

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CR2 835 05 xx xx RD2SP RB2BS xx xx
Nom 2.5 inch dia CR2 cylinder with black bezel and spot optic

Test Number

SP-01269

Test Date

9/21/2021

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

Summary of Results

Power

Input Watts	7 W
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Lumen Output

Output Lumens	690
Efficacy	98.54 lm/W

Luminous Dimensions

0° - 180° Size	-0.21
90° - 270° Size	-0.21
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.33
Two luminaires, plane 90°	0.38
Four luminaires	0.34

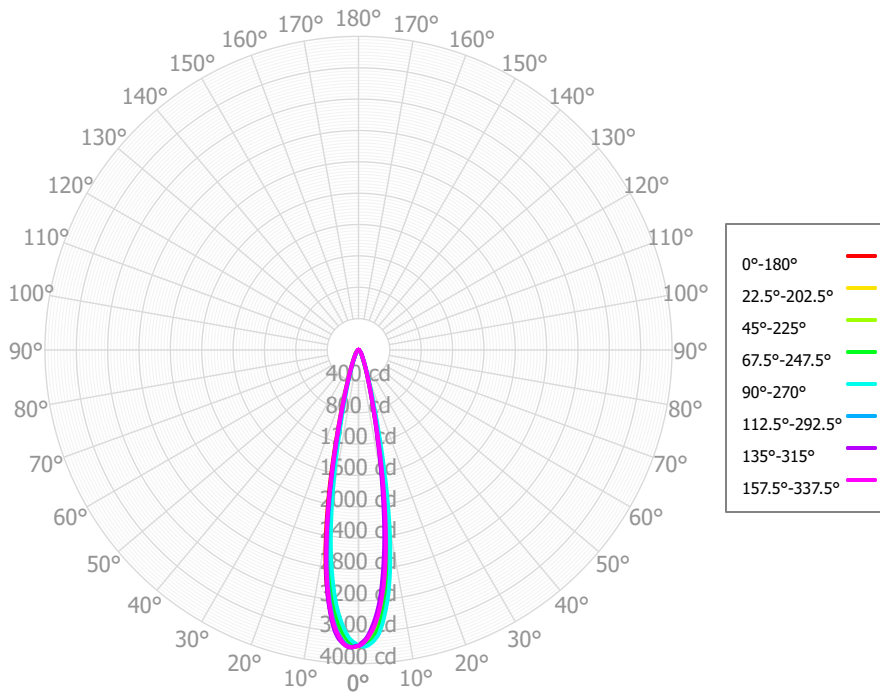
Full Beam Angle

0° - 180°	21°
90° - 270°	21°

IES File Header Contents

Keyword	Value
TEST	SP-01269
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	9/21/2021
ISSUEDATE	11/5/2021
LUMCAT	CR2 835 05 xx xx RD2SP RB2BS xx xx
LUMINAIRE	Nom 2.5 inch dia CR2 cylinder with black bezel and spot optic
OTHER	Beam Angle: 21 deg
LAMPCAT	N/A
LAMP	N/A, 6mm LES
OTHER	80 CRI, 35K tested
OTHER	CCT Output Multipliers: 822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0
OTHER	CCT Output Multipliers: 927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	280.32	40.64%	90.00° - 100.00°	1.10	0.16%
10.00° - 20.00°	237.57	34.44%	100.00° - 110.00°	1.08	0.16%
20.00° - 30.00°	79.07	11.46%	100.00° - 120.00°	2.12	0.31%
30.00° - 40.00°	42.69	6.19%	120.00° - 130.00°	0.98	0.14%
40.00° - 50.00°	26.29	3.81%	130.00° - 140.00°	0.91	0.13%
50.00° - 60.00°	11.61	1.68%	140.00° - 150.00°	0.76	0.11%
60.00° - 70.00°	3.05	0.44%	150.00° - 160.00°	0.55	0.08%
70.00° - 80.00°	1.25	0.18%	160.00° - 170.00°	0.33	0.05%
80.00° - 90.00°	1.10	0.16%	170.00° - 180.00°	0.11	0.02%
0.00° - 90.00°	682.94	99.01%	0.00° - 180.00°	689.79	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°	3774.31	3774.31	3774.31	3774.31	3774.31	3774.31	3774.31	3774.31	3774.31	3774.31	3774.31	3774.31	3774.31	3774.31	3774.31	3774.31	3774.31
0.50°	3758.18	3769.45	3771.21	3779.56	3776.13	3778.09	3775.72	3786.67	3784.04	3788.93	3788.23	3775.06	3747.05	3757.38	3740.89	3763.51	3758.18
1.00°	3731.10	3751.58	3755.11	3777.97	3786.65	3782.67	3792.06	3790.75	3785.73	3785.77	3780.63	3761.70	3727.04	3736.95	3715.07	3738.74	3731.10
1.50°	3694.32	3729.75	3737.44	3768.00	3779.33	3785.14	3796.78	3792.11	3785.62	3771.09	3766.52	3742.61	3700.34	3704.65	3682.21	3704.65	3694.32
2.00°	3652.79	3705.40	3710.26	3746.77	3765.56	3774.23	3791.05	3784.54	3784.00	3753.04	3747.82	3710.18	3664.78	3661.23	3634.32	3662.19	3652.79
2.50°	3607.33	3666.19	3674.03	3715.65	3742.55	3753.52	3775.64	3770.28	3768.14	3731.36	3723.27	3671.26	3613.63	3611.72	3574.97	3615.15	3607.33
3.00°	3553.06	3618.82	3622.03	3672.69	3716.70	3720.71	3752.63	3740.14	3741.96	3700.42	3695.06	3626.90	3557.07	3557.22	3508.71	3564.44	3553.06
3.50°	3492.43	3555.01	3556.62	3624.85	3680.13	3680.18	3723.07	3699.44	3703.42	3660.77	3650.49	3580.22	3492.14	3494.52	3437.85	3501.09	3492.43
4.00°	3415.12	3483.20	3483.05	3571.89	3640.86	3630.89	3689.02	3650.28	3657.07	3605.04	3597.01	3519.30	3421.82	3425.95	3357.60	3428.88	3415.12
4.50°	3327.29	3405.09	3403.42	3504.38	3575.70	3576.66	3638.21	3596.22	3603.77	3536.07	3529.90	3453.21	3344.14	3338.42	3271.81	3344.01	3327.29
5.00°	3231.87	3324.35	3308.21	3423.48	3505.28	3505.10	3577.38	3528.78	3546.58	3459.20	3456.39	3368.79	3255.81	3239.08	3166.42	3251.42	3231.87
5.50°	3132.21	3221.74	3202.91	3330.59	3419.93	3425.08	3495.12	3454.66	3471.77	3376.64	3376.10	3278.80	3154.82	3127.93	3051.00	3151.79	3132.21
6.00°	3018.96	3111.41	3079.34	3228.05	3332.14	3327.52	3401.52	3360.37	3388.44	3281.45	3293.10	3182.81	3046.08	3010.26	2924.39	3048.44	3018.96
6.50°	2899.15	2981.78	2945.48	3118.59	3233.65	3222.60	3300.28	3257.43	3289.56	3178.17	3185.76	3085.32	2929.26	2884.53	2792.87	2928.07	2899.15
7.00°	2760.67	2846.47	2803.98	3004.16	3133.87	3106.68	3195.58	3145.23	3184.24	3057.30	3069.98	2968.98	2806.46	2754.96	2654.91	2799.76	2760.67
7.50°	2614.50	2703.12	2658.68	2873.91	3007.89	2986.86	3072.26	3029.56	3072.97	2926.66	2942.96	2848.72	2678.09	2612.56	2514.50	2656.60	2614.50
8.00°	2460.36	2557.76	2506.18	2733.76	2879.80	2850.80	2941.71	2902.03	2959.60	2788.15	2812.68	2711.36	2538.16	2464.94	2362.44	2507.52	2460.36
8.50°	2303.43	2403.05	2350.61	2582.84	2734.77	2709.79	2794.94	2770.77	2828.97	2645.87	2673.66	2571.24	2388.80	2313.21	2206.62	2353.87	2303.43
9.00°	2141.51	2246.47	2188.45	2426.08	2589.01	2553.22	2642.85	2620.90	2693.13	2499.09	2532.58	2424.48	2235.26	2160.06	2047.18	2198.69	2141.51
9.50°	1978.11	2082.01	2023.91	2266.12	2431.37	2392.74	2483.49	2466.22	2542.98	2350.47	2378.66	2276.94	2078.74	2010.35	1886.77	2038.33	1978.11
10.00°	1814.14	1916.35	1865.92	2104.65	2273.31	2231.01	2322.10	2308.70	2389.29	2193.40	2222.31	2118.10	1921.91	1861.67	1735.55	1876.51	1814.14
10.50°	1650.03	1759.29	1709.91	1936.48	2102.80	2069.03	2161.75	2150.59	2229.57	2033.33	2065.00	1958.37	1764.89	1713.27	1586.32	1716.21	1650.03
11.00°	1497.66	1603.20	1561.38	1765.56	1932.29	1906.04	2001.63	1988.92	2068.65	1876.59	1907.54	1799.76	1611.85	1564.95	1444.99	1556.27	1497.66
11.50°	1347.60	1460.37	1414.77	1602.81	1762.72	1742.89	1840.53	1826.64	1910.05	1720.85	1756.30	1641.21	1461.01	1426.71	1305.02	1411.89	1347.60
12.00°	1220.13	1318.57	1281.02	1442.89	1592.96	1581.74	1679.25	1662.43	1751.80	1573.04	1605.73	1493.80	1322.60	1290.44	1181.80	1270.42	1220.13
12.50°	1096.09	1191.70	1149.95	1301.46	1443.56	1420.84	1529.05	1497.98	1594.86	1427.18	1462.31	1346.88	1190.08	1172.45	1060.79	1149.47	1096.09
13.00°	991.72	1065.44	1040.44	1165.38	1296.13	1280.90	1380.34	1353.23	1438.06	1294.31	1319.37	1216.33	1076.06	1057.18	963.74	1031.45	991.72
13.50°	889.62	966.49	934.41	1049.62	1164.03	1142.63	1250.09	1210.17	1299.10	1163.99	1193.88	1087.28	969.55	960.57	868.88	934.33	889.62
14.00°	806.41	868.23	847.41	938.68	1035.80	1029.26	1121.70	1091.62	1161.50	1052.02	1068.94	984.32	877.52	866.06	790.52	839.31	806.41
14.50°	724.63	788.54	762.66	845.48	930.05	916.95	1009.37	974.25	1048.75	942.93	970.37	883.22	790.46	786.78	713.03	762.57	724.63
15.00°	662.84	709.78	692.21	755.74	829.32	824.83	898.04	878.90	936.98	855.55	872.38	802.82	718.15	708.60	651.95	687.05	662.84
15.50°	601.82	646.81	622.96	688.05	751.39	733.44	813.50	784.29	847.21	770.66	790.23	724.36	650.18	648.98	591.34	629.57	601.82
16.00°	553.51	585.08	570.22	623.66	677.37	667.02	729.78	710.99	758.07	701.08	709.42	660.76	596.40	590.03	544.15	572.67	553.51
16.50°	505.44	536.14	518.25	568.87	617.76	601.36	663.34	638.65	690.61	632.65	648.50	599.20	546.06	543.27	497.34	526.91	505.44
17.00°	464.93	488.37	476.32	515.10	560.57	549.07	597.46	585.08	624.03	578.27	588.79	549.29	503.43	496.77	458.83	481.49	464.93
17.50°	424.92	449.17	434.65	472.36	511.05	497.76	546.51	532.24	572.30	524.41	540.38	501.45	462.28	459.08	420.86	445.21	424.92
18.00°	393.31	410.89	398.99	430.37	464.61	456.68	496.22	487.66	521.40	482.61	493.02	462.82	428.19	421.80	389.48	409.31	393.31
18.50°	362.22	377.71	363.76	395.25	426.35	416.48	454.79	444.11	478.97	441.14	453.00	425.68	395.14	390.93	358.65	379.09	362.22
19.00°	336.47	345.86	336.58	360.39	390.70	382.85	414.36	409.01	437.58	408.85	414.34	394.14	366.96	360.64	332.63	349.54	336.47
19.50°	311.30	319.99	309.72	331.78	360.97	350.24	382.83	375.16	403.67	376.78	383.00	363.61	339.33	336.02	307.54	326.19	311.30
20.00°	290.20	295.25	286.46	303.35	332.02	323.55	351.89	348.86	371.18	348.42	352.86	336.22	317.04	311.77	288.27	303.20	290.20
20.50°	269.71	274.59	263.67	280.29	304.60	297.44	324.81	323.01	346.71	320.67	327.77	310.74	295.13	290.23	269.39	282.59	269.71
21.00°	252.61	254.83	244.54	257.57	279.53	273.96	298.55	299.27	322.72	299.05	303.45	290.30	276.11	269.52	252.30	262.68	252.61
21.50°	236.05	237.79	226.04	239.92	258.53	252.04	276.47	276.63	300.82	277.79	281.76	270.78	257.19	253.40	235.65	246.33	236.05
22.00°	221.83	221.37	211.12	222.46	238.94	235.79	255.37	258.23	279.38	259.21	261.22	253.32	241.57	237.43	220.76	230.61	221.83
22.50°	207.68	206.58	196.87	206.87	221.47	219.57	238.22	240.59	259.57	241.10	244.07	236.62	225.96	222.11	206.40	217.57	207.68

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	820	820	820	820	800	800	800	800	763	763	763	729	729	729	698	698	683
	1	790	774	760	748	773	759	747	735	730	720	712	704	696	689	679	674	660
	2	762	735	713	695	747	723	703	687	700	685	671	679	667	656	660	650	637
	3	735	701	675	654	722	692	668	648	674	654	637	657	641	627	641	628	616
	4	711	672	643	621	700	664	638	617	649	627	609	636	617	602	623	608	596
	5	689	646	616	594	678	640	612	591	628	604	585	616	596	580	606	589	578
	6	668	623	593	571	659	618	589	569	608	583	565	598	577	561	590	571	561
	7	649	602	572	551	641	598	569	549	589	564	546	582	560	543	574	555	546
	8	631	584	554	533	624	580	552	532	573	548	530	566	544	528	560	540	532
	9	614	567	538	518	608	564	536	517	558	533	515	552	529	513	547	526	519
	10	599	551	523	504	593	549	522	503	543	519	502	539	516	500	534	514	506

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	124.8 fc	2.0 ft
6.5 ft	89.3 fc	2.4 ft
7.5 ft	67.1 fc	2.8 ft
8.0 ft	59.0 fc	2.9 ft
10.0 ft	37.7 fc	3.7 ft
12.0 ft	26.2 fc	4.4 ft
14.0 ft	19.3 fc	5.2 ft
16.0 ft	14.7 fc	5.9 ft
20.0 ft	9.4 fc	7.4 ft
24.0 ft	6.6 fc	8.8 ft
28.0 ft	4.8 fc	10.3 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	1172949	1172949	1172949
45.00°	14108	12638	12035
55.00°	6337	6598	6626
65.00°	2039	2134	2147
75.00°	1144	1142	1972
85.00°	3211	4989	5018

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	8.7	9.6	9.1	10.0	10.3	8.9	9.9	9.3	10.2	10.6
	3H	8.7	9.6	9.1	9.9	10.3	9.0	9.8	9.4	10.2	10.6
	4H	8.7	9.5	9.2	9.9	10.3	9.1	9.9	9.5	10.2	10.6
	6H	8.8	9.6	9.3	10.0	10.4	9.2	9.9	9.6	10.3	10.7
	8H	8.9	9.6	9.4	10.0	10.5	9.2	9.9	9.7	10.3	10.8
	12H	9.1	9.7	9.5	10.1	10.6	9.5	10.1	9.9	10.5	11.0
4H	2H	8.6	9.3	9.0	9.7	10.1	8.8	9.6	9.3	10.0	10.4
	3H	8.7	9.3	9.1	9.8	10.2	9.0	9.6	9.4	10.0	10.5
	4H	8.7	9.3	9.2	9.7	10.2	9.1	9.6	9.5	10.1	10.6
	6H	9.0	9.4	9.4	9.9	10.4	9.3	9.8	9.8	10.2	10.7
	8H	9.1	9.6	9.6	10.1	10.6	9.4	9.9	9.9	10.4	10.9
	12H	9.4	9.8	9.9	10.3	10.8	9.8	10.2	10.3	10.7	11.2
8H	4H	8.7	9.1	9.1	9.6	10.1	9.0	9.5	9.5	9.9	10.4
	6H	9.0	9.4	9.5	9.9	10.4	9.3	9.7	9.9	10.2	10.7
	8H	9.3	9.6	9.9	10.2	10.7	9.7	10.0	10.2	10.5	11.0
	12H	9.8	10.1	10.4	10.6	11.2	10.3	10.6	10.9	11.1	11.7
12H	4H	8.6	9.0	9.1	9.5	10.0	9.0	9.4	9.5	9.9	10.4
	6H	9.0	9.4	9.6	9.8	10.4	9.4	9.7	9.9	10.2	10.7
	8H	9.5	9.7	10.0	10.3	10.9	9.8	10.1	10.3	10.6	11.2

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0