

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CR2 835 15 xx xx RD2FL RB2BSA2 xx xx

Nom 2.5 inch dia cylinder xtra narrow spot optic and 2 inch acrylic style bezel

Test Number

SP-01276_4

Test Date

9/23/2021

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

Summary of Results

Power

Input Watts	19.5 W
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Lumen Output

Output Lumens	1475
Efficacy	75.66 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.2
Two luminaires, plane 90°	0.19
Four luminaires	0.22

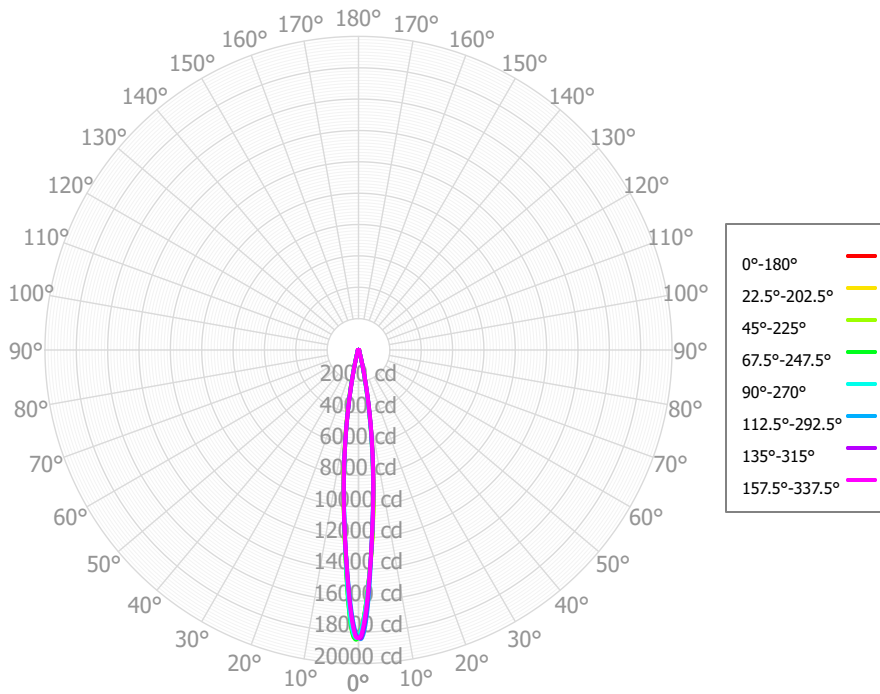
Full Beam Angle

0° - 180°	12°
90° - 270°	12°

IES File Header Contents

Keyword	Value
TEST	SP-01276_4
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	9/23/2021
ISSUEDATE	10/8/2021
LUMCAT	CR2 835 15 xx xx RD2FL RB2BSA2 xx xx
LUMINAIRE	Nom 2.5 inch dia cylinder xtra narrow spot optic and 2 inch acrylic style bezel
OTHER	Beam Angle: 12 deg
LAMPCAT	N/A
LAMP	N/A, 6mm LES
OTHER	80 CRI, 3500K tested
OTHER	LER (luminaire efficacy) = 76 lms / watt
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 wattages are approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	80+
_CCTMULT	822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0
_CCTMULTA	927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87
_LAMPMULT	N/A

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	797.10	54.03%	90.00° - 100.00°	10.65	0.72%
10.00° - 20.00°	304.72	20.65%	100.00° - 110.00°	8.31	0.56%
20.00° - 30.00°	80.27	5.44%	100.00° - 120.00°	15.01	1.02%
30.00° - 40.00°	64.06	4.34%	120.00° - 130.00°	3.95	0.27%
40.00° - 50.00°	60.73	4.12%	130.00° - 140.00°	1.83	0.12%
50.00° - 60.00°	52.41	3.55%	140.00° - 150.00°	0.97	0.07%
60.00° - 70.00°	39.73	2.69%	150.00° - 160.00°	0.72	0.05%
70.00° - 80.00°	26.53	1.80%	160.00° - 170.00°	0.40	0.03%
80.00° - 90.00°	16.16	1.10%	170.00° - 180.00°	0.12	0.01%
0.00° - 90.00°	1441.71	97.72%	0.00° - 180.00°	1475.38	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°	18367.96	18367.96	18367.96	18367.96	18367.96	18367.96	18367.96	18367.96	18367.96	18367.96	18367.96	18367.96	18367.96	18367.96	18367.96	18367.96
0.50°	17999.43	17896.65	17904.30	17934.72	17900.91	18086.01	18219.65	18327.45	18358.89	18425.97	18458.85	18479.10	18369.82	18443.21	18395.89	18217.82
1.00°	17413.49	17275.76	17290.83	17315.68	17305.39	17498.82	17669.22	17822.48	17997.29	18183.66	18285.59	18298.14	18142.36	18133.07	17935.99	17636.70
1.50°	16632.61	16499.54	16532.96	16553.30	16543.66	16723.75	16912.20	17060.53	17261.03	17545.23	17704.66	17736.46	17560.86	17468.37	17187.69	16845.33
2.00°	15746.95	15653.03	15678.04	15684.18	15675.16	15827.05	15996.85	16115.49	16317.95	16596.77	16775.25	16789.99	16665.13	16532.65	16246.08	15928.09
2.50°	14860.24	14795.82	14831.79	14801.80	14794.37	14877.55	14997.15	15083.98	15247.65	15515.37	15675.45	15674.68	15576.22	15445.92	15181.73	14944.92
3.00°	13990.21	13964.43	14021.82	13944.73	13910.44	13947.50	14015.95	14051.79	14175.70	14402.57	14523.48	14510.04	14414.41	14302.83	14101.42	13996.68
3.50°	13128.14	13151.94	13235.22	13123.38	13025.69	13046.27	13098.89	13101.64	13170.51	13331.43	13418.08	13399.43	13293.50	13185.96	13091.01	13080.85
4.00°	12252.14	12342.15	12430.70	12297.11	12155.54	12155.72	12205.69	12207.81	12239.94	12346.65	12417.94	12395.35	12253.85	12173.38	12159.27	12194.82
4.50°	11410.83	11513.16	11590.17	11474.93	11321.21	11287.47	11356.44	11373.87	11373.09	11435.53	11502.70	11478.84	11309.69	11253.03	11290.49	11343.05
5.00°	10589.64	10688.29	10755.46	10666.85	10494.74	10460.07	10542.32	10573.22	10549.97	10597.74	10653.70	10627.69	10461.37	10425.31	10485.73	10530.28
5.50°	9776.68	9870.52	9924.90	9861.17	9702.26	9686.09	9756.45	9794.28	9756.68	9808.64	9866.93	9826.04	9681.25	9663.37	9740.42	9769.63
6.00°	8989.89	9048.33	9097.66	9053.10	8921.22	8936.86	9023.27	9037.94	9001.76	9058.64	9109.38	9065.39	8936.23	8953.24	9029.25	9041.24
6.50°	8221.88	8281.52	8332.99	8272.79	8142.57	8194.96	8304.98	8301.42	8277.25	8336.22	8386.14	8337.50	8208.31	8266.61	8337.90	8314.67
7.00°	7499.62	7568.22	7623.70	7551.84	7409.26	7455.16	7577.14	7564.61	7555.55	7632.51	7686.92	7641.48	7509.35	7606.59	7643.56	7602.43
7.50°	6804.99	6893.30	6945.65	6869.86	6708.97	6757.29	6880.08	6833.20	6827.48	6924.05	6979.34	6945.79	6815.46	6939.68	6953.22	6925.14
8.00°	6140.92	6253.14	6297.22	6210.88	6040.32	6097.44	6201.22	6140.08	6132.00	6241.36	6289.57	6255.45	6123.32	6265.81	6300.14	6275.61
8.50°	5529.02	5631.28	5678.15	5582.13	5399.94	5457.95	5549.07	5495.49	5488.19	5612.83	5656.28	5609.12	5477.53	5653.84	5681.60	5660.41
9.00°	4930.54	5005.36	5034.20	4955.31	4791.48	4856.44	4936.66	4889.94	4883.41	5023.56	5063.90	5013.52	4886.28	5077.18	5101.88	5082.35
9.50°	4334.21	4411.18	4416.10	4328.22	4182.69	4276.65	4360.80	4326.42	4319.59	4465.18	4507.16	4455.05	4332.72	4529.98	4564.74	4518.55
10.00°	3799.21	3882.73	3873.47	3761.66	3605.29	3691.17	3799.30	3788.97	3788.66	3942.37	3986.08	3948.67	3832.72	4027.84	4045.59	3965.37
10.50°	3320.05	3399.40	3372.49	3267.34	3115.93	3176.04	3272.71	3272.66	3281.15	3436.28	3495.83	3465.70	3380.80	3555.42	3542.55	3462.92
11.00°	2883.34	2961.30	2920.17	2824.34	2687.12	2728.26	2817.00	2814.45	2826.88	2972.52	3018.27	3004.20	2937.73	3097.03	3077.16	3011.28
11.50°	2496.78	2567.55	2526.97	2435.69	2308.85	2334.23	2411.66	2413.04	2433.69	2559.63	2608.96	2596.56	2534.37	2679.92	2667.04	2607.20
12.00°	2157.67	2214.08	2168.20	2093.92	1972.71	1989.14	2051.11	2054.28	2075.74	2192.12	2241.26	2230.72	2187.79	2308.55	2293.08	2244.10
12.50°	1851.59	1894.65	1854.35	1793.69	1684.27	1684.04	1738.77	1741.39	1761.55	1865.16	1916.69	1907.58	1872.81	1976.17	1960.77	1920.06
13.00°	1582.17	1616.03	1580.48	1528.72	1437.13	1434.72	1469.68	1470.67	1490.33	1583.74	1634.53	1623.50	1599.33	1685.17	1677.66	1636.40
13.50°	1347.76	1371.65	1344.14	1298.23	1223.02	1213.75	1244.31	1241.87	1259.68	1346.42	1393.57	1388.64	1375.08	1437.01	1430.26	1394.61
14.00°	1145.32	1162.48	1141.51	1106.65	1048.24	1033.34	1056.73	1051.71	1071.61	1137.10	1192.86	1181.87	1184.54	1225.26	1218.66	1179.56
14.50°	978.80	991.52	977.13	948.36	901.62	886.14	905.14	904.37	916.04	980.04	1018.49	1012.24	1018.31	1048.65	1034.29	1011.24
15.00°	837.80	848.19	842.09	820.57	779.62	769.06	782.09	780.39	796.82	843.60	878.34	876.14	881.96	905.83	893.25	867.97
15.50°	724.78	735.74	729.80	707.25	679.58	670.48	678.70	681.62	693.84	736.46	766.33	765.40	768.63	786.01	775.77	749.06
16.00°	632.48	636.09	636.65	620.16	595.88	586.78	596.44	595.31	610.24	648.50	671.14	673.81	675.81	688.18	669.37	652.26
16.50°	554.60	562.33	564.21	548.76	526.56	517.58	526.39	530.85	545.76	571.81	592.60	596.35	595.70	600.86	589.53	572.58
17.00°	489.29	495.03	502.43	487.12	468.02	460.07	467.16	469.57	487.58	513.57	527.65	531.37	531.75	529.27	517.63	499.69
17.50°	433.33	441.28	451.03	434.95	416.44	411.47	415.21	423.36	439.58	460.99	474.55	470.89	478.08	471.74	457.34	442.31
18.00°	390.20	399.07	408.79	392.31	376.68	369.84	376.51	383.46	395.40	414.57	425.75	426.53	428.73	422.84	410.82	392.39
18.50°	353.37	365.34	372.99	356.26	347.29	336.96	339.47	349.13	354.32	377.00	385.95	385.75	386.11	381.52	368.55	356.29
19.00°	328.08	337.14	344.43	328.46	317.17	309.09	314.49	321.60	328.99	346.21	354.56	352.63	351.71	348.36	335.04	330.01
19.50°	300.13	306.97	321.34	307.46	294.36	285.52	292.33	301.30	306.24	323.78	327.23	325.85	326.10	319.48	308.50	298.10
20.00°	281.72	285.64	299.26	286.70	274.30	265.51	270.62	279.12	286.40	301.53	308.52	307.69	304.96	295.12	288.41	279.41
20.50°	259.79	266.75	278.18	268.15	258.96	249.29	254.01	262.02	270.47	288.47	291.37	290.37	287.30	279.30	269.31	259.96
21.00°	241.03	254.39	262.48	252.65	245.48	235.76	242.50	247.35	257.93	267.39	272.35	275.92	271.24	260.01	253.46	243.17
21.50°	229.68	243.73	247.43	239.77	231.62	222.60	229.03	237.09	246.13	247.67	252.83	259.80	255.29	244.47	237.95	231.23
22.00°	222.49	230.44	233.32	227.51	218.92	213.56	215.19	221.29	235.63	235.93	243.09	246.22	238.26	230.44	222.78	218.19
22.50°	210.59	217.20	223.58	213.43	207.37	204.58	203.32	208.24	220.67	226.52	228.06	229.68	226.35	215.24	210.30	208.50

CR2 835 15 xx xx RD2FL RB2BSA2 xx xx

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	1748	1748	1748	1748	1704	1704	1704	1704	1621	1621	1621	1544	1544	1544	1475	1475	1442
	1	1673	1635	1601	1571	1634	1600	1570	1542	1535	1511	1489	1475	1456	1439	1419	1405	1374
	2	1608	1545	1493	1449	1573	1517	1470	1430	1465	1427	1394	1417	1386	1360	1372	1348	1320
	3	1550	1471	1410	1361	1520	1449	1393	1348	1407	1361	1323	1368	1330	1299	1332	1301	1275
	4	1499	1410	1345	1295	1473	1392	1332	1286	1358	1307	1268	1326	1284	1250	1297	1262	1237
	5	1455	1359	1293	1244	1431	1344	1283	1237	1316	1264	1223	1290	1245	1210	1266	1228	1205
	6	1415	1316	1250	1202	1394	1304	1242	1197	1281	1227	1187	1259	1212	1177	1238	1199	1177
	7	1379	1279	1214	1169	1361	1269	1208	1165	1249	1196	1157	1231	1184	1149	1214	1173	1153
	8	1347	1247	1183	1140	1331	1238	1178	1137	1221	1169	1131	1206	1159	1125	1191	1150	1131
	9	1318	1218	1157	1116	1303	1211	1153	1113	1197	1145	1108	1183	1137	1104	1171	1129	1112
	10	1291	1193	1134	1095	1278	1187	1130	1093	1174	1124	1089	1163	1117	1085	1152	1111	1095

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	607.2 fc	1.1 ft
6.5 ft	434.7 fc	1.3 ft
7.5 ft	326.5 fc	1.5 ft
8.0 ft	287.0 fc	1.6 ft
10.0 ft	183.7 fc	2.0 ft
12.0 ft	127.6 fc	2.4 ft
14.0 ft	93.7 fc	2.9 ft
16.0 ft	71.7 fc	3.3 ft
20.0 ft	45.9 fc	4.1 ft
24.0 ft	31.9 fc	4.9 ft
28.0 ft	23.4 fc	5.7 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	5708245	5708245	5708245
45.00°	34456	33049	34049
55.00°	31042	32264	32866
65.00°	28289	30241	29392
75.00°	33071	28289	30608
85.00°	57011	57634	58174

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	18.4	19.5	18.8	19.9	20.2	18.6	19.7	19.1	20.1	20.4
	3H	20.4	21.4	20.9	21.8	22.2	20.4	21.4	20.9	21.8	22.2
	4H	21.4	22.3	21.8	22.7	23.1	21.2	22.1	21.7	22.5	22.9
	6H	22.3	23.1	22.8	23.5	24.0	22.0	22.8	22.5	23.2	23.7
	8H	22.8	23.5	23.2	24.0	24.4	22.4	23.2	22.9	23.6	24.1
	12H	23.3	24.0	23.7	24.4	24.9	22.9	23.7	23.4	24.1	24.6
4H	2H	19.0	19.9	19.5	20.3	20.7	19.2	20.1	19.7	20.5	21.0
	3H	21.2	22.0	21.7	22.4	22.9	21.2	22.0	21.7	22.4	22.9
	4H	22.3	23.0	22.8	23.4	23.9	22.1	22.8	22.6	23.3	23.8
	6H	23.4	24.0	23.9	24.5	25.0	23.1	23.6	23.6	24.1	24.6
	8H	24.0	24.5	24.5	25.0	25.5	23.6	24.1	24.1	24.6	25.1
	12H	24.6	25.0	25.1	25.6	26.1	24.2	24.7	24.7	25.2	25.7
8H	4H	22.6	23.2	23.2	23.7	24.2	22.5	23.0	23.0	23.5	24.0
	6H	23.9	24.4	24.5	24.9	25.4	23.6	24.0	24.2	24.6	25.1
	8H	24.7	25.0	25.2	25.6	26.1	24.3	24.6	24.8	25.2	25.7
	12H	25.5	25.8	26.0	26.3	27.0	25.1	25.4	25.6	25.9	26.6
12H	4H	22.7	23.1	23.2	23.7	24.2	22.5	23.0	23.1	23.5	24.1
	6H	24.1	24.4	24.6	24.9	25.5	23.7	24.1	24.3	24.6	25.2
	8H	24.9	25.2	25.4	25.7	26.4	24.5	24.8	25.0	25.4	26.0

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0