

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SR10SQLEDOA 20L 35K xx RT1010 MW xx FO
10" square recessed LED downlight, regressed extruded aluminum door

Test Number

SP-01641_1

Test Date

1/30/2024

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

Summary of Results

Power

Input Watts	17 W
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Lumen Output

Output Lumens	1189
Efficacy	69.93 lm/W

Luminous Dimensions

0° - 180° Size	0.71
90° - 270° Size	0.71
Height	0

Spacing Criterion

Two luminaires, plane 0°	1.18
Two luminaires, plane 90°	1.13
Four luminaires	1.26

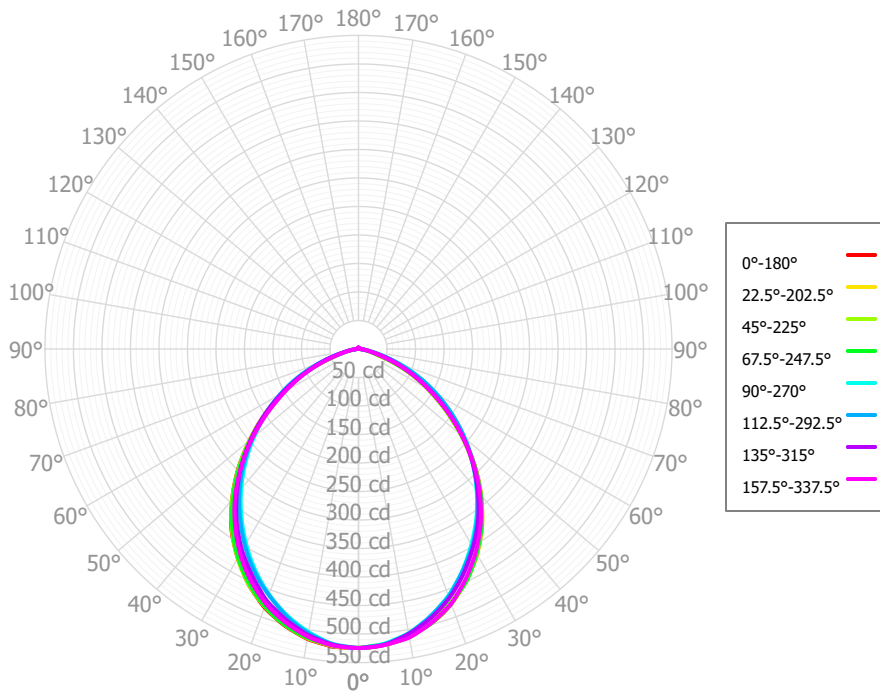
Full Beam Angle

0° - 180°	96°
90° - 270°	95°

IES File Header Contents

Keyword	Value
TEST	SP-01641_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/30/2024
ISSUEDATE	2/28/2024
LUMCAT	SR10SQLEDOA 20L 35K xx RT1010 MW xx FO
LUMINAIRE	10" square recessed LED downlight, regressed extruded aluminum door
OTHER	Beam Angle: 96 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°	50.12	4.22%	90.00° - 100.00°	2.22	0.19%
10.00° - 20.00°	138.99	11.69%	100.00° - 110.00°	2.06	0.17%
20.00° - 30.00°	203.91	17.15%	100.00° - 120.00°	4.01	0.34%
30.00° - 40.00°	233.22	19.62%	120.00° - 130.00°	1.80	0.15%
40.00° - 50.00°	221.83	18.66%	130.00° - 140.00°	1.56	0.13%
50.00° - 60.00°	174.37	14.67%	140.00° - 150.00°	1.27	0.11%
60.00° - 70.00°	106.59	8.97%	150.00° - 160.00°	0.95	0.08%
70.00° - 80.00°	38.61	3.25%	160.00° - 170.00°	0.59	0.05%
80.00° - 90.00°	8.52	0.72%	170.00° - 180.00°	0.20	0.02%
0.00° - 90.00°	1176.17	98.94%	0.00° - 180.00°	1188.78	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°	524.51	524.51	524.51	524.51	524.51	524.51	524.51	524.51	524.51	524.51	524.51	524.51	524.51	524.51	524.51	524.51	524.51
2.50°	523.40	523.57	523.08	521.83	522.56	522.31	523.23	523.86	524.55	524.50	523.64	522.94	523.49	522.35	523.49	523.47	523.40
5.00°	521.23	521.00	520.38	519.95	518.87	519.42	520.77	521.97	523.60	522.86	521.60	521.72	520.26	520.13	520.83	521.33	521.23
7.50°	517.47	517.11	515.74	516.14	512.80	513.47	515.47	517.73	520.27	519.27	518.64	518.56	512.51	514.15	514.57	517.75	517.47
10.00°	512.56	512.85	509.90	511.64	506.25	506.13	509.59	512.43	516.33	514.58	515.27	514.21	504.18	506.84	507.47	513.90	512.56
12.50°	505.50	504.34	502.61	504.82	496.38	496.71	500.86	504.69	509.42	507.91	508.56	508.15	494.55	496.73	498.58	505.53	505.50
15.00°	497.35	494.97	494.09	497.37	486.04	485.68	491.72	496.26	501.97	500.21	500.66	500.64	483.95	485.86	488.81	496.60	497.35
17.50°	487.53	485.21	484.33	486.32	473.48	472.68	481.00	486.57	492.28	490.99	490.86	491.38	471.62	474.07	477.49	486.09	487.53
20.00°	475.81	475.39	473.09	474.54	460.74	459.49	470.16	475.42	482.33	480.52	480.54	480.38	458.37	462.10	464.98	475.48	475.81
22.50°	461.69	462.05	460.63	461.81	445.58	446.12	455.15	462.08	469.23	468.54	468.20	467.66	443.77	446.69	450.75	460.37	461.69
25.00°	447.12	448.44	446.50	448.94	430.30	431.34	440.00	447.68	455.94	455.01	455.46	453.74	428.28	430.81	435.38	445.14	447.12
27.50°	432.07	432.38	431.22	432.05	413.18	415.37	424.35	431.94	439.85	439.92	439.51	438.82	411.71	415.05	418.66	428.36	432.07
30.00°	415.18	416.20	413.19	414.85	396.02	398.31	408.53	414.94	423.68	423.55	423.12	422.43	394.48	399.30	401.69	411.44	415.18
32.50°	396.68	397.30	393.64	396.26	378.42	380.52	390.59	396.63	406.09	406.12	404.81	405.04	376.60	381.15	384.48	392.75	396.68
35.00°	376.81	378.20	373.10	377.56	360.63	362.31	372.40	377.53	388.18	386.46	386.35	385.45	358.20	362.92	365.79	373.78	376.81
37.50°	355.96	356.46	352.12	355.67	341.49	343.87	352.40	357.76	366.67	365.28	365.58	364.64	339.38	343.40	345.89	352.83	355.96
40.00°	333.97	334.49	329.78	333.68	322.26	324.59	332.28	336.33	344.97	343.18	344.70	342.74	319.94	323.87	325.42	331.55	333.97
42.50°	311.30	310.79	306.97	310.47	302.56	304.93	311.50	313.75	322.10	320.58	321.21	320.35	300.08	304.31	304.58	308.75	311.30
45.00°	287.40	286.86	283.19	287.03	282.75	284.42	290.47	290.49	298.87	296.87	297.66	296.23	279.84	284.62	283.26	285.61	287.40
47.50°	262.92	261.78	259.16	261.92	262.54	263.60	268.52	266.84	273.96	272.67	273.40	271.50	259.39	264.00	261.69	261.28	262.92
50.00°	237.58	236.85	234.13	236.92	242.06	242.72	246.33	242.83	249.28	247.42	249.12	246.97	238.69	243.32	238.43	237.03	237.58
52.50°	211.93	212.51	208.91	212.55	220.83	221.82	223.43	218.66	225.35	221.80	224.58	222.49	217.88	222.30	214.43	212.96	211.93
55.00°	188.50	188.62	184.84	188.43	199.77	200.62	200.46	194.45	201.55	197.86	200.29	197.92	197.13	201.12	191.31	189.05	188.50
57.50°	165.73	166.02	160.93	165.26	179.08	179.36	177.33	170.24	178.11	174.38	177.22	173.33	176.41	179.36	168.50	165.49	165.73
60.00°	143.75	143.82	139.77	142.78	158.36	158.57	154.53	148.30	155.21	152.38	154.45	151.76	156.02	157.90	145.97	142.93	143.75
62.50°	121.93	122.53	118.81	122.32	137.60	137.83	132.32	126.99	133.45	130.67	132.78	130.57	135.72	137.29	123.53	122.13	121.93
65.00°	99.76	100.73	97.09	101.07	116.80	116.67	110.66	106.47	111.83	109.42	111.07	108.76	114.62	116.59	103.90	101.61	99.76
67.50°	77.53	78.00	75.39	78.04	95.97	95.48	89.81	86.10	90.45	88.22	89.25	86.89	93.37	95.66	84.81	81.50	77.53
70.00°	56.85	57.28	55.42	57.10	75.60	75.30	70.71	66.17	69.25	67.19	68.20	65.69	73.88	75.66	67.65	62.28	56.85
72.50°	36.30	39.51	36.31	39.96	55.82	55.24	53.76	46.31	48.31	46.17	48.89	44.79	54.63	57.31	50.73	44.11	36.30
75.00°	28.49	27.15	27.94	27.27	39.24	39.62	38.93	34.42	33.32	34.96	33.52	33.99	39.15	41.19	36.54	31.04	28.49
77.50°	21.14	21.31	19.90	21.13	25.92	24.61	26.26	23.20	25.16	24.08	25.23	23.56	23.94	28.31	22.54	22.91	21.14
80.00°	15.37	15.64	14.28	15.30	16.44	17.39	17.08	17.02	18.18	17.75	18.10	17.51	17.04	18.38	16.54	16.37	15.37
82.50°	9.76	10.13	9.09	9.83	10.17	10.56	10.84	11.04	12.33	11.61	12.70	11.71	10.40	11.98	10.74	11.10	9.76
85.00°	6.49	6.13	5.96	5.92	6.08	6.66	6.57	7.38	7.87	7.79	8.24	7.71	6.85	7.15	7.08	7.09	6.49
87.50°	3.50	3.37	3.34	3.59	3.50	3.30	3.66	3.91	4.49	4.28	4.95	4.17	3.50	3.88	3.64	3.90	3.50
90.00°	2.75	2.19	2.56	2.33	2.29	2.54	2.40	3.07	2.83	3.05	2.93	2.94	2.58	2.20	2.94	2.52	2.75
92.50°	2.10	2.07	1.99	1.95	1.85	1.95	2.07	2.31	2.26	2.03	2.17	1.94	1.78	1.82	2.31	2.10	2.10
95.00°	2.06	1.96	1.98	1.78	1.76	1.96	1.92	2.15	2.02	2.03	1.84	1.79	1.79	1.70	2.13	1.97	2.06
97.50°	2.02	1.85	1.94	1.77	1.82	1.98	1.83	2.02	1.95	2.00	1.86	1.71	1.81	1.76	1.98	1.96	2.02
100.00°	2.04	1.87	1.82	1.73	1.91	2.00	1.81	1.99	1.90	1.91	1.84	1.86	1.92	1.89	2.01	1.97	2.04
102.50°	2.05	1.95	1.74	1.68	2.00	2.04	1.80	1.97	1.85	1.87	1.78	1.91	2.02	2.06	2.02	1.97	2.05
105.00°	2.05	1.97	1.75	1.81	2.01	2.11	1.92	1.93	1.98	1.98	1.74	1.76	2.03	2.06	2.01	1.98	2.05

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	1412	1412	1412	1412	1378	1378	1378	1378	1314	1314	1314	1255	1255	1255	1201	1201	1176
	1	1308	1259	1215	1175	1275	1231	1191	1155	1179	1146	1116	1131	1105	1080	1087	1066	1043
	2	1202	1115	1043	983	1171	1092	1026	970	1049	994	946	1009	963	923	972	934	913
	3	1105	991	904	834	1076	972	891	826	936	867	810	902	844	794	871	822	804
	4	1018	887	791	718	991	871	781	712	840	763	701	812	745	691	785	728	712
	5	940	798	699	626	915	785	692	622	759	677	614	735	663	607	712	650	599
	6	871	723	623	552	849	711	617	549	689	606	543	669	595	538	649	584	533
	7	810	659	560	491	790	649	556	489	630	546	485	612	537	481	596	528	477
	8	756	603	507	441	738	595	503	440	579	496	437	563	488	433	549	481	430
	9	708	556	463	400	691	548	459	398	534	453	396	521	447	393	508	440	391
	10	665	514	424	364	649	508	421	363	495	416	361	484	411	359	473	406	357

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	17.3 fc	12.3 ft
6.5 ft	12.4 fc	14.5 ft
7.5 ft	9.3 fc	16.7 ft
8.0 ft	8.2 fc	17.9 ft
10.0 ft	5.2 fc	22.3 ft
12.0 ft	3.6 fc	26.8 ft
14.0 ft	2.7 fc	31.2 ft
16.0 ft	2.0 fc	35.7 ft
20.0 ft	1.3 fc	44.6 ft
24.0 ft	0.9 fc	53.6 ft
28.0 ft	0.7 fc	62.5 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	11200	11200	11200
45.00°	8679	8552	8538
55.00°	7017	6881	7437
65.00°	5040	4905	5901
75.00°	2350	2305	3237
85.00°	1590	1459	1491

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	18.2	19.7	18.6	20.0	20.4	18.7	20.2	19.0	20.5	20.8
	3H	19.1	20.5	19.5	20.8	21.2	19.8	21.2	20.2	21.5	21.9
	4H	19.3	20.5	19.7	20.9	21.3	20.1	21.3	20.5	21.7	22.1
	6H	19.3	20.5	19.8	20.9	21.3	20.1	21.3	20.6	21.7	22.1
	8H	19.4	20.5	19.8	20.9	21.3	20.1	21.2	20.6	21.7	22.1
	12H	19.4	20.4	19.8	20.8	21.3	20.1	21.2	20.6	21.6	22.0
4H	2H	18.6	19.9	19.0	20.2	20.6	19.1	20.3	19.5	20.7	21.1
	3H	19.6	20.7	20.1	21.1	21.5	20.4	21.4	20.8	21.8	22.2
	4H	19.8	20.8	20.3	21.2	21.7	20.7	21.6	21.1	22.0	22.5
	6H	20.0	20.8	20.5	21.2	21.7	20.8	21.6	21.3	22.1	22.6
	8H	20.0	20.8	20.5	21.2	21.7	20.8	21.6	21.3	22.0	22.5
	12H	20.0	20.7	20.5	21.2	21.7	20.8	21.5	21.3	22.0	22.5
8H	4H	19.9	20.7	20.4	21.1	21.6	20.7	21.5	21.2	21.9	22.4
	6H	20.1	20.7	20.6	21.2	21.7	20.9	21.5	21.4	22.0	22.5
	8H	20.1	20.7	20.7	21.2	21.7	20.9	21.5	21.5	22.0	22.5
	12H	20.2	20.7	20.7	21.2	21.8	21.0	21.5	21.5	22.0	22.6
12H	4H	19.9	20.6	20.4	21.1	21.6	20.7	21.4	21.2	21.9	22.4
	6H	20.1	20.6	20.6	21.1	21.7	20.9	21.4	21.4	21.9	22.5
	8H	20.1	20.6	20.7	21.1	21.7	21.0	21.4	21.5	22.0	22.5

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0