

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

Test Number

SP-01269_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	1124
Efficacy	89.96 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.32
Two luminaires, plane 90°	0.37
Four luminaires	0.35

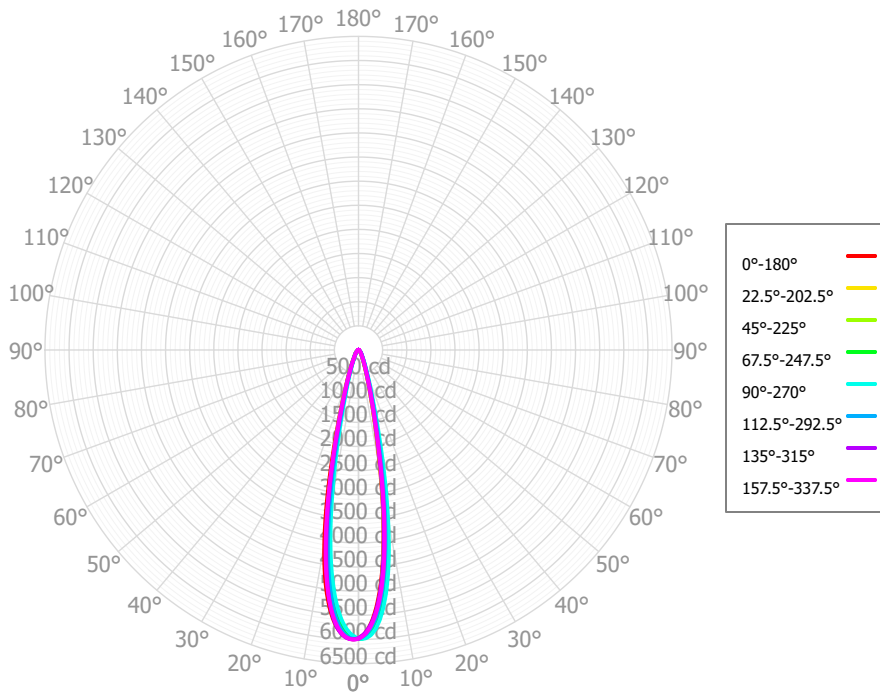
Full Beam Angle

0° - 180°	22°
90° - 270°	21°

IES File Header Contents

Keyword	Value
TEST	SP-01269_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 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°	446.05	39.67%	90.00° - 100.00°	1.56	0.14%
10.00° - 20.00°	389.99	34.68%	100.00° - 110.00°	1.48	0.13%
20.00° - 30.00°	132.99	11.83%	100.00° - 120.00°	2.97	0.26%
30.00° - 40.00°	71.34	6.34%	120.00° - 130.00°	1.33	0.12%
40.00° - 50.00°	45.52	4.05%	130.00° - 140.00°	1.17	0.10%
50.00° - 60.00°	20.66	1.84%	140.00° - 150.00°	1.05	0.09%
60.00° - 70.00°	5.04	0.45%	150.00° - 160.00°	0.78	0.07%
70.00° - 80.00°	1.78	0.16%	160.00° - 170.00°	0.49	0.04%
80.00° - 90.00°	1.57	0.14%	170.00° - 180.00°	0.15	0.01%
0.00° - 90.00°	1114.94	99.15%	0.00° - 180.00°	1124.44	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°	5981.32	5981.32	5981.32	5981.32	5981.32	5981.32	5981.32	5981.32	5981.32	5981.32	5981.32	5981.32	5981.32	5981.32	5981.32	5981.32	5981.32
0.50°	5945.20	5972.99	5973.59	5986.75	5990.28	5994.04	5988.94	5999.44	5991.60	5989.96	5990.54	5980.71	5959.79	5964.28	5939.37	5959.90	5945.20
1.00°	5907.88	5942.24	5942.73	5974.66	5984.86	5991.91	5999.02	6001.58	5998.97	5983.21	5981.67	5964.74	5930.17	5934.85	5901.85	5921.97	5907.88
1.50°	5851.52	5901.56	5901.36	5951.66	5974.72	5979.85	5997.02	5996.86	5993.56	5969.80	5967.50	5936.75	5894.52	5896.88	5848.64	5876.96	5851.52
2.00°	5784.25	5840.56	5841.19	5910.39	5945.95	5960.55	5986.38	5981.88	5980.53	5946.99	5940.78	5900.23	5842.79	5844.29	5786.42	5811.84	5784.25
2.50°	5694.91	5770.35	5767.61	5852.10	5913.38	5924.24	5965.77	5957.09	5958.81	5916.19	5909.77	5852.19	5783.73	5778.27	5705.39	5738.05	5694.91
3.00°	5594.74	5673.91	5673.40	5778.77	5856.40	5877.24	5932.44	5919.64	5925.58	5875.64	5863.00	5797.11	5707.97	5699.44	5615.13	5643.14	5594.74
3.50°	5472.85	5567.29	5562.81	5693.13	5795.65	5810.04	5886.38	5868.93	5880.83	5822.39	5811.71	5725.09	5622.14	5610.41	5503.22	5540.59	5472.85
4.00°	5341.77	5432.72	5430.14	5586.70	5705.08	5731.93	5825.90	5803.38	5824.43	5755.50	5741.47	5644.09	5516.81	5497.83	5382.32	5417.16	5341.77
4.50°	5188.82	5289.13	5278.82	5465.55	5611.25	5633.00	5752.74	5725.17	5757.94	5674.43	5666.87	5546.57	5400.58	5368.83	5234.87	5287.38	5188.82
5.00°	5028.13	5120.86	5105.71	5326.68	5488.36	5524.34	5657.63	5634.53	5675.28	5580.17	5568.21	5441.61	5266.00	5221.46	5078.01	5132.65	5028.13
5.50°	4843.28	4946.10	4917.24	5177.00	5363.41	5391.72	5545.79	5526.69	5580.50	5468.17	5465.26	5316.15	5119.54	5063.04	4896.57	4971.76	4843.28
6.00°	4651.23	4742.31	4712.99	5005.32	5210.69	5249.67	5413.59	5404.17	5468.09	5341.69	5334.20	5182.77	4955.85	4880.49	4707.96	4783.56	4651.23
6.50°	4432.70	4532.32	4493.77	4821.96	5056.93	5084.30	5267.98	5264.85	5344.08	5198.90	5199.32	5029.32	4780.77	4685.53	4491.72	4590.07	4432.70
7.00°	4207.80	4300.25	4261.23	4617.94	4871.25	4911.27	5098.76	5113.13	5205.35	5044.61	5036.72	4869.40	4591.19	4471.39	4269.01	4368.49	4207.80
7.50°	3964.22	4064.57	4018.51	4404.59	4684.49	4712.95	4915.99	4943.51	5058.30	4870.98	4871.58	4684.51	4388.15	4248.72	4029.24	4142.70	3964.22
8.00°	3717.12	3813.13	3767.94	4173.74	4469.30	4507.70	4715.54	4762.34	4890.70	4685.58	4679.72	4493.06	4170.29	4012.38	3786.28	3894.53	3717.12
8.50°	3457.42	3559.77	3514.82	3936.10	4252.03	4281.19	4506.44	4562.72	4713.02	4478.99	4486.50	4276.41	3941.03	3770.94	3536.56	3644.03	3457.42
9.00°	3195.90	3301.45	3259.97	3683.72	4008.26	4050.03	4279.00	4352.85	4512.49	4261.17	4264.62	4054.38	3700.89	3525.71	3285.90	3381.06	3195.90
9.50°	2929.55	3042.75	3003.89	3426.57	3762.86	3801.85	4043.94	4126.74	4302.47	4034.09	4041.91	3813.43	3451.47	3279.32	3029.86	3117.30	2929.55
10.00°	2662.72	2789.92	2747.09	3164.73	3503.62	3550.81	3801.31	3892.81	4075.31	3802.83	3800.76	3569.39	3194.27	3032.87	2773.29	2858.24	2662.72
10.50°	2417.31	2537.34	2504.09	2901.63	3244.32	3297.73	3555.99	3649.60	3842.10	3564.17	3559.20	3318.51	2938.85	2786.41	2531.92	2599.46	2417.31
11.00°	2173.14	2302.34	2267.94	2645.49	2984.66	3044.39	3311.68	3402.61	3595.40	3322.69	3310.30	3066.82	2684.73	2554.51	2291.43	2357.90	2173.14
11.50°	1961.54	2068.55	2052.02	2390.84	2727.79	2793.93	3067.68	3149.10	3344.79	3078.65	3061.97	2814.26	2446.75	2325.56	2079.57	2118.11	1961.54
12.00°	1751.25	1870.23	1844.76	2162.84	2484.35	2543.72	2830.36	2893.34	3091.55	2833.78	2819.64	2561.62	2218.89	2117.11	1868.84	1916.53	1751.25
12.50°	1582.53	1674.08	1662.38	1939.20	2246.11	2313.71	2594.62	2646.80	2837.69	2597.50	2579.26	2329.61	2011.32	1911.90	1693.11	1717.59	1582.53
13.00°	1415.55	1510.64	1488.93	1746.88	2027.73	2084.63	2370.88	2402.88	2590.51	2363.48	2353.24	2098.39	1814.82	1736.60	1519.12	1550.55	1415.55
13.50°	1282.82	1350.74	1343.34	1558.38	1818.55	1889.62	2149.40	2180.58	2344.59	2150.90	2131.76	1903.95	1640.99	1564.66	1379.31	1387.77	1282.82
14.00°	1152.31	1223.53	1206.17	1405.51	1637.93	1695.77	1952.69	1963.23	2125.85	1942.77	1935.15	1710.70	1477.71	1424.27	1241.92	1258.69	1152.31
14.50°	1047.06	1100.28	1093.43	1255.44	1468.07	1537.89	1759.43	1776.19	1910.91	1764.13	1745.69	1553.53	1341.12	1286.23	1132.32	1133.23	1047.06
15.00°	944.29	1002.74	986.67	1139.09	1326.53	1381.97	1598.54	1594.67	1731.98	1590.29	1586.69	1398.68	1215.01	1173.99	1025.21	1029.25	944.29
15.50°	860.47	908.38	900.11	1024.05	1194.75	1257.41	1440.87	1446.49	1556.47	1447.38	1434.81	1276.61	1107.82	1062.70	937.17	929.49	860.47
16.00°	779.29	830.09	817.53	933.14	1084.59	1135.33	1311.76	1302.80	1414.36	1308.08	1307.82	1156.88	1006.92	976.51	851.79	849.05	779.29
16.50°	713.31	755.30	749.60	842.99	982.39	1037.01	1184.29	1185.78	1274.19	1196.05	1187.52	1058.56	923.74	890.84	781.31	771.85	713.31
17.00°	649.88	694.42	683.84	772.85	895.20	941.40	1084.30	1071.18	1163.68	1086.14	1086.45	962.89	845.38	820.00	713.65	706.74	649.88
17.50°	597.76	635.84	630.36	703.63	815.43	864.46	985.22	980.67	1054.15	999.91	992.10	884.31	780.07	750.20	658.48	645.27	597.76
18.00°	548.04	584.69	578.15	647.52	747.83	790.15	907.23	891.45	968.14	914.57	913.92	808.36	717.68	694.29	605.29	594.90	548.04
18.50°	507.08	536.02	533.34	592.55	685.83	729.30	829.84	821.78	882.90	844.25	839.98	745.62	663.94	639.31	559.11	547.08	507.08
19.00°	467.99	494.09	489.02	548.14	631.77	670.81	764.29	752.66	812.84	774.47	774.84	685.65	611.70	592.14	515.39	505.70	467.99
19.50°	434.47	454.81	454.80	504.85	582.11	621.88	699.97	695.25	744.11	719.29	714.65	636.65	569.49	546.38	478.81	466.78	434.47
20.00°	402.45	421.60	420.90	468.78	537.83	575.22	649.56	638.46	689.81	664.65	663.25	589.67	528.57	509.42	444.61	433.19	402.45
20.50°	374.19	389.78	391.00	433.63	498.49	536.21	600.22	592.76	636.53	617.41	614.83	549.18	493.89	473.77	416.29	402.32	374.19
21.00°	347.23	360.70	361.32	403.08	464.46	498.34	559.04	547.80	591.09	571.12	571.04	510.12	459.75	444.40	389.01	376.51	347.23
21.50°	323.04	334.15	336.68	374.10	431.96	463.63	519.03	510.52	547.03	533.50	530.86	474.90	430.88	415.58	363.90	351.96	323.04
22.00°	301.10	311.87	312.42	351.35	400.88	431.05	485.66	474.04	510.68	496.78	495.50	442.17	402.24	388.85	340.16	329.42	301.10
22.50°	283.26	290.80	292.65	328.92	373.30	403.50	452.76	443.41	475.64	465.88	462.21	415.10	377.66	363.36	318.91	308.02	283.26

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	1336	1336	1336	1336	1304	1304	1304	1304	1244	1244	1244	1189	1189	1189	1139	1139	1115
	1	1287	1262	1239	1219	1260	1237	1217	1199	1190	1175	1160	1148	1135	1124	1108	1099	1077
	2	1241	1198	1162	1132	1217	1178	1146	1118	1141	1115	1093	1107	1087	1068	1076	1060	1039
	3	1198	1142	1098	1064	1176	1126	1087	1055	1097	1064	1037	1070	1043	1020	1044	1023	1003
	4	1157	1093	1046	1009	1139	1080	1037	1003	1057	1020	991	1034	1004	979	1014	988	970
	5	1120	1050	1001	964	1104	1040	994	960	1020	981	951	1002	968	942	985	957	934
	6	1086	1012	962	926	1071	1003	957	923	987	946	916	972	937	910	958	927	903
	7	1054	977	928	893	1041	970	924	890	957	916	886	944	908	881	933	900	876
	8	1024	947	898	864	1013	941	894	862	929	888	858	919	882	855	909	876	851
	9	997	919	871	838	987	914	868	837	904	863	834	895	858	831	886	853	828
	10	971	893	846	815	962	889	844	814	881	840	812	873	836	809	865	832	807

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	197.7 fc	2.0 ft
6.5 ft	141.6 fc	2.3 ft
7.5 ft	106.3 fc	2.7 ft
8.0 ft	93.5 fc	2.9 ft
10.0 ft	59.8 fc	3.6 ft
12.0 ft	41.5 fc	4.3 ft
14.0 ft	30.5 fc	5.0 ft
16.0 ft	23.4 fc	5.7 ft
20.0 ft	15.0 fc	7.2 ft
24.0 ft	10.4 fc	8.6 ft
28.0 ft	7.6 fc	10.0 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	1858824	1858824	1858824
45.00°	19398	20725	24074
55.00°	10147	10830	12540
65.00°	3407	3370	2880
75.00°	1608	1602	1468
85.00°	4827	4524	5081

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	10.2	11.1	10.5	11.5	11.8	10.9	11.8	11.2	12.1	12.5
	3H	10.2	11.1	10.6	11.4	11.8	10.9	11.7	11.3	12.1	12.5
	4H	10.2	11.0	10.6	11.4	11.8	10.9	11.7	11.3	12.0	12.4
	6H	10.3	11.0	10.7	11.4	11.8	10.9	11.6	11.3	12.0	12.4
	8H	10.4	11.0	10.8	11.4	11.9	11.0	11.7	11.4	12.1	12.5
	12H	10.5	11.2	11.0	11.6	12.0	11.2	11.8	11.6	12.2	12.7
4H	2H	10.0	10.8	10.4	11.2	11.6	10.8	11.5	11.2	11.9	12.3
	3H	10.2	10.8	10.6	11.2	11.7	10.8	11.5	11.3	11.9	12.3
	4H	10.2	10.7	10.6	11.2	11.6	10.9	11.4	11.3	11.9	12.4
	6H	10.3	10.8	10.8	11.3	11.8	11.0	11.5	11.5	12.0	12.5
	8H	10.5	10.9	11.0	11.4	11.9	11.2	11.6	11.6	12.1	12.6
	12H	10.8	11.2	11.3	11.7	12.2	11.5	11.9	12.0	12.4	12.9
8H	4H	10.1	10.5	10.6	11.0	11.5	10.8	11.2	11.3	11.7	12.2
	6H	10.3	10.7	10.9	11.2	11.7	11.0	11.4	11.5	11.9	12.4
	8H	10.6	10.9	11.2	11.5	12.0	11.2	11.6	11.8	12.1	12.6
	12H	11.1	11.4	11.7	11.9	12.5	11.7	12.0	12.3	12.5	13.1
12H	4H	10.0	10.4	10.5	10.9	11.4	10.7	11.1	11.3	11.6	12.1
	6H	10.3	10.7	10.9	11.1	11.7	11.0	11.3	11.6	11.8	12.4
	8H	10.7	11.0	11.3	11.5	12.1	11.3	11.6	11.8	12.1	12.7

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0