

Indoor Distribution Test Report

Spectrum Lighting Inc.

994 Jefferson Street
Fall River, MA 02721
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Spectrum Lighting Photometric Lab

Luminaire

CR2 835 15 xx xx RD2SP RB2BD xx xx

Nom 2.5 inch dia cylinder with spot optic and deep cutoff snoot

Test Number

SP-01274_1

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	1548
Efficacy	79.39 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.36
Two luminaires, plane 90°	0.37
Four luminaires	0.36

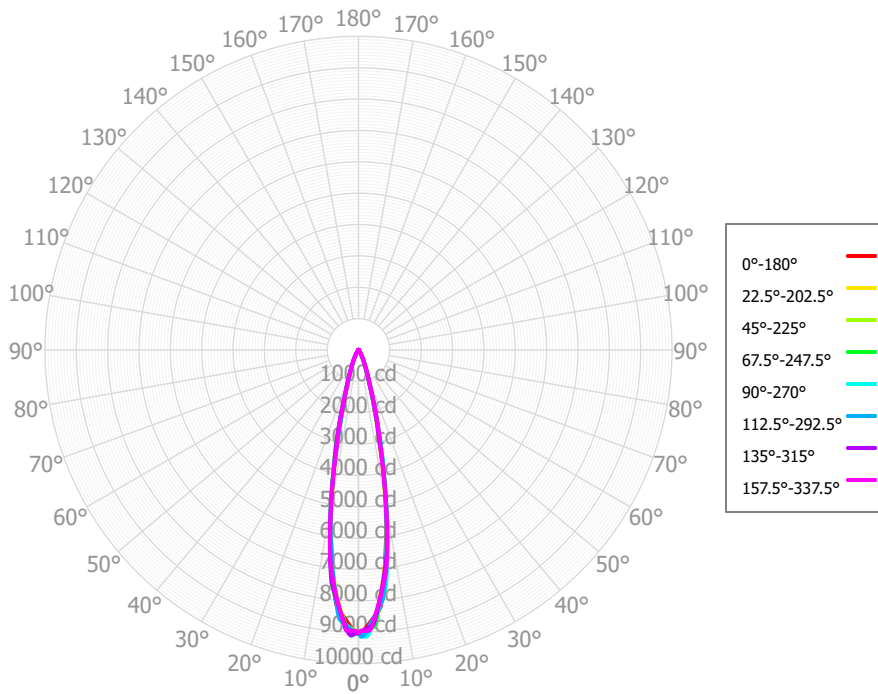
Full Beam Angle

0° - 180°	21°
90° - 270°	22°

IES File Header Contents

Keyword	Value
TEST	SP-01274_1
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 RD2SP RB2BD xx xx
LUMINAIRE	Nom 2.5 inch dia cylinder with spot optic and deep cutoff snoot
OTHER	Beam Angle: 21 deg
LAMPCAT	N/A
LAMP	N/A, 6mm LES
OTHER	80 CRI, 3500K tested
OTHER	LER (luminaire efficacy) = 79 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°	670.59	43.32%	90.00° - 100.00°	1.80	0.12%
10.00° - 20.00°	614.00	39.66%	100.00° - 110.00°	1.66	0.11%
20.00° - 30.00°	187.00	12.08%	100.00° - 120.00°	3.39	0.22%
30.00° - 40.00°	49.61	3.20%	120.00° - 130.00°	1.54	0.10%
40.00° - 50.00°	8.77	0.57%	130.00° - 140.00°	1.32	0.09%
50.00° - 60.00°	1.97	0.13%	140.00° - 150.00°	1.23	0.08%
60.00° - 70.00°	1.63	0.11%	150.00° - 160.00°	0.98	0.06%
70.00° - 80.00°	1.65	0.11%	160.00° - 170.00°	0.58	0.04%
80.00° - 90.00°	1.77	0.11%	170.00° - 180.00°	0.17	0.01%
0.00° - 90.00°	1537.00	99.29%	0.00° - 180.00°	1548.01	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°	9033.42	9033.42	9033.42	9033.42	9033.42	9033.42	9033.42	9033.42	9033.42	9033.42	9033.42	9033.42	9033.42	9033.42	9033.42	9033.42	9033.42
0.50°	9066.56	8950.63	9061.01	9002.36	9079.67	9026.59	9036.86	8959.70	9061.28	8980.35	8969.84	9057.39	9011.86	9144.28	8968.84	8962.45	9066.56
1.00°	8971.72	8935.77	9106.60	8974.85	9113.57	8967.75	9070.87	8958.33	8960.64	8995.21	8924.26	9084.90	8977.96	9118.54	8934.83	8963.82	8971.72
1.50°	8876.87	8920.91	9134.61	8947.34	9147.48	8908.90	9104.88	8956.96	8860.00	9010.07	8878.67	9112.41	8944.05	8995.16	8900.83	8965.19	8876.87
2.00°	8782.03	8906.04	8986.42	8919.83	9092.23	8850.06	9046.45	8955.58	8759.37	9024.93	8833.09	8978.63	8910.15	8871.77	8866.82	8966.56	8782.03
2.50°	8687.18	8891.18	8838.22	8892.32	8928.01	8791.21	8873.08	8954.21	8658.73	8856.83	8787.50	8819.19	8876.24	8748.39	8832.81	8911.30	8687.18
3.00°	8592.33	8831.56	8690.02	8864.80	8763.78	8732.37	8699.71	8783.33	8558.10	8663.28	8741.92	8659.75	8842.34	8625.00	8798.80	8716.36	8592.33
3.50°	8497.49	8594.26	8541.82	8789.80	8599.55	8673.52	8526.33	8572.32	8457.46	8469.73	8696.33	8500.32	8677.96	8501.62	8633.33	8521.42	8497.49
4.00°	8402.64	8356.96	8393.62	8542.79	8435.32	8614.68	8352.96	8361.30	8356.83	8276.17	8438.37	8340.88	8436.68	8378.24	8397.46	8326.48	8402.64
4.50°	8307.80	8119.66	8245.42	8295.78	8271.09	8401.48	8179.59	8150.28	8256.19	8082.62	8177.92	8181.44	8195.40	8254.85	8161.59	8131.54	8307.80
5.00°	8190.48	7882.36	8097.22	8048.77	8106.86	8098.72	8006.22	7939.27	8139.24	7889.07	7917.48	8022.00	7954.12	8131.47	7925.73	7936.60	8190.48
5.50°	7870.07	7645.06	7949.02	7801.76	7942.64	7795.96	7832.85	7728.25	7825.44	7695.52	7657.04	7862.57	7712.84	8008.09	7689.86	7741.66	7870.07
6.00°	7549.66	7407.76	7800.82	7554.75	7778.41	7493.21	7659.48	7517.23	7511.64	7501.97	7396.59	7703.13	7471.56	7761.73	7454.00	7546.72	7549.66
6.50°	7229.25	7170.46	7612.00	7307.74	7614.18	7190.45	7486.11	7306.22	7197.84	7308.42	7136.15	7543.69	7230.29	7419.23	7218.13	7351.78	7229.25
7.00°	6908.84	6933.16	7247.40	7060.73	7338.36	6887.69	7216.00	7095.20	6884.04	7114.86	6875.70	7203.45	6989.01	7076.74	6982.27	7156.84	6908.84
7.50°	6588.42	6695.86	6882.80	6813.71	6970.10	6584.94	6858.32	6884.19	6570.24	6756.84	6615.26	6855.64	6747.73	6734.24	6746.40	6898.69	6588.42
8.00°	6268.01	6419.84	6518.20	6566.70	6601.85	6282.18	6500.64	6531.99	6256.44	6394.59	6354.82	6507.83	6506.45	6391.74	6510.54	6531.81	6268.01
8.50°	5947.60	6052.73	6153.60	6279.94	6233.59	5979.42	6142.96	6165.08	5942.64	6032.34	6086.79	6160.02	6181.41	6049.25	6177.65	6164.93	5947.60
9.00°	5627.19	5685.61	5789.00	5906.09	5865.34	5676.67	5785.28	5798.16	5628.85	5670.09	5737.61	5812.21	5824.80	5706.75	5812.12	5798.05	5627.19
9.50°	5306.77	5318.50	5424.40	5532.25	5497.09	5350.07	5427.60	5431.25	5315.05	5307.84	5388.43	5464.40	5468.19	5364.25	5446.59	5431.16	5306.77
10.00°	4988.53	4951.38	5059.80	5158.40	5128.83	5013.83	5069.92	5064.33	5000.44	4945.58	5039.25	5116.59	5111.58	5021.75	5081.07	5064.28	4988.53
10.50°	4679.15	4584.27	4695.20	4784.55	4760.58	4677.59	4712.24	4697.42	4682.02	4583.33	4690.08	4768.78	4754.97	4679.26	4715.54	4697.40	4679.15
11.00°	4369.76	4217.16	4330.60	4410.70	4392.32	4341.35	4354.56	4330.50	4363.60	4221.08	4340.90	4420.96	4398.35	4373.32	4350.01	4330.52	4369.76
11.50°	4060.38	3850.04	3994.96	4036.85	4024.07	4005.11	3996.88	3963.59	4045.17	3858.83	3991.72	4077.90	4041.74	4087.92	3984.49	3963.63	4060.38
12.00°	3751.00	3482.93	3732.08	3663.00	3730.38	3668.86	3708.33	3596.67	3726.75	3506.43	3642.54	3813.53	3685.13	3802.52	3618.96	3596.75	3751.00
12.50°	3441.61	3115.82	3469.19	3289.15	3477.90	3332.62	3461.79	3229.76	3408.32	3281.19	3293.37	3549.16	3328.52	3517.12	3253.43	3299.70	3441.61
13.00°	3132.23	2822.79	3206.30	2915.30	3225.43	2996.38	3215.26	3019.97	3089.90	3055.94	2944.19	3284.79	2971.91	3231.72	2887.91	3083.09	3132.23
13.50°	2822.84	2643.10	2943.41	2624.83	2972.96	2660.14	2968.72	2812.62	2771.48	2830.69	2628.19	3020.42	2756.13	2946.32	2678.34	2866.49	2822.84
14.00°	2513.46	2463.41	2680.53	2454.14	2720.48	2323.90	2722.19	2605.27	2453.05	2605.44	2460.80	2756.05	2570.58	2660.93	2501.31	2649.89	2513.46
14.50°	2204.08	2283.72	2417.64	2283.45	2468.01	2148.67	2475.66	2397.93	2134.63	2380.20	2293.41	2491.68	2385.04	2375.53	2324.28	2433.28	2204.08
15.00°	1947.32	2104.03	2154.75	2112.76	2215.53	2011.44	2229.12	2190.58	1871.36	2154.95	2126.02	2227.31	2199.50	2090.13	2147.24	2216.68	1947.32
15.50°	1828.77	1924.34	1891.87	1942.07	1963.06	1874.22	1982.59	1983.23	1756.75	1929.70	1958.63	1962.94	2013.95	1804.73	1970.21	2000.08	1828.77
16.00°	1710.23	1744.65	1628.98	1771.37	1710.58	1737.00	1736.06	1775.88	1642.13	1704.45	1791.24	1698.57	1828.41	1655.32	1793.17	1783.47	1710.23
16.50°	1591.68	1564.96	1431.34	1600.68	1458.11	1599.78	1489.52	1568.53	1527.52	1479.21	1623.84	1458.68	1642.86	1554.36	1616.14	1566.87	1591.68
17.00°	1473.14	1385.27	1347.76	1429.99	1330.88	1462.55	1363.93	1361.19	1412.91	1277.04	1456.45	1374.36	1457.32	1453.39	1439.10	1350.27	1473.14
17.50°	1354.59	1205.58	1264.19	1259.30	1251.60	1325.33	1285.61	1165.64	1298.30	1204.58	1289.06	1290.04	1271.77	1352.42	1262.07	1215.92	1354.59
18.00°	1236.05	1081.83	1180.61	1088.61	1172.32	1188.11	1207.30	1102.71	1183.68	1132.11	1121.67	1205.72	1086.23	1251.46	1085.04	1145.76	1236.05
18.50°	1117.50	1020.06	1097.04	974.92	1093.04	1050.89	1128.99	1039.78	1069.07	1059.64	984.08	1121.41	1015.44	1150.49	1018.00	1075.60	1117.50
19.00°	998.96	958.29	1013.46	920.68	1013.76	913.66	1050.67	976.86	954.46	987.17	930.59	1037.09	957.07	1049.52	959.96	1005.44	998.96
19.50°	880.41	896.52	929.89	866.44	934.48	858.53	972.36	913.93	839.85	914.71	877.10	952.77	898.70	948.55	901.91	935.28	880.41
20.00°	790.13	834.75	846.31	812.20	855.20	811.92	894.04	851.00	751.34	842.24	823.61	868.45	840.33	847.59	843.87	865.13	790.13
20.50°	747.42	772.98	762.74	757.96	775.92	765.30	815.73	788.07	711.38	769.77	770.11	784.13	781.96	746.62	785.83	794.97	747.42
21.00°	704.71	711.21	679.16	703.72	696.64	718.68	737.41	725.14	671.42	697.31	716.62	699.81	723.59	697.62	727.78	724.81	704.71
21.50°	661.99	649.43	618.82	649.48	617.36	672.06	659.10	662.21	631.46	624.84	663.13	627.14	665.22	658.93	669.74	654.65	661.99
22.00°	619.28	587.66	585.66	595.23	578.36	625.44	618.11	599.28	591.50	562.92	609.64	592.83	606.85	620.25	611.69	584.49	619.28
22.50°	576.56	525.89	552.49	540.99	548.19	578.83	585.54	542.58	551.54	532.95	556.15	558.51	548.48	581.56	553.65	541.84	576.56

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	1840	1840	1840	1840	1796	1796	1796	1796	1714	1714	1714	1639	1639	1639	1569	1569	1537
	1	1780	1748	1720	1694	1743	1714	1689	1666	1651	1631	1613	1593	1578	1564	1539	1528	1497
	2	1725	1672	1627	1590	1693	1645	1605	1572	1595	1564	1536	1550	1524	1502	1507	1488	1459
	3	1674	1606	1553	1510	1646	1585	1537	1498	1545	1506	1473	1509	1477	1450	1475	1449	1422
	4	1627	1548	1490	1446	1603	1531	1478	1438	1500	1455	1420	1470	1433	1403	1443	1413	1387
	5	1583	1497	1437	1393	1562	1484	1428	1387	1458	1411	1374	1434	1394	1362	1412	1378	1354
	6	1542	1452	1391	1347	1523	1440	1384	1343	1419	1370	1334	1400	1357	1325	1381	1344	1322
	7	1503	1410	1350	1307	1487	1401	1344	1304	1383	1333	1297	1367	1323	1290	1352	1313	1292
	8	1467	1372	1312	1271	1452	1365	1308	1269	1350	1299	1264	1336	1291	1258	1323	1283	1264
	9	1433	1337	1279	1239	1420	1331	1275	1237	1318	1268	1233	1307	1261	1229	1296	1255	1237
	10	1401	1305	1248	1210	1389	1300	1245	1208	1289	1239	1205	1279	1234	1202	1269	1228	1211

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	298.6 fc	2.1 ft
6.5 ft	213.8 fc	2.5 ft
7.5 ft	160.6 fc	2.8 ft
8.0 ft	141.1 fc	3.0 ft
10.0 ft	90.3 fc	3.8 ft
12.0 ft	62.7 fc	4.5 ft
14.0 ft	46.1 fc	5.3 ft
16.0 ft	35.3 fc	6.1 ft
20.0 ft	22.6 fc	7.6 ft
24.0 ft	15.7 fc	9.1 ft
28.0 ft	11.5 fc	10.6 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	2807331	2807331	2807331
45.00°	3816	4324	5775
55.00°	990	999	1132
65.00°	574	1028	1079
75.00°	2050	2186	1865
85.00°	4302	5497	6715

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	-5.4	-4.5	-5.0	-4.2	-3.9	-6.1	-5.3	-5.8	-4.9	-4.6
	3H	-2.2	-1.4	-1.8	-1.1	-0.7	-3.0	-2.2	-2.6	-1.9	-1.5
	4H	-0.1	0.6	0.3	0.9	1.4	-0.9	-0.2	-0.5	0.2	0.6
	6H	2.1	2.8	2.6	3.2	3.6	1.8	2.5	2.2	2.8	3.3
	8H	3.0	3.6	3.4	4.0	4.4	3.6	4.2	4.0	4.6	5.0
	12H	3.7	4.3	4.2	4.7	5.2	5.2	5.8	5.7	6.2	6.6
4H	2H	-4.7	-4.0	-4.3	-3.6	-3.2	-4.7	-4.0	-4.3	-3.6	-3.2
	3H	-0.9	-0.3	-0.5	0.1	0.5	-1.5	-0.9	-1.1	-0.5	-0.1
	4H	1.2	1.8	1.7	2.2	2.7	0.5	1.0	0.9	1.4	1.9
	6H	3.6	4.1	4.1	4.5	5.0	3.2	3.7	3.7	4.1	4.6
	8H	4.6	5.0	5.1	5.5	6.0	5.0	5.4	5.5	5.9	6.4
	12H	5.5	5.9	6.0	6.4	6.9	6.8	7.1	7.3	7.6	8.1
8H	4H	2.0	2.4	2.5	2.8	3.3	1.3	1.7	1.8	2.1	2.6
	6H	4.6	4.9	5.1	5.4	5.9	4.2	4.6	4.8	5.1	5.6
	8H	5.9	6.2	6.4	6.7	7.2	6.1	6.4	6.6	6.9	7.4
	12H	7.1	7.3	7.6	7.9	8.5	7.9	8.2	8.5	8.7	9.3
12H	4H	2.1	2.5	2.6	3.0	3.5	1.6	2.0	2.1	2.5	3.0
	6H	4.9	5.2	5.5	5.7	6.2	4.6	4.9	5.2	5.4	6.0
	8H	6.4	6.6	6.9	7.1	7.7	6.5	6.7	7.0	7.3	7.9

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0