

## Indoor Distribution Test Report

# Spectrum Lighting Inc.

994 Jefferson Street  
Fall River, MA 02721  
+1.508.678.2303

## Spectrum Lighting Photometric Lab

### Luminaire

CR2 835 10 xx xx RD2XS RB2BS xx xx

Nom 2.5 inch dia CR2 cylinder with black bezel and xtra narrow spot optic

### Test Number

SP-01272\_1

### Test Date

9/21/2021

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

### Summary of Results

#### Power

Input Watts	12.5 W
-------------	--------

#### Lumen Output

Output Lumens	1050
Efficacy	84.04 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.22
Two luminaires, plane 90°	0.2
Four luminaires	0.23

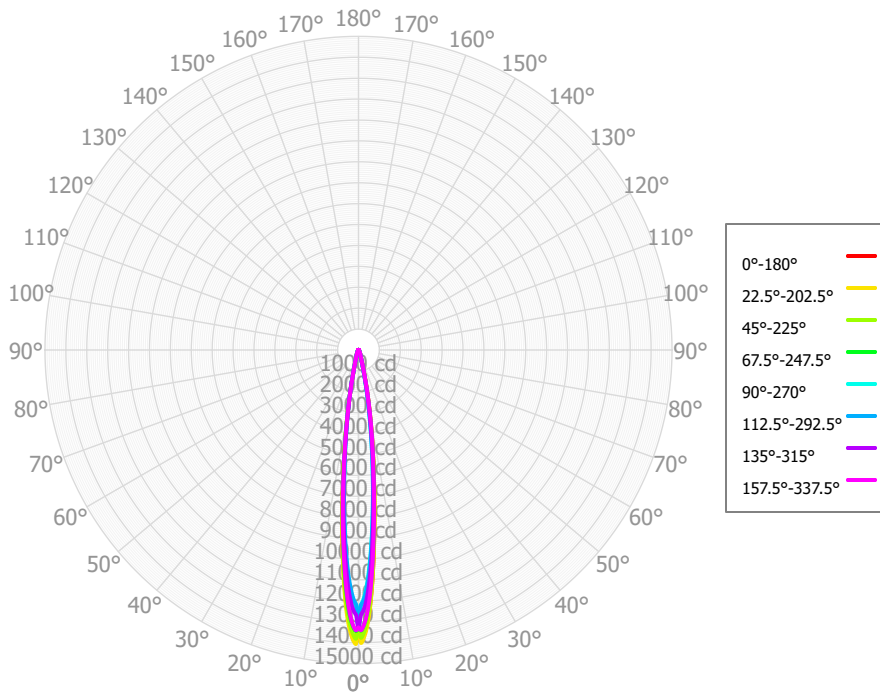
#### Full Beam Angle

0° - 180°	12°
90° - 270°	11°

### IES File Header Contents

Keyword	Value
TEST	SP-01272_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	9/21/2021
ISSUEDATE	11/5/2021
LUMCAT	CR2 835 10 xx xx RD2XS RB2BS xx xx
LUMINAIRE	Nom 2.5 inch dia CR2 cylinder with black bezel and xtra narrow spot optic
OTHER	Beam Angle: 12 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°	615.55	58.60%	90.00° - 100.00°	1.47	0.14%
10.00° - 20.00°	237.72	22.63%	100.00° - 110.00°	1.36	0.13%
20.00° - 30.00°	79.44	7.56%	100.00° - 120.00°	2.62	0.25%
30.00° - 40.00°	53.76	5.12%	120.00° - 130.00°	1.10	0.11%
40.00° - 50.00°	33.49	3.19%	130.00° - 140.00°	1.06	0.10%
50.00° - 60.00°	14.82	1.41%	140.00° - 150.00°	0.99	0.09%
60.00° - 70.00°	4.21	0.40%	150.00° - 160.00°	0.76	0.07%
70.00° - 80.00°	1.53	0.15%	160.00° - 170.00°	0.41	0.04%
80.00° - 90.00°	1.41	0.13%	170.00° - 180.00°	0.14	0.01%
0.00° - 90.00°	1041.93	99.19%	0.00° - 180.00°	1050.48	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°
0.00°	13281.58	13281.58	13281.58	13281.58	13281.58	13281.58	13281.58	13281.58	13281.58	13281.58	13281.58	13281.58	13281.58	13281.58	13281.58	13281.58
0.50°	13898.90	14020.20	13774.51	13426.81	12223.98	12195.33	12693.85	13411.29	13934.78	14070.27	13819.14	13447.74	12279.35	12226.29	12685.75	13409.08
1.00°	13697.44	13811.14	13574.17	13225.44	12011.96	12004.94	12515.37	13242.30	13761.47	13907.96	13651.92	13299.71	12123.35	12068.70	12506.98	13221.33
1.50°	13369.39	13474.14	13246.73	12883.95	11697.05	11703.98	12226.44	12946.15	13459.57	13615.89	13362.08	13006.28	11849.29	11787.94	12216.36	12908.35
2.00°	12917.63	13011.78	12785.30	12416.31	11283.22	11307.85	11827.64	12509.80	13035.03	13199.02	12950.20	12598.77	11475.25	11399.91	11812.87	12482.31
2.50°	12345.62	12424.97	12204.24	11852.47	10785.78	10841.36	11344.18	11970.25	12489.84	12664.99	12412.06	12074.43	11000.27	10920.89	11309.57	11953.33
3.00°	11683.67	11729.35	11537.23	11208.27	10229.04	10301.73	10774.54	11348.92	11846.60	12004.56	11765.88	11455.34	10450.88	10363.03	10728.11	11312.78
3.50°	10960.38	10978.58	10808.79	10515.10	9645.40	9721.58	10154.87	10671.12	11127.47	11268.85	11033.88	10759.38	9856.68	9755.80	10089.40	10620.80
4.00°	10189.60	10206.61	10055.71	9801.94	9039.58	9113.13	9504.77	9974.07	10366.23	10485.38	10252.75	10023.13	9225.58	9120.68	9415.25	9911.38
4.50°	9426.94	9433.49	9302.91	9090.15	8423.02	8489.75	8834.69	9264.60	9588.22	9672.50	9463.45	9284.58	8571.33	8470.61	8736.60	9173.64
5.00°	8664.61	8675.67	8568.80	8395.61	7809.76	7858.72	8164.30	8547.71	8799.67	8861.29	8680.77	8534.72	7905.99	7830.07	8066.29	8454.13
5.50°	7935.64	7947.29	7871.90	7724.29	7204.20	7237.23	7504.49	7828.85	8033.87	8054.12	7931.32	7804.31	7260.81	7213.01	7419.36	7756.86
6.00°	7251.35	7268.18	7213.18	7083.65	6618.79	6634.65	6852.25	7132.07	7281.62	7291.51	7230.78	7112.32	6638.48	6622.92	6813.78	7098.96
6.50°	6609.39	6630.15	6592.30	6479.03	6048.33	6050.78	6231.56	6464.90	6566.52	6573.36	6561.84	6453.46	6043.02	6053.55	6241.90	6490.38
7.00°	6033.17	6028.43	6004.85	5908.56	5500.17	5484.85	5627.57	5822.30	5890.86	5896.05	5924.93	5842.33	5481.00	5506.77	5703.28	5919.95
7.50°	5478.49	5460.74	5436.57	5358.91	4980.96	4943.55	5044.36	5214.32	5264.26	5269.81	5328.77	5265.56	4952.78	4984.82	5198.11	5391.31
8.00°	4964.30	4930.47	4908.56	4840.13	4499.20	4441.68	4505.13	4643.74	4692.94	4689.12	4751.27	4717.90	4466.17	4492.78	4721.58	4908.83
8.50°	4488.55	4430.72	4414.91	4356.84	4048.49	3972.63	4008.64	4119.92	4158.81	4146.88	4215.26	4207.94	4007.58	4031.11	4266.32	4451.53
9.00°	4042.51	3967.87	3955.13	3906.77	3619.72	3535.88	3552.65	3640.48	3664.52	3638.34	3707.37	3732.75	3579.14	3596.72	3833.08	4010.88
9.50°	3625.04	3539.95	3524.82	3486.79	3216.46	3132.74	3132.84	3193.50	3222.92	3175.22	3244.75	3285.82	3174.75	3194.47	3423.23	3596.32
10.00°	3217.08	3134.12	3127.24	3087.92	2842.02	2764.60	2749.84	2789.41	2799.93	2763.65	2819.44	2874.67	2791.38	2824.21	3044.95	3202.68
10.50°	2847.78	2764.01	2767.31	2717.07	2496.02	2422.99	2399.40	2416.32	2423.38	2389.43	2434.09	2496.74	2440.43	2478.65	2688.84	2833.14
11.00°	2509.55	2421.93	2431.49	2375.44	2179.52	2109.68	2082.19	2082.07	2083.47	2050.56	2083.62	2149.09	2114.58	2162.21	2360.64	2492.48
11.50°	2195.55	2113.35	2119.79	2067.99	1892.06	1825.76	1793.93	1785.73	1784.74	1750.12	1772.37	1837.00	1820.91	1872.19	2054.04	2180.24
12.00°	1901.68	1831.63	1835.04	1777.24	1633.15	1566.30	1532.23	1519.71	1519.77	1489.47	1499.48	1560.74	1556.37	1606.08	1775.98	1893.00
12.50°	1636.63	1572.65	1577.78	1521.67	1403.87	1338.93	1303.81	1294.56	1286.17	1261.55	1259.21	1312.55	1322.52	1373.81	1529.17	1631.29
13.00°	1399.24	1344.58	1346.24	1295.94	1199.05	1140.41	1106.46	1097.13	1087.88	1061.92	1059.79	1104.33	1120.28	1168.19	1300.29	1394.53
13.50°	1188.88	1141.68	1140.74	1098.99	1024.19	972.48	940.93	934.11	925.15	899.88	898.00	936.92	949.98	993.44	1109.95	1190.89
14.00°	1010.18	972.59	971.41	942.09	875.64	826.10	805.96	798.76	788.98	766.35	760.84	792.51	809.19	845.66	946.19	1014.19
14.50°	860.64	832.27	829.89	799.46	751.78	711.45	691.03	684.82	681.16	656.18	650.83	675.63	692.72	723.31	808.02	864.25
15.00°	737.05	718.20	710.69	687.71	648.37	617.66	598.58	598.64	591.30	571.58	565.67	579.91	598.75	628.56	694.30	744.53
15.50°	639.28	621.00	615.32	599.97	562.65	539.60	525.25	525.35	519.40	498.24	497.40	510.40	524.97	546.98	605.58	646.48
16.00°	559.55	543.34	540.24	524.59	498.63	480.35	464.36	466.82	464.23	447.93	443.66	450.26	468.46	485.83	533.30	568.44
16.50°	497.67	484.46	480.53	465.00	448.56	430.98	418.73	423.83	418.98	401.75	398.15	407.69	422.24	436.20	474.52	505.31
17.00°	447.31	432.60	429.88	417.42	405.93	390.05	383.30	388.92	382.10	366.60	362.42	370.24	385.83	397.97	430.30	455.30
17.50°	403.13	392.86	387.39	379.36	371.54	357.67	347.66	358.53	349.91	340.48	331.53	340.19	353.78	366.35	393.43	410.64
18.00°	369.20	360.67	352.89	349.40	340.25	328.64	326.75	333.05	324.54	315.47	307.44	313.63	326.95	338.33	362.36	382.20
18.50°	341.46	336.75	325.40	323.14	316.74	306.65	303.73	308.98	306.24	297.79	286.30	289.62	303.35	317.04	338.06	352.27
19.00°	318.06	313.57	307.41	301.76	296.93	289.41	283.56	292.23	288.63	277.50	269.27	273.16	285.34	295.41	315.03	327.08
19.50°	295.97	296.50	291.48	281.81	279.94	273.47	266.13	278.40	270.42	262.74	254.66	259.96	270.21	281.46	295.40	307.19
20.00°	279.06	279.92	276.53	268.79	266.29	259.53	253.17	260.46	254.84	251.40	241.82	244.35	257.82	265.55	279.52	288.71
20.50°	264.24	265.83	262.21	257.20	253.64	246.61	241.16	248.49	247.19	239.44	231.83	234.53	246.48	250.40	264.77	277.02
21.00°	253.12	254.59	250.41	247.03	241.26	233.15	232.95	236.15	233.88	227.25	225.58	227.11	237.72	240.85	251.76	264.72
21.50°	242.07	241.34	238.37	234.98	231.44	221.54	220.30	224.33	224.63	219.01	214.02	217.56	227.87	233.76	242.17	250.36
22.00°	230.08	228.87	229.21	223.43	219.40	212.20	207.77	214.64	215.08	209.18	209.07	211.27	218.33	225.10	232.35	240.54
22.50°	219.20	220.38	218.24	214.15	207.66	201.10	199.48	204.79	203.19	199.13	201.03	203.77	210.33	215.36	223.94	233.88

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

<b>RCR</b>	<b>pfc</b>	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	<b>pcc</b>	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	<b>0</b>	1249	1249	1249	1249	1219	1219	1219	1219	1162	1162	1162	1111	1111	1111	1064	1064	1042
	<b>1</b>	1208	1187	1168	1151	1183	1164	1147	1132	1121	1108	1096	1081	1071	1062	1044	1037	1016
	<b>2</b>	1171	1135	1106	1081	1149	1117	1091	1068	1084	1062	1044	1052	1035	1021	1023	1010	999
	<b>3</b>	1138	1092	1056	1028	1119	1077	1045	1019	1051	1024	1002	1026	1004	986	1003	985	967
	<b>4</b>	1107	1054	1016	986	1090	1043	1008	980	1021	992	968	1001	977	957	983	962	945
	<b>5</b>	1079	1022	982	953	1064	1013	976	948	995	964	940	979	952	931	964	941	925
	<b>6</b>	1053	994	954	925	1041	986	949	922	972	940	916	959	931	909	946	922	907
	<b>7</b>	1030	969	929	902	1019	963	926	899	951	918	894	940	911	890	929	904	885
	<b>8</b>	1008	947	908	881	999	942	905	880	932	899	876	922	894	872	914	888	875
	<b>9</b>	989	927	889	864	980	923	887	862	914	882	860	906	878	857	899	873	860
	<b>10</b>	971	909	873	848	963	906	871	847	898	867	845	892	863	843	885	859	847

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	439.1 fc	1.1 ft
6.5 ft	314.4 fc	1.3 ft
7.5 ft	236.1 fc	1.6 ft
8.0 ft	207.5 fc	1.7 ft
10.0 ft	132.8 fc	2.1 ft
12.0 ft	92.2 fc	2.5 ft
14.0 ft	67.8 fc	2.9 ft
16.0 ft	51.9 fc	3.3 ft
20.0 ft	33.2 fc	4.1 ft
24.0 ft	23.1 fc	5.0 ft
28.0 ft	16.9 fc	5.8 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	4127542	4127542	4127542
<b>45.00°</b>	18873	19860	21368
<b>55.00°</b>	10676	10050	10695
<b>65.00°</b>	2082	2451	3106
<b>75.00°</b>	1039	1687	2429
<b>85.00°</b>	5624	5265	4255

### 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	10.9	11.8	11.3	12.2	12.5	8.8	9.8	9.2	10.1	10.4
	3H	10.9	11.7	11.3	12.1	12.5	9.1	9.9	9.5	10.3	10.7
	4H	10.8	11.6	11.3	12.0	12.4	9.2	9.9	9.6	10.3	10.7
	6H	10.8	11.5	11.2	11.9	12.3	9.3	10.0	9.7	10.4	10.8
	8H	10.9	11.6	11.4	12.0	12.4	9.4	10.0	9.8	10.4	10.9
	12H	11.1	11.7	11.6	12.1	12.6	9.5	10.2	10.0	10.6	11.0
4H	2H	10.7	11.5	11.1	11.9	12.3	8.8	9.6	9.2	10.0	10.4
	3H	10.8	11.4	11.2	11.8	12.3	9.2	9.8	9.6	10.2	10.6
	4H	10.7	11.3	11.2	11.7	12.2	9.2	9.8	9.7	10.2	10.7
	6H	10.7	11.2	11.2	11.6	12.1	9.4	9.9	9.9	10.4	10.9
	8H	10.9	11.3	11.4	11.8	12.3	9.6	10.1	10.1	10.5	11.0
	12H	11.2	11.6	11.7	12.1	12.6	9.9	10.3	10.4	10.8	11.3
8H	4H	10.6	11.0	11.1	11.5	12.0	9.2	9.6	9.7	10.1	10.6
	6H	10.6	11.0	11.1	11.5	12.0	9.5	9.9	10.0	10.4	10.9
	8H	10.9	11.2	11.4	11.7	12.2	9.8	10.1	10.4	10.7	11.2
	12H	11.3	11.5	11.8	12.1	12.7	10.3	10.6	10.9	11.1	11.7
12H	4H	10.5	10.9	11.1	11.4	11.9	9.1	9.5	9.7	10.0	10.5
	6H	10.6	10.9	11.2	11.4	12.0	9.6	9.9	10.1	10.4	10.9
	8H	10.9	11.2	11.4	11.7	12.3	10.0	10.3	10.6	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