Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SR10SQLEDOA 30L 35K xx RT1010 MW xx FO

10" square recessed LED downlight, regressed extruded aluminum door

Test Number

SP-01641_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	1723
Efficacy	72.38 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	1.15
Two luminaires, plane 90°	1.13
Four luminaires	1.25

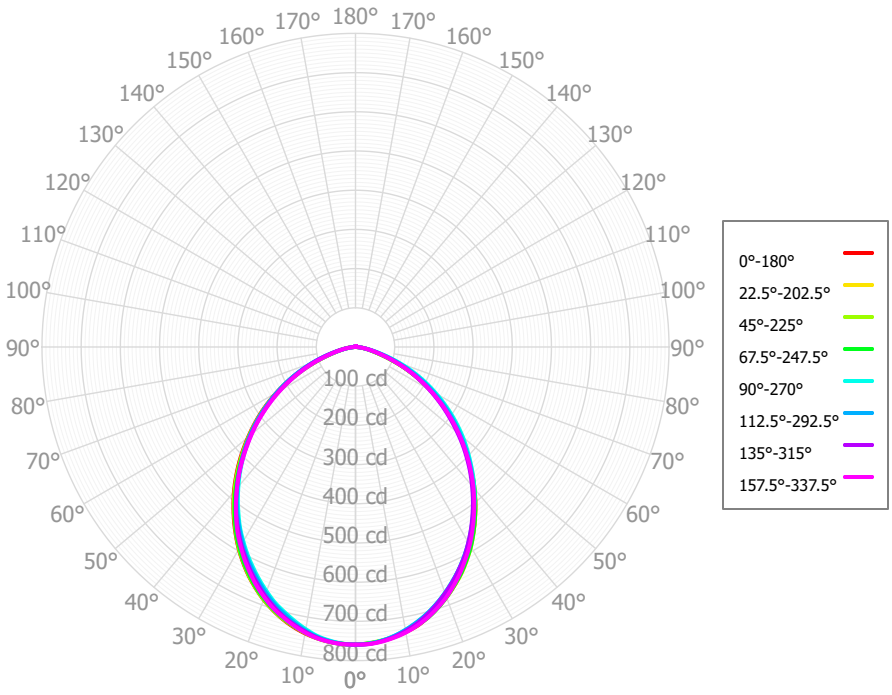
Full Beam Angle

0° - 180°	96°
90° - 270°	95°

IES File Header Contents

Keyword	Value
TEST	SP-01641_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 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°	72.51	4.21%	90.00° - 100.00°	1.83	0.11%
10.00° - 20.00°	200.07	11.61%	100.00° - 110.00°	1.62	0.09%
20.00° - 30.00°	291.14	16.90%	100.00° - 120.00°	3.18	0.18%
30.00° - 40.00°	330.66	19.20%	120.00° - 130.00°	1.45	0.08%
40.00° - 50.00°	316.55	18.38%	130.00° - 140.00°	1.27	0.07%
50.00° - 60.00°	256.89	14.91%	140.00° - 150.00°	1.09	0.06%
60.00° - 70.00°	163.56	9.50%	150.00° - 160.00°	0.82	0.05%
70.00° - 80.00°	66.44	3.86%	160.00° - 170.00°	0.49	0.03%
80.00° - 90.00°	14.44	0.84%	170.00° - 180.00°	0.17	0.01%
0.00° - 90.00°	1712.25	99.40%	0.00° - 180.00°	1722.56	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°	759.43	759.43	759.43	759.43	759.43	759.43	759.43	759.43	759.43	759.43	759.43	759.43	759.43	759.43	759.43	759.43	759.43
2.50°	757.69	758.18	756.79	757.09	757.86	758.44	758.45	759.20	758.20	758.65	759.08	757.77	758.00	758.29	758.54	759.16	757.69
5.00°	753.15	754.03	752.00	753.14	752.48	753.52	755.17	755.41	755.08	755.08	755.52	754.27	752.18	752.93	753.88	755.05	753.15
7.50°	746.79	747.48	745.80	746.68	744.54	746.22	748.05	749.77	749.82	749.49	749.33	748.88	744.05	744.45	746.41	748.50	746.79
10.00°	738.24	739.03	736.51	737.88	733.37	734.53	737.67	740.14	742.04	740.44	740.39	739.83	731.11	733.10	735.66	739.84	738.24
12.50°	728.79	727.47	725.74	727.15	720.13	720.40	725.19	728.19	731.62	729.15	729.83	728.81	716.32	719.62	722.92	728.14	728.79
15.00°	713.87	713.95	711.57	715.00	704.80	704.44	711.29	714.04	718.70	715.43	717.91	715.25	700.22	704.55	706.50	714.33	713.87
17.50°	697.24	697.52	696.14	698.47	687.08	687.69	694.00	698.90	703.22	700.47	702.81	700.61	683.75	687.02	688.34	697.44	697.24
20.00°	678.17	679.66	676.79	679.36	667.44	667.67	674.89	679.93	685.82	682.66	685.57	682.65	663.25	668.05	668.37	678.86	678.17
22.50°	658.55	659.55	656.36	658.79	646.65	646.58	653.58	659.64	665.90	663.73	665.45	663.61	641.94	647.05	647.75	657.07	658.55
25.00°	635.65	638.60	633.61	637.54	625.11	624.17	631.36	636.46	644.48	640.66	643.80	641.11	619.52	625.13	625.23	633.91	635.65
27.50°	612.27	614.24	610.42	613.50	601.81	601.45	607.30	612.54	620.61	616.39	619.70	617.80	596.96	601.10	602.20	608.83	612.27
30.00°	586.24	588.93	583.98	588.48	577.63	576.25	582.66	586.60	595.59	590.35	594.59	591.93	572.52	576.32	575.83	583.13	586.24
32.50°	560.01	560.67	557.16	560.44	551.71	550.65	556.35	560.32	568.44	563.93	567.09	565.67	547.96	549.72	548.85	555.25	560.01
35.00°	531.20	531.84	528.07	531.61	525.10	524.11	529.65	530.97	540.51	535.68	538.86	536.18	520.57	522.66	520.58	526.86	531.20
37.50°	502.25	502.27	498.85	502.05	498.43	497.48	500.51	501.32	511.62	507.19	509.81	506.43	493.13	495.35	492.18	497.58	502.25
40.00°	471.08	472.60	468.87	472.36	471.73	469.06	471.02	470.62	482.48	476.62	480.58	475.64	465.01	467.99	462.64	468.18	471.08
42.50°	439.98	441.92	438.85	441.33	443.26	440.56	440.50	439.85	451.82	445.92	449.41	444.80	436.78	439.25	433.03	437.53	439.98
45.00°	409.71	411.17	408.17	410.15	414.43	411.16	409.89	407.98	420.87	414.10	417.97	413.37	407.69	410.38	402.31	406.78	409.71
47.50°	379.31	379.62	377.35	379.51	386.02	381.71	378.90	376.20	389.08	382.32	386.52	382.02	378.56	380.04	371.50	375.62	379.31
50.00°	348.19	348.08	345.58	348.91	357.66	351.73	347.90	345.54	357.21	351.37	355.08	351.49	349.16	349.67	339.43	344.44	348.19
52.50°	317.09	316.70	313.93	318.66	327.88	321.62	316.83	314.82	326.32	320.41	323.90	320.90	319.54	320.01	307.56	313.01	317.09
55.00°	286.10	285.38	282.87	288.24	298.01	290.75	285.83	283.61	295.47	289.26	292.71	290.05	289.12	290.29	277.19	281.62	286.10
57.50°	254.98	254.56	251.61	255.47	267.70	260.16	255.43	252.48	263.84	258.06	261.19	258.85	259.12	259.70	246.91	250.75	254.98
60.00°	223.49	223.58	219.71	222.89	237.44	230.73	225.18	221.68	232.24	226.66	229.73	226.29	230.20	229.22	217.03	219.96	223.49
62.50°	192.00	191.89	188.25	191.64	207.99	201.35	195.76	191.12	200.88	195.25	198.85	194.21	201.17	199.43	187.66	189.62	192.00
65.00°	160.54	160.55	157.91	160.53	178.53	172.12	166.82	161.33	169.61	163.77	168.00	163.57	171.94	169.85	159.99	159.47	160.54
67.50°	129.65	130.45	127.82	130.02	149.09	143.44	139.70	132.10	138.88	132.92	137.34	133.29	142.64	141.16	132.43	130.07	129.65
70.00°	99.74	101.67	98.24	100.79	119.90	116.02	113.10	104.23	108.90	103.75	107.70	103.82	113.22	113.29	105.17	101.99	99.74
72.50°	74.14	76.37	72.95	75.62	92.07	89.88	88.00	78.97	82.34	77.82	81.95	77.63	86.04	88.01	80.49	77.85	74.14
75.00°	54.37	55.26	54.19	53.95	66.14	66.00	65.13	58.54	58.75	58.62	59.23	57.13	61.67	64.85	60.77	56.71	54.37
77.50°	38.91	42.51	38.91	40.72	47.03	46.09	47.11	42.01	44.99	42.30	45.00	40.80	42.79	46.78	43.70	42.36	38.91
80.00°	28.11	30.53	27.88	28.64	30.34	31.72	31.68	31.18	32.18	30.67	31.91	30.20	29.49	31.27	30.62	29.60	28.11
82.50°	18.61	19.76	18.23	18.75	20.11	19.78	20.59	20.95	21.70	20.11	21.28	20.51	18.74	20.51	19.56	19.64	18.61
85.00°	10.23	11.20	9.91	10.69	11.41	10.57	11.71	11.41	12.71	10.93	12.39	11.82	10.06	11.74	10.94	11.40	10.23
87.50°	5.21	5.41	4.85	5.34	5.88	4.95	5.79	5.45	6.56	5.02	6.43	6.13	5.07	5.91	5.36	5.56	5.21
90.00°	2.51	2.26	2.33	2.22	2.29	2.54	2.41	2.84	2.53	2.49	2.68	3.05	2.46	2.50	2.73	2.26	2.51
92.50°	1.60	1.76	1.38	1.76	1.83	1.60	1.75	1.62	1.71	1.36	1.88	1.75	1.54	1.93	1.54	1.78	1.60
95.00°	1.66	1.50	1.41	1.49	1.53	1.69	1.48	1.42	1.36	1.41	1.47	1.71	1.48	1.65	1.48	1.53	1.66
97.50°	1.57	1.43	1.55	1.42	1.44	1.61	1.56	1.41	1.56	1.38	1.46	1.51	1.56	1.63	1.55	1.47	1.57
100.00°	1.40	1.52	1.73	1.41	1.44	1.43	1.60	1.51	1.61	1.30	1.42	1.22	1.69	1.60	1.69	1.50	1.40
102.50°	1.43	1.71	1.57	1.46	1.53	1.46	1.61	1.58	1.52	1.25	1.36	1.20	1.69	1.58	1.76	1.61	1.43
105.00°	1.53	1.63	1.28	1.47	1.59	1.57	1.57	1.62	1.49	1.23	1.46	1.29	1.64	1.57	1.80	1.70	1.53

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	2048	2048	2048	2048	1999	1999	1999	1999	1908	1908	1908	1825	1825	1825	1748	1748	1748	1712
	1	1894	1821	1756	1697	1847	1781	1722	1668	1707	1659	1614	1639	1600	1563	1576	1545	1515	1511
	2	1738	1609	1503	1414	1693	1577	1479	1397	1515	1433	1363	1458	1390	1331	1405	1350	1300	1320
	3	1596	1429	1300	1197	1554	1401	1282	1186	1350	1248	1164	1302	1215	1143	1258	1185	1122	1159
	4	1469	1277	1136	1029	1430	1254	1123	1021	1210	1097	1006	1170	1072	992	1132	1048	978	1025
RCR	5	1356	1149	1003	896	1321	1129	993	891	1092	972	881	1058	953	870	1026	934	861	914
	6	1257	1040	894	790	1225	1023	886	786	992	870	779	963	854	771	936	839	764	822
	7	1169	947	804	703	1139	933	797	700	907	784	695	881	771	689	858	759	684	744
	8	1091	868	728	632	1064	856	722	629	833	712	625	811	701	621	791	691	617	678
	9	1021	799	663	572	997	789	659	570	769	650	567	750	641	563	732	633	560	621
	10	959	740	608	521	937	730	605	520	713	597	517	697	590	514	681	583	512	573

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	25.1 fc	12.2 ft
6.5 ft	18.0 fc	14.4 ft
7.5 ft	13.5 fc	16.6 ft
8.0 ft	11.9 fc	17.7 ft
10.0 ft	7.6 fc	22.1 ft
12.0 ft	5.3 fc	26.5 ft
14.0 ft	3.9 fc	30.9 ft
16.0 ft	3.0 fc	35.4 ft
20.0 ft	1.9 fc	44.2 ft
24.0 ft	1.3 fc	53.0 ft
28.0 ft	1.0 fc	61.9 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	16216	16216	16216
45.00°	12372	12325	12515
55.00°	10651	10530	11094
65.00°	8111	7978	9020
75.00°	4485	4471	5456
85.00°	2508	2429	2795

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	19.9	21.4	20.2	21.7	22.1	20.1	21.6	20.4	21.9	22.2
	3H	21.0	22.3	21.4	22.7	23.0	21.3	22.7	21.7	23.0	23.4
	4H	21.2	22.5	21.6	22.9	23.2	21.6	22.9	22.0	23.3	23.7
	6H	21.3	22.5	21.8	22.9	23.3	21.8	22.9	22.2	23.3	23.7
	8H	21.4	22.5	21.8	22.9	23.3	21.8	22.9	22.2	23.3	23.7
	12H	21.4	22.4	21.8	22.8	23.3	21.8	22.9	22.2	23.3	23.7
4H	2H	20.3	21.6	20.7	21.9	22.3	20.5	21.8	20.9	22.2	22.6
	3H	21.5	22.6	22.0	23.0	23.4	21.9	23.0	22.3	23.4	23.8
	4H	21.9	22.8	22.3	23.2	23.7	22.3	23.2	22.7	23.7	24.1
	6H	22.1	22.9	22.5	23.3	23.8	22.5	23.3	23.0	23.8	24.3
	8H	22.1	22.9	22.6	23.3	23.8	22.5	23.3	23.0	23.8	24.3
	12H	22.1	22.8	22.6	23.3	23.8	22.6	23.3	23.1	23.7	24.2
8H	4H	22.0	22.7	22.4	23.2	23.7	22.4	23.2	22.9	23.6	24.1
	6H	22.2	22.9	22.7	23.4	23.9	22.7	23.3	23.2	23.8	24.3
	8H	22.3	22.9	22.8	23.4	23.9	22.7	23.3	23.3	23.8	24.3
	12H	22.4	22.9	22.9	23.4	24.0	22.8	23.3	23.3	23.8	24.4
12H	4H	22.0	22.6	22.5	23.1	23.6	22.4	23.1	22.9	23.6	24.1
	6H	22.2	22.8	22.8	23.3	23.8	22.7	23.2	23.2	23.7	24.3
	8H	22.3	22.8	22.9	23.3	23.9	22.8	23.3	23.3	23.8	24.4

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0