

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

#### Luminaire

SR10SQLEDOA 20L 35K xx FT1010 MW xx FO  
10" square recessed LED downlight, flush extruded aluminum door

#### Test Number

SP-01640\_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	1009
Efficacy	59.32 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

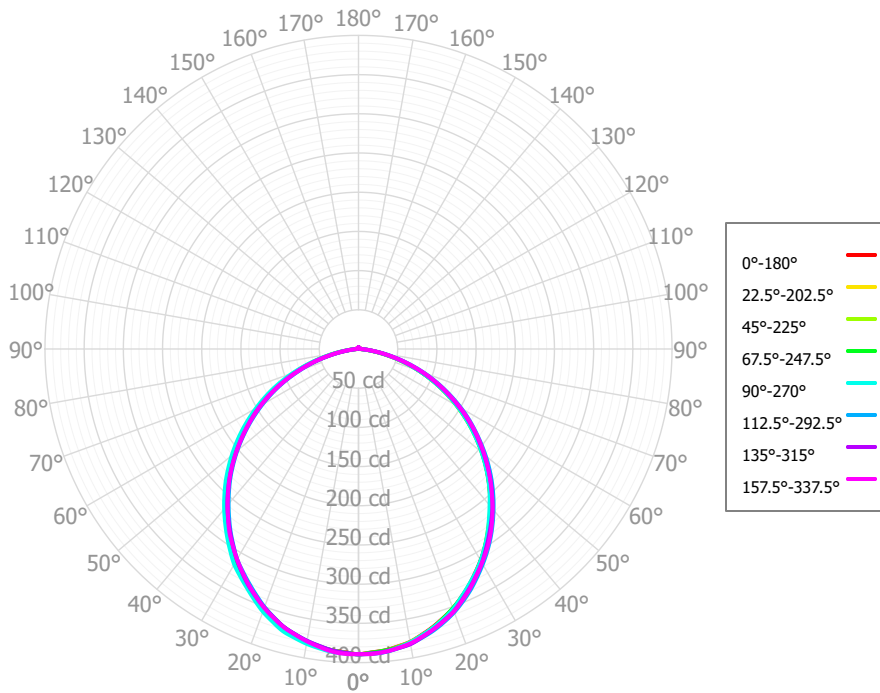
#### Full Beam Angle

0° - 180°	104°
90° - 270°	104°

### IES File Header Contents

Keyword	Value
TEST	SP-01640_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 FT1010 MW xx FO
LUMINAIRE	10" square recessed LED downlight, flush extruded aluminum door
OTHER	Beam Angle: 104 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°	37.25	3.69%	90.00° - 100.00°	2.05	0.20%
10.00° - 20.00°	103.77	10.29%	100.00° - 110.00°	1.85	0.18%
20.00° - 30.00°	153.70	15.24%	100.00° - 120.00°	3.61	0.36%
30.00° - 40.00°	180.10	17.86%	120.00° - 130.00°	1.61	0.16%
40.00° - 50.00°	180.96	17.94%	130.00° - 140.00°	1.38	0.14%
50.00° - 60.00°	157.62	15.63%	140.00° - 150.00°	1.15	0.11%
60.00° - 70.00°	114.03	11.31%	150.00° - 160.00°	0.83	0.08%
70.00° - 80.00°	57.69	5.72%	160.00° - 170.00°	0.51	0.05%
80.00° - 90.00°	12.06	1.20%	170.00° - 180.00°	0.18	0.02%
0.00° - 90.00°	997.18	98.88%	0.00° - 180.00°	1008.50	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°	389.44	389.44	389.44	389.44	389.44	389.44	389.44	389.44	389.44	389.44	389.44	389.44	389.44	389.44	389.44	389.44	389.44
2.50°	387.50	387.82	388.86	387.77	389.13	388.34	387.97	389.39	387.40	388.00	387.97	387.95	388.92	389.26	388.75	389.49	387.50
5.00°	386.05	386.72	386.94	386.17	387.93	386.32	386.04	387.53	385.95	387.26	385.95	385.99	387.95	388.14	387.64	387.92	386.05
7.50°	382.93	383.48	383.56	383.82	384.29	382.42	382.20	383.37	383.21	383.56	383.64	382.58	385.10	385.24	385.08	384.98	382.93
10.00°	379.45	379.86	379.82	380.32	380.05	378.16	378.09	378.73	379.64	379.69	380.42	378.72	381.90	381.84	382.36	381.36	379.45
12.50°	373.51	374.28	374.25	374.59	374.16	372.87	372.96	373.27	374.01	373.64	375.13	373.31	377.37	376.97	376.35	375.94	373.51
15.00°	367.17	368.28	368.33	368.06	367.96	367.43	367.18	367.67	368.05	367.53	369.11	367.51	372.66	371.55	370.11	370.17	367.17
17.50°	359.84	360.59	360.96	360.20	361.02	359.05	359.36	359.75	361.38	360.29	361.71	359.85	364.79	364.81	363.04	363.65	359.84
20.00°	352.40	352.54	353.37	351.95	352.97	350.40	351.18	351.56	353.52	352.91	353.58	351.83	356.63	357.33	355.94	356.16	352.40
22.50°	342.81	343.35	343.66	343.14	342.71	340.27	342.09	341.65	343.54	342.96	344.25	342.53	346.64	348.37	346.06	346.85	342.81
25.00°	333.05	333.95	333.74	333.61	332.54	330.05	332.44	331.62	333.39	332.93	334.44	333.04	336.55	338.75	336.15	336.94	333.05
27.50°	322.33	323.96	323.37	323.22	322.49	319.91	321.58	320.76	322.98	322.04	323.93	322.50	326.93	327.98	325.61	326.04	322.33
30.00°	311.57	313.17	312.98	312.01	311.64	309.71	310.19	309.86	311.86	311.04	312.73	311.85	317.25	317.01	314.94	315.15	311.57
32.50°	300.13	300.50	299.89	299.96	299.66	297.14	297.81	298.38	299.80	299.20	300.65	299.44	304.77	305.74	302.61	304.28	300.13
35.00°	288.63	287.98	286.75	287.62	286.97	284.54	285.46	286.81	287.32	287.02	288.22	286.93	292.27	293.82	290.31	292.52	288.63
37.50°	275.31	275.75	274.15	275.03	273.38	271.21	273.14	273.21	274.37	273.05	275.39	273.62	279.47	281.05	278.15	279.69	275.31
40.00°	261.96	262.87	261.51	261.95	260.21	257.88	260.25	259.63	261.27	259.27	262.09	260.28	266.60	267.99	265.80	266.16	261.96
42.50°	248.13	248.92	248.04	248.46	247.52	244.45	246.54	246.12	248.02	246.27	248.34	246.16	253.20	254.59	252.34	251.90	248.13
45.00°	234.28	234.83	234.49	234.59	233.95	230.90	232.52	232.50	234.24	233.03	234.67	232.05	239.69	240.74	238.62	237.87	234.28
47.50°	220.25	220.54	220.01	220.46	219.54	216.53	218.12	217.92	220.00	218.99	221.07	217.90	225.41	226.46	223.71	224.06	220.25
50.00°	206.09	206.30	205.47	205.85	204.98	202.06	203.40	203.30	205.42	204.81	206.26	203.74	211.05	211.70	208.85	209.84	206.09
52.50°	191.21	192.11	190.45	190.95	190.29	187.07	188.36	188.44	190.58	190.25	190.61	189.58	196.27	196.53	194.11	195.31	191.21
55.00°	176.29	177.35	175.37	175.98	175.41	172.03	173.65	173.59	175.60	175.51	175.88	175.28	181.38	181.58	179.29	180.47	176.29
57.50°	161.14	161.96	159.95	160.98	160.41	156.83	159.24	158.79	160.53	160.37	161.70	160.07	166.06	166.77	164.20	165.44	161.14
60.00°	145.96	146.45	144.55	145.92	145.07	141.64	144.23	143.86	145.47	145.04	146.27	144.84	150.80	151.39	148.91	149.85	145.96
62.50°	130.67	130.82	129.20	130.84	129.51	126.44	128.74	128.49	130.41	129.33	130.19	129.59	135.73	135.67	133.17	133.95	130.67
65.00°	115.28	115.40	113.89	115.36	113.97	111.09	113.22	112.99	115.14	113.83	115.23	114.31	120.41	120.11	117.52	118.50	115.28
67.50°	99.56	100.14	98.75	99.72	98.43	95.31	97.66	97.14	99.76	98.69	100.74	98.88	104.41	104.63	102.08	103.28	99.56
70.00°	84.13	84.57	83.57	84.47	83.05	79.81	82.35	81.51	84.42	83.42	85.54	83.38	88.39	88.93	86.62	87.66	84.13
72.50°	69.43	68.80	68.30	69.34	67.75	64.97	67.17	66.42	69.11	67.96	70.09	67.65	72.32	73.13	71.12	71.88	69.43
75.00°	54.73	54.01	53.35	54.73	53.41	50.40	52.31	51.76	54.33	53.10	55.33	52.46	56.89	58.33	55.92	57.04	54.73
77.50°	40.02	39.80	39.19	40.24	39.44	36.38	37.60	37.98	39.73	38.97	40.76	38.86	42.69	43.91	41.19	42.53	40.02
80.00°	26.95	27.41	26.29	27.66	27.15	24.01	25.39	25.47	27.29	26.50	28.34	26.21	29.60	30.73	28.26	29.73	26.95
82.50°	16.84	15.95	15.90	15.43	15.39	14.33	14.21	15.19	15.42	15.84	16.43	15.79	18.35	17.95	17.70	17.42	16.84
85.00°	9.01	9.20	8.06	9.25	9.05	7.27	8.22	7.65	9.06	8.45	9.84	7.69	9.83	10.70	9.86	10.36	9.01
87.50°	4.75	4.50	4.54	3.90	4.07	3.91	4.03	4.23	3.90	4.15	4.26	4.28	5.18	4.86	5.11	4.51	4.75
90.00°	2.30	2.63	2.27	2.67	2.61	1.97	2.50	2.19	2.52	2.03	2.81	2.04	2.32	2.96	2.54	2.97	2.30
92.50°	2.28	1.80	1.82	1.83	1.83	1.76	1.73	1.96	1.79	1.69	1.93	1.82	1.68	1.85	2.12	2.19	2.28
95.00°	2.24	1.60	1.62	1.76	1.70	1.60	1.63	1.81	1.69	1.60	1.83	1.73	1.42	1.70	1.91	2.16	2.24
97.50°	2.16	1.59	1.74	1.72	1.66	1.50	1.68	1.77	1.67	1.70	1.81	1.81	1.56	1.70	1.89	2.22	2.16
100.00°	2.04	1.66	1.80	1.74	1.68	1.49	1.70	1.71	1.74	1.74	1.75	1.84	1.61	1.77	1.81	2.06	2.04
102.50°	1.89	1.75	1.81	1.75	1.71	1.54	1.70	1.63	1.81	1.75	1.70	1.81	1.57	1.84	1.69	1.88	1.89
105.00°	1.86	1.75	1.80	1.80	1.73	1.60	1.77	1.70	1.76	1.71	1.76	1.76	1.57	1.81	1.70	1.88	1.86

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

RCR	pfc	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%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	1198	1198	1198	1198	1169	1169	1169	1169	1114	1114	1114	1064	1064	1064	1019	1019	1019	997
	1	1100	1054	1013	976	1072	1030	993	959	985	955	927	944	920	897	906	887	868	867
	2	1003	923	857	802	976	903	843	791	866	815	771	831	789	752	800	765	733	747
	3	917	814	734	671	891	797	723	664	766	702	651	736	683	638	709	664	626	649
	4	841	723	637	571	817	709	628	566	682	613	557	658	597	549	635	583	540	570
	5	774	648	559	493	753	636	552	490	613	540	484	592	528	478	573	517	472	505
	6	716	584	496	432	696	574	491	430	555	481	425	537	471	421	520	462	416	452
	7	665	531	444	383	647	522	439	381	505	431	377	490	424	374	476	416	371	407
	8	619	485	400	342	603	477	397	341	463	390	338	450	384	335	437	378	333	370
	9	579	446	364	309	564	439	361	308	427	355	305	415	350	303	404	345	301	338
	10	543	412	333	280	530	406	330	280	395	326	278	385	321	276	376	317	274	311

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	12.9 fc	14.0 ft
6.5 ft	9.2 fc	16.6 ft
7.5 ft	6.9 fc	19.1 ft
8.0 ft	6.1 fc	20.4 ft
10.0 ft	3.9 fc	25.5 ft
12.0 ft	2.7 fc	30.6 ft
14.0 ft	2.0 fc	35.6 ft
16.0 ft	1.5 fc	40.7 ft
20.0 ft	1.0 fc	50.9 ft
24.0 ft	0.7 fc	61.1 ft
28.0 ft	0.5 fc	71.3 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	8805	8805	8805
<b>45.00°</b>	7491	7497	7480
<b>55.00°</b>	6949	6913	6914
<b>65.00°</b>	6167	6093	6097
<b>75.00°</b>	4781	4661	4666
<b>85.00°</b>	2339	2092	2347

### 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	18.8	20.4	19.2	20.7	21.1	18.6	20.2	19.0	20.5	20.9
	3H	20.4	21.8	20.8	22.2	22.6	20.3	21.7	20.7	22.0	22.4
	4H	20.9	22.3	21.3	22.6	23.0	20.8	22.1	21.2	22.5	22.9
	6H	21.2	22.5	21.6	22.8	23.3	21.1	22.3	21.5	22.7	23.1
	8H	21.3	22.5	21.7	22.9	23.3	21.2	22.3	21.6	22.7	23.2
	12H	21.3	22.4	21.8	22.8	23.3	21.2	22.3	21.6	22.7	23.2
4H	2H	19.4	20.7	19.8	21.1	21.5	19.2	20.5	19.6	20.9	21.3
	3H	21.2	22.3	21.6	22.7	23.1	21.0	22.1	21.5	22.6	23.0
	4H	21.8	22.8	22.3	23.3	23.7	21.6	22.6	22.1	23.1	23.5
	6H	22.2	23.1	22.7	23.5	24.0	22.0	22.9	22.5	23.4	23.8
	8H	22.3	23.1	22.8	23.6	24.1	22.1	22.9	22.6	23.4	23.9
	12H	22.3	23.1	22.8	23.6	24.1	22.2	22.9	22.7	23.4	23.9
8H	4H	22.0	22.9	22.5	23.3	23.8	21.9	22.7	22.3	23.1	23.6
	6H	22.5	23.2	23.0	23.7	24.2	22.3	23.0	22.8	23.5	24.0
	8H	22.6	23.2	23.2	23.8	24.3	22.4	23.0	23.0	23.6	24.1
	12H	22.7	23.3	23.2	23.8	24.4	22.5	23.0	23.0	23.6	24.1
12H	4H	22.0	22.8	22.5	23.3	23.8	21.9	22.6	22.4	23.1	23.6
	6H	22.5	23.1	23.1	23.6	24.2	22.3	22.9	22.9	23.4	24.0
	8H	22.7	23.2	23.2	23.7	24.3	22.5	23.0	23.0	23.5	24.1

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0