc	19.4 ft
8.0 ft	8.7 fc	20.7 ft
10.0 ft	5.6 fc	25.8 ft
12.0 ft	3.9 fc	31.0 ft
14.0 ft	2.8 fc	36.2 ft
16.0 ft	2.2 fc	41.4 ft
20.0 ft	1.4 fc	51.7 ft
24.0 ft	1.0 fc	62.0 ft
28.0 ft	0.7 fc	72.4 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	12625	12625	12625
45.00°	10706	10691	10832
55.00°	9970	9938	10132
65.00°	8880	8824	9088
75.00°	7036	6901	7300
85.00°	2960	3060	3935

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	20.1	21.7	20.4	22.0	22.3
	3H	21.6	23.0	22.0	23.4	23.8	21.7	23.2	22.1	23.5	23.9
	4H	22.2	23.5	22.6	23.9	24.3	22.3	23.6	22.7	24.0	24.4
	6H	22.5	23.7	22.9	24.1	24.5	22.6	23.9	23.1	24.3	24.7
	8H	22.6	23.7	23.0	24.2	24.6	22.7	23.9	23.2	24.3	24.7
	12H	22.6	23.7	23.0	24.1	24.6	22.7	23.9	23.2	24.3	24.7
4H	2H	20.6	21.9	21.0	22.3	22.7	20.7	22.0	21.1	22.4	22.8
	3H	22.4	23.5	22.8	24.0	24.4	22.5	23.7	23.0	24.1	24.5
	4H	23.1	24.1	23.5	24.5	25.0	23.2	24.2	23.7	24.7	25.1
	6H	23.5	24.4	24.0	24.8	25.3	23.7	24.5	24.1	25.0	25.5
	8H	23.6	24.4	24.1	24.9	25.4	23.8	24.6	24.2	25.0	25.5
	12H	23.6	24.4	24.1	24.9	25.4	23.8	24.6	24.3	25.1	25.5
8H	4H	23.3	24.2	23.8	24.6	25.1	23.5	24.3	23.9	24.8	25.2
	6H	23.8	24.5	24.3	25.0	25.5	24.0	24.7	24.5	25.2	25.7
	8H	24.0	24.6	24.5	25.1	25.6	24.1	24.8	24.7	25.3	25.8
	12H	24.0	24.6	24.6	25.1	25.7	24.2	24.8	24.8	25.3	25.9
12H	4H	23.3	24.1	23.8	24.6	25.1	23.5	24.2	24.0	24.7	25.2
	6H	23.9	24.5	24.4	25.0	25.5	24.0	24.7	24.6	25.1	25.7
	8H	24.0	24.6	24.5	25.1	25.7	24.2	24.8	24.7	25.3	25.8

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0