

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SR4MOTD 10LE1 RDD4x 30K MWxFG
Nom 4" diam round recessed downlight

Test Number

SP-00790

Test Date

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

Summary of Results

Power

Input Watts	15.9 W
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Lumen Output

Output Lumens	687
Efficacy	43.21 lm/W

Luminous Dimensions

0° - 180° Size	-0.33
90° - 270° Size	-0.33
Height	0

Spacing Criterion

Two luminaires, plane 0°	1.04
Two luminaires, plane 90°	1.02
Four luminaires	1.06

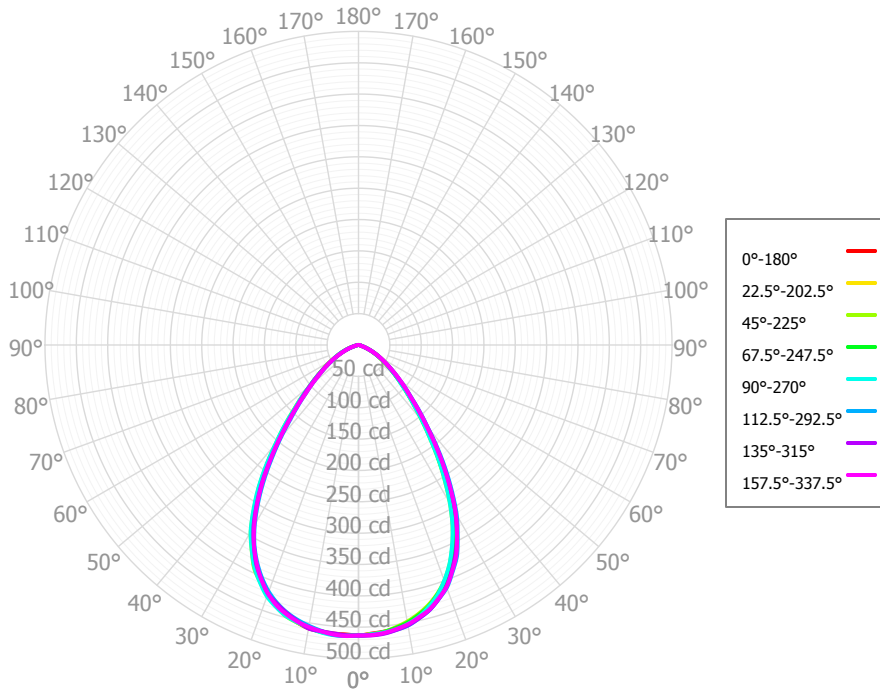
Full Beam Angle

0° - 180°	73°
90° - 270°	72°

IES File Header Contents

Keyword	Value
TEST	SP-00790
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	3/14/2019
UPDATE	4/4/2019
LUMCAT	SR4MOTD 10LE1 RDD4x 30K MWxFG
LUMINAIRE	Nom 4" diam round recessed downlight
OTHER	Beam Angle: 72.3 degrees
OTHER	Matte white trim; Frosted glass lens
LAMPCAT	N/A
LAMP	N/A, White Light, CRI: 80
OTHER	CCT Output Multipliers: N/A, only 3000K available
OTHER	Total luminaire wattages is approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	80
_CCTMULT	only 30K available
_LAMPMULT	only 10L available

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	44.50	6.48%	90.00° - 100.00°	0.10	0.02%
10.00° - 20.00°	123.25	17.94%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	170.37	24.80%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	155.38	22.62%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	100.45	14.62%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	57.47	8.37%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	27.21	3.96%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	6.63	0.97%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.69	0.25%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	686.96	99.98%	0.00° - 180.00°	687.06	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°	463.37	463.37	463.37	463.37	463.37	463.37	463.37	463.37	463.37	463.37	463.37	463.37	463.37	463.37	463.37	463.37	463.37
2.50°	460.90	461.80	461.67	462.31	462.09	464.55	463.18	464.61	462.15	463.09	463.15	463.80	463.95	462.59	463.63	463.16	460.90
5.00°	459.12	460.57	459.36	459.61	460.26	463.92	461.64	463.42	461.89	462.58	463.36	463.01	464.43	461.51	462.31	461.10	459.12
7.50°	456.31	456.91	454.19	455.29	457.66	459.61	460.32	460.46	460.57	460.15	461.19	461.48	462.03	458.22	458.54	457.20	456.31
10.00°	451.65	452.68	447.96	449.75	452.09	454.80	459.03	456.57	458.76	456.85	458.41	457.22	457.77	454.39	453.97	452.40	451.65
12.50°	444.89	443.16	439.74	441.55	444.01	449.03	450.82	451.64	452.97	451.88	453.24	450.95	452.76	446.40	446.41	445.03	444.89
15.00°	434.40	432.77	429.65	431.73	432.42	441.57	442.46	444.51	445.65	444.91	447.62	443.29	447.35	437.67	437.54	436.67	434.40
17.50°	420.47	418.73	416.72	417.83	418.41	431.52	432.62	435.40	435.58	434.85	436.50	434.81	437.93	424.94	424.98	424.23	420.47
20.00°	403.71	404.31	400.19	401.97	399.93	418.63	422.15	421.85	424.69	422.65	424.74	422.26	426.81	411.78	409.89	410.60	403.71
22.50°	384.81	382.19	379.26	380.68	378.89	402.18	404.44	404.98	408.40	407.68	409.20	407.73	410.33	391.79	389.33	390.62	384.81
25.00°	361.18	359.66	354.21	357.26	353.03	382.53	385.80	384.26	390.95	387.76	393.45	387.31	392.10	371.47	366.60	369.22	361.18
27.50°	334.58	329.75	324.97	327.67	324.98	359.62	361.02	361.21	365.76	362.65	368.77	364.63	368.66	342.57	340.02	340.20	334.58
30.00°	301.04	299.52	292.11	296.23	291.83	331.14	334.84	332.52	339.41	335.05	343.63	336.64	343.97	313.32	309.60	310.03	301.04
32.50°	264.03	263.21	256.24	260.51	256.87	297.89	302.12	301.10	307.14	305.33	310.18	307.10	311.77	277.68	273.70	273.93	264.03
35.00°	229.01	227.21	221.45	223.86	222.02	262.78	268.37	266.55	274.37	271.53	276.45	272.54	278.24	242.03	238.03	237.32	229.01
37.50°	194.78	194.03	187.36	191.25	187.19	226.39	231.17	230.77	238.36	234.82	239.99	236.87	241.96	206.28	202.65	203.10	194.78
40.00°	164.08	162.14	158.33	159.28	158.85	192.84	196.04	197.07	202.34	200.95	204.39	202.36	205.38	171.81	170.70	169.09	164.08
42.50°	134.47	137.43	132.12	135.87	131.80	160.88	166.28	164.00	170.89	168.71	174.27	168.02	174.67	144.96	142.08	143.16	134.47
45.00°	114.27	114.23	111.66	113.24	111.83	135.74	139.42	138.16	140.13	141.78	145.43	141.82	144.26	119.74	118.85	117.86	114.27
47.50°	96.21	97.28	93.75	95.94	92.77	113.72	118.63	113.89	119.05	117.27	122.05	116.32	122.39	101.26	99.89	101.23	96.21
50.00°	81.95	81.25	79.59	78.88	79.38	96.34	99.63	96.41	98.73	99.08	100.59	99.28	100.85	84.04	83.56	84.92	81.95
52.50°	68.27	68.03	66.72	67.31	66.43	80.59	83.63	79.98	84.15	83.22	85.22	82.61	85.25	70.69	68.91	71.17	68.27
55.00°	57.55	56.26	55.08	55.88	56.75	68.22	69.81	68.39	70.15	70.35	70.97	70.21	70.03	58.12	57.45	58.08	57.55
57.50°	47.12	47.88	43.76	46.54	47.17	56.76	58.92	57.24	59.21	58.31	59.57	57.99	58.30	47.45	47.68	48.33	47.12
60.00°	37.73	39.38	36.49	37.45	38.37	47.23	48.49	47.50	48.72	48.78	49.17	48.37	47.23	37.77	39.18	38.89	37.73
62.50°	28.42	30.65	29.98	30.33	29.71	38.10	38.58	37.84	39.93	39.75	40.73	39.05	40.21	30.02	31.21	30.64	28.42
65.00°	21.53	22.90	22.90	23.28	22.58	30.99	30.24	30.18	31.48	31.94	32.82	32.13	32.99	22.86	23.30	22.91	21.53
67.50°	14.83	16.59	15.75	16.48	15.68	24.14	23.32	22.71	23.92	24.29	25.70	25.14	24.96	16.59	15.42	16.61	14.83
70.00°	9.66	10.63	10.30	10.58	9.78	17.19	16.95	16.63	17.67	17.42	18.49	17.86	17.60	11.00	10.15	10.77	9.66
72.50°	5.64	4.96	5.92	6.44	5.52	10.80	10.84	11.05	13.15	11.09	11.19	11.76	11.36	5.96	5.76	5.54	5.64
75.00°	3.48	3.81	4.30	4.22	3.34	5.90	6.79	6.27	7.90	6.22	6.88	6.99	6.60	4.10	3.94	3.26	3.48
77.50°	2.71	2.96	2.91	2.97	2.82	3.92	3.96	3.78	3.68	3.69	3.96	4.45	3.33	3.14	2.76	2.10	2.71
80.00°	2.38	1.61	1.91	2.01	2.24	2.98	2.58	2.55	2.64	2.35	2.64	2.91	2.90	2.88	2.20	1.50	2.38
82.50°	2.01	1.45	1.49	1.62	1.50	2.22	1.93	2.09	2.33	1.79	1.85	2.28	2.16	2.25	2.11	1.34	2.01
85.00°	1.19	1.33	1.27	1.73	1.34	1.97	1.50	1.43	1.51	1.95	1.34	1.82	1.91	1.39	1.17	0.87	1.19
87.50°	1.14	0.96	1.00	1.45	1.39	1.30	1.37	1.53	1.27	1.32	1.49	1.36	1.16	1.29	1.10	0.96	1.14
90.00°	1.02	0.36	0.83	0.59	0.75	0.77	0.51	1.20	0.55	1.06	0.52	1.10	1.13	0.51	0.95	0.35	1.02
92.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	0	818	818	818	818	799	799	799	799	763	763	763	731	731	731	701	701	687
	1	769	746	725	706	752	731	712	695	703	687	673	677	664	653	653	643	630
	2	719	678	643	614	703	665	634	607	642	616	594	621	600	581	602	584	572
	3	672	617	574	541	657	607	568	536	588	555	527	570	542	519	554	530	520
	4	628	564	517	481	614	555	512	478	539	502	472	525	492	466	511	483	474
	5	587	517	468	431	575	510	464	429	497	456	425	484	449	421	473	442	433
	6	550	476	426	390	539	470	423	389	459	417	386	448	411	383	438	406	398
	7	517	440	390	355	506	435	388	354	425	383	352	416	378	350	408	374	367
	8	486	408	359	325	477	404	357	324	395	353	323	388	349	321	380	346	340
	9	458	380	332	299	450	376	330	299	369	327	298	362	324	296	356	321	316
	10	433	355	308	277	425	352	307	276	345	304	275	340	301	275	334	299	294

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	15.3 fc	7.6 ft
6.5 ft	11.0 fc	8.9 ft
7.5 ft	8.2 fc	10.3 ft
8.0 ft	7.2 fc	11.0 ft
10.0 ft	4.6 fc	13.8 ft
12.0 ft	3.2 fc	16.5 ft
14.0 ft	2.4 fc	19.3 ft
16.0 ft	1.8 fc	22.0 ft
20.0 ft	1.2 fc	27.5 ft
24.0 ft	0.8 fc	33.0 ft
28.0 ft	0.6 fc	38.5 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	58,315	58,315	58,315
45.00°	20,337	19,874	19,903
55.00°	12,627	12,084	12,452
65.00°	6,410	6,819	6,724
75.00°	1,690	2,093	1,626
85.00°	1,717	1,831	1,939

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	17.1	18.4	17.5	18.7	19.0	18.3	19.6	18.7	19.9	20.2
	3H	17.5	18.6	17.9	18.9	19.3	18.9	20.0	19.3	20.4	20.7
	4H	17.5	18.5	17.9	18.9	19.2	18.9	20.0	19.3	20.3	20.7
	6H	17.4	18.4	17.8	18.7	19.1	18.9	19.8	19.3	20.2	20.6
	8H	17.4	18.3	17.8	18.7	19.1	18.8	19.7	19.3	20.1	20.5
	12H	17.4	18.2	17.8	18.6	19.0	18.8	19.7	19.2	20.1	20.5
4H	2H	17.3	18.4	17.7	18.7	19.1	18.6	19.6	19.0	20.0	20.4
	3H	17.7	18.5	18.1	18.9	19.4	19.3	20.1	19.7	20.5	20.9
	4H	17.7	18.4	18.1	18.8	19.3	19.3	20.1	19.7	20.5	20.9
	6H	17.6	18.3	18.1	18.7	19.2	19.3	19.9	19.7	20.4	20.9
	8H	17.6	18.2	18.1	18.7	19.1	19.3	19.9	19.7	20.3	20.8
	12H	17.6	18.1	18.1	18.6	19.1	19.2	19.8	19.7	20.2	20.7
8H	4H	17.6	18.2	18.0	18.6	19.1	19.3	19.9	19.7	20.3	20.8
	6H	17.5	18.0	18.0	18.5	19.0	19.2	19.7	19.7	20.2	20.7
	8H	17.5	18.0	18.0	18.5	19.0	19.2	19.6	19.7	20.2	20.7
	12H	17.5	17.9	18.0	18.4	19.0	19.2	19.6	19.7	20.1	20.7
12H	4H	17.5	18.1	18.0	18.5	19.0	19.2	19.7	19.7	20.2	20.7
	6H	17.5	17.9	18.0	18.4	18.9	19.2	19.6	19.7	20.1	20.6
	8H	17.5	17.9	18.0	18.4	18.9	19.2	19.6	19.7	20.1	20.6

Corrected UGR values based on total output lumens

SHR = 1.0