Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CR2 835 05 xx xx RD2XF RB2BS xx xx

Nom 2.5 inch dia CR2 cylinder with black bezel and xtra wide flood optic

Test Number

SP-01271

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

Lumen Output

Output Lumens	804
Efficacy	114.8 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.93
Two luminaires, plane 90°	0.9
Four luminaires	0.83

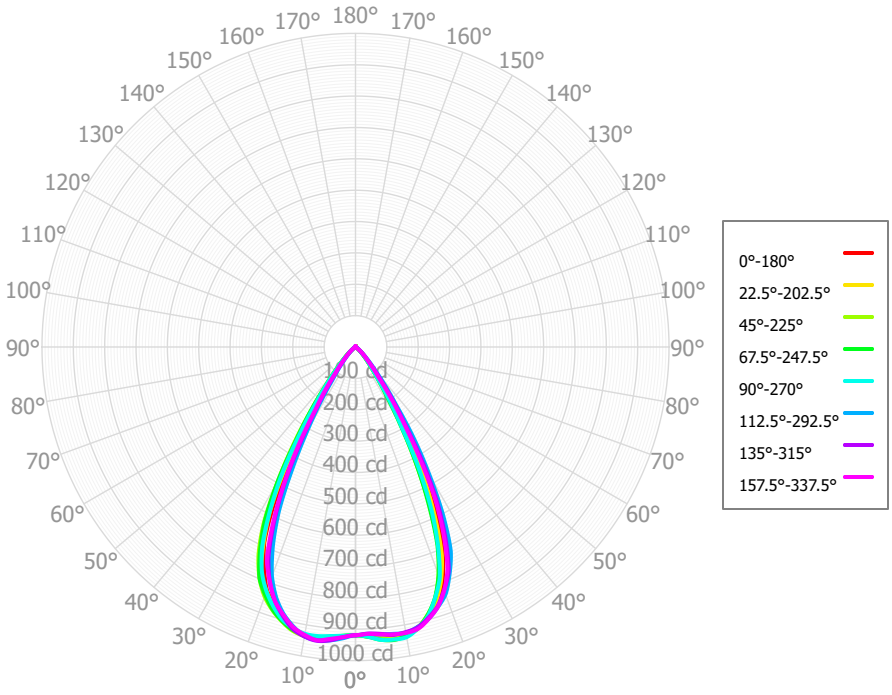
Full Beam Angle

0° - 180°	57°
90° - 270°	57°

IES File Header Contents

Keyword	Value
TEST	SP-01271
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 RD2XF RB2BS xx xx
LUMINAIRE	Nom 2.5 inch dia CR2 cylinder with black bezel and xtra wide flood optic
OTHER	Beam Angle: 57 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°	90.31	11.24%	90.00° - 100.00°	1.78	0.22%
10.00° - 20.00°	249.02	30.99%	100.00° - 110.00°	1.71	0.21%
20.00° - 30.00°	284.33	35.38%	100.00° - 120.00°	3.34	0.42%
30.00° - 40.00°	121.68	15.14%	120.00° - 130.00°	1.42	0.18%
40.00° - 50.00°	32.35	4.02%	130.00° - 140.00°	1.28	0.16%
50.00° - 60.00°	8.67	1.08%	140.00° - 150.00°	1.11	0.14%
60.00° - 70.00°	3.18	0.40%	150.00° - 160.00°	0.84	0.10%
70.00° - 80.00°	1.87	0.23%	160.00° - 170.00°	0.52	0.06%
80.00° - 90.00°	1.76	0.22%	170.00° - 180.00°	0.17	0.02%
0.00° - 90.00°	793.15	98.70%	0.00° - 180.00°	803.62	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°	919.41	919.41	919.41	919.41	919.41	919.41	919.41	919.41	919.41	919.41	919.41	919.41	919.41	919.41	919.41	919.41	919.41
2.50°	918.80	920.10	924.94	925.47	925.09	930.03	926.65	926.68	924.61	923.02	921.75	922.85	921.65	916.37	914.97	916.05	918.80
5.00°	922.41	930.80	932.18	937.63	937.72	939.29	939.29	934.68	935.54	930.03	931.21	927.60	925.50	920.02	918.64	920.51	922.41
7.50°	930.82	937.11	941.23	942.42	941.07	942.94	945.15	943.09	938.18	938.37	936.68	934.41	929.89	922.92	926.02	924.22	930.82
10.00°	930.65	932.45	934.09	935.54	939.71	937.19	937.64	932.49	936.63	931.29	935.86	931.88	928.92	925.48	923.34	926.02	930.65
12.50°	915.68	920.38	917.94	918.66	919.52	913.62	921.86	915.60	919.84	918.92	927.03	924.15	918.71	914.80	916.21	920.91	915.68
15.00°	893.33	890.96	885.49	886.80	889.99	882.98	890.15	885.71	895.74	895.60	906.19	904.42	900.40	898.19	895.24	899.01	893.33
17.50°	858.92	853.19	844.45	841.13	841.95	839.67	851.18	851.80	862.90	868.77	880.38	878.38	868.87	871.12	868.50	870.72	858.92
20.00°	807.77	796.34	774.11	775.55	785.24	779.15	799.00	797.76	825.98	829.66	847.37	841.60	829.85	839.62	825.54	827.25	807.77
22.50°	729.88	719.89	688.71	682.40	688.42	689.38	725.25	737.93	762.96	786.72	799.85	799.31	779.26	784.19	776.22	766.71	729.88
25.00°	627.66	601.15	562.72	550.89	573.89	578.57	614.35	625.29	688.42	695.99	732.14	721.42	704.45	719.24	682.15	668.06	627.66
27.50°	488.56	475.49	417.02	418.68	438.90	432.79	491.83	497.92	563.76	591.35	634.13	626.24	592.93	605.24	571.02	554.49	488.56
30.00°	358.82	335.72	296.79	285.55	295.11	304.68	349.76	369.37	418.27	454.19	496.06	497.58	471.24	472.24	437.65	409.53	358.82
32.50°	242.56	219.23	188.24	184.81	201.22	204.41	233.51	240.51	300.26	308.25	366.83	353.56	334.91	348.00	296.32	282.13	242.56
35.00°	154.29	148.34	125.60	124.79	127.56	129.02	158.47	167.28	193.40	214.87	248.69	247.41	225.67	226.94	204.86	190.87	154.29
37.50°	105.40	93.15	83.49	81.71	88.02	90.79	101.72	107.35	131.60	135.24	160.11	158.18	153.41	155.41	130.11	118.62	105.40
40.00°	69.05	67.52	59.25	59.49	61.49	61.17	72.66	76.34	86.97	93.89	107.88	106.39	99.56	100.75	88.82	83.31	69.05
42.50°	49.44	46.68	42.53	41.80	44.86	44.12	50.17	52.01	60.70	61.81	70.18	70.37	69.58	69.71	58.42	54.99	49.44
45.00°	34.34	34.38	30.60	29.42	31.91	30.68	37.27	37.92	40.98	43.80	49.48	48.35	46.25	46.49	41.62	39.52	34.34
47.50°	24.97	24.31	20.57	20.44	23.48	22.26	26.64	26.00	29.38	28.93	33.27	31.87	31.35	31.67	28.95	26.58	24.97
50.00°	17.20	18.01	14.67	15.25	16.63	15.75	19.20	18.83	20.61	20.57	22.04	21.76	20.11	19.46	20.08	18.19	17.20
52.50°	11.41	12.61	10.38	11.20	11.90	11.77	13.31	12.58	14.37	13.61	14.02	14.11	13.31	13.76	12.28	11.51	11.41
55.00°	7.19	8.71	8.29	8.39	7.88	8.48	9.46	9.04	8.95	9.66	9.49	9.72	8.78	9.95	8.16	7.75	7.19
57.50°	4.84	5.89	7.01	6.15	5.92	6.09	6.57	6.01	6.66	6.31	6.62	6.52	6.86	7.45	5.05	5.05	4.84
60.00°	3.38	4.76	5.53	4.50	4.61	4.32	4.89	4.72	5.32	5.17	5.47	5.07	5.30	5.31	3.96	4.09	3.38
62.50°	2.93	3.69	3.97	3.38	3.81	3.31	3.78	3.73	4.34	4.43	4.40	4.22	4.15	4.33	3.38	3.28	2.93
65.00°	2.71	2.72	3.15	2.79	3.16	2.61	3.39	2.88	3.47	3.52	3.40	3.65	3.20	3.66	2.92	2.68	2.71
67.50°	2.73	2.09	2.58	2.23	2.36	2.26	2.94	2.06	2.83	2.59	2.71	3.16	2.44	2.73	2.50	2.14	2.73
70.00°	2.65	1.97	2.23	1.70	1.53	2.12	2.42	1.76	2.25	2.37	2.34	2.32	1.96	1.74	2.17	1.70	2.65
72.50°	2.46	1.89	1.96	1.59	1.40	2.20	1.96	1.54	2.02	2.27	2.04	1.37	1.75	1.69	1.87	1.42	2.46
75.00°	2.15	1.90	1.69	1.87	1.45	2.10	1.58	1.43	1.87	1.87	1.80	1.40	1.63	1.85	1.73	1.37	2.15
77.50°	1.72	1.89	1.42	1.88	1.66	1.81	1.25	1.32	1.89	1.43	1.71	1.72	1.61	2.09	1.62	1.33	1.72
80.00°	1.49	1.86	1.43	1.64	1.91	1.78	0.99	1.20	1.95	1.49	1.73	1.70	1.63	2.34	1.51	1.29	1.49
82.50°	1.45	1.76	1.51	1.56	1.71	2.04	1.10	1.07	1.69	1.62	1.75	1.59	1.69	1.91	1.40	1.27	1.45
85.00°	1.44	1.58	1.59	1.62	1.42	2.09	1.58	1.45	1.35	1.91	1.77	1.49	1.71	1.35	1.36	1.27	1.44
87.50°	1.46	1.48	1.68	1.64	1.52	1.93	1.80	1.88	1.71	2.21	1.82	1.40	1.71	1.66	1.34	1.25	1.46
90.00°	1.43	1.49	1.76	1.64	1.70	1.78	1.77	1.53	2.21	1.89	1.91	1.63	1.68	2.11	1.43	1.23	1.43
92.50°	1.36	1.59	1.83	1.63	1.61	1.65	1.71	1.11	2.00	1.51	1.92	1.94	1.64	1.96	1.54	1.21	1.36
95.00°	1.35	1.78	1.82	1.63	1.45	1.63	1.64	1.48	1.64	1.46	1.89	1.87	1.69	1.71	1.46	1.18	1.35
97.50°	1.39	1.84	1.80	1.64	1.63	1.71	1.55	1.92	1.61	1.45	2.01	1.71	1.82	1.45	1.36	1.20	1.39
100.00°	1.54	1.75	1.76	1.65	1.87	1.70	1.45	1.60	1.63	1.44	2.26	1.93	1.81	1.18	1.24	1.27	1.54
102.50°	1.80	1.69	1.71	1.62	1.95	1.63	1.48	1.23	1.63	1.43	2.12	2.22	1.68	1.26	1.11	1.34	1.80
105.00°	1.75	1.67	1.62	1.56	2.00	1.60	1.63	1.51	1.63	1.56	1.71	1.84	1.60	1.39	1.30	1.41	1.75
107.50°	1.47	1.75	1.53	1.66	1.89	1.60	1.68	1.83	1.74	1.70	1.65	1.33	1.55	1.47	1.53	1.44	1.47
110.00°	1.51	1.95	1.55	1.87	1.74	1.62	1.64	1.67	1.86	1.52	1.83	1.51	1.58	1.55	1.41	1.43	1.51
112.50°	1.79	1.99	1.60	1.78	1.59	1.65	1.64	1.49	1.79	1.31	1.86	1.82	1.66	1.65	1.26	1.48	1.79

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	954	954	954	954	931	931	931	931	887	887	887	847	847	847	810	810	810	793
	1	910	888	869	851	889	870	852	836	836	822	809	804	793	783	775	766	758	750
	2	867	829	797	771	848	814	785	761	786	763	743	761	742	725	738	722	709	707
	3	825	775	736	706	808	763	728	699	741	711	687	720	695	675	701	681	663	667
	4	786	727	684	651	770	717	677	647	699	665	638	682	653	630	666	641	621	629
RCR	5	748	683	638	605	734	675	633	601	660	623	595	645	614	589	632	605	583	593
	6	712	644	597	564	700	637	593	562	624	586	557	612	578	553	600	571	548	561
	7	679	607	561	528	668	602	558	526	591	551	523	580	546	520	571	540	516	530
	8	648	574	528	496	638	569	525	495	560	520	492	551	516	490	543	511	487	502
	9	619	544	498	468	610	540	496	466	532	492	464	524	488	462	517	484	460	476
	10	591	516	471	442	583	513	470	441	506	466	439	499	463	437	492	460	436	453

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	30.4 fc	5.7 ft
6.5 ft	21.8 fc	6.7 ft
7.5 ft	16.3 fc	7.8 ft
8.0 ft	14.4 fc	8.3 ft
10.0 ft	9.2 fc	10.3 ft
12.0 ft	6.4 fc	12.4 ft
14.0 ft	4.7 fc	14.5 ft
16.0 ft	3.6 fc	16.5 ft
20.0 ft	2.3 fc	20.7 ft
24.0 ft	1.6 fc	24.8 ft
28.0 ft	1.2 fc	29.0 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	285726	285726	285726
45.00°	15093	13448	14023
55.00°	3898	4493	4268
65.00°	1992	2317	2321
75.00°	2578	2032	1738
85.00°	5125	5673	5072

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	4.8	5.8	5.2	6.1	6.5	6.0	6.9	6.3	7.2	7.6
	3H	5.7	6.6	6.2	6.9	7.3	6.6	7.4	7.0	7.8	8.2
	4H	6.4	7.2	6.8	7.5	8.0	6.9	7.6	7.3	8.0	8.5
	6H	7.1	7.8	7.5	8.2	8.6	7.5	8.2	8.0	8.6	9.1
	8H	7.5	8.1	7.9	8.5	9.0	8.0	8.7	8.5	9.1	9.6
	12H	8.0	8.7	8.5	9.1	9.5	8.7	9.3	9.1	9.7	10.2
4H	2H	5.1	5.8	5.5	6.2	6.6	6.1	6.9	6.6	7.3	7.7
	3H	6.1	6.8	6.6	7.2	7.6	7.0	7.6	7.4	8.0	8.5
	4H	6.9	7.5	7.4	7.9	8.4	7.4	8.0	7.9	8.4	8.9
	6H	7.8	8.3	8.3	8.8	9.3	8.4	8.8	8.8	9.3	9.8
	8H	8.4	8.8	8.9	9.3	9.8	9.0	9.5	9.5	10.0	10.5
	12H	9.2	9.6	9.7	10.1	10.6	9.9	10.3	10.4	10.8	11.3
8H	4H	7.1	7.6	7.6	8.0	8.5	7.6	8.0	8.1	8.5	9.0
	6H	8.3	8.7	8.9	9.2	9.7	8.8	9.1	9.3	9.7	10.2
	8H	9.1	9.4	9.7	10.0	10.5	9.7	10.1	10.3	10.6	11.1
	12H	10.2	10.4	10.7	11.0	11.6	10.9	11.2	11.5	11.7	12.3
12H	4H	7.2	7.6	7.7	8.1	8.6	7.6	8.0	8.1	8.5	9.0
	6H	8.5	8.8	9.0	9.3	9.9	8.9	9.2	9.5	9.7	10.3
	8H	9.4	9.7	10.0	10.2	10.8	10.0	10.3	10.5	10.8	11.4

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0