

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CR2 835 15 xx xx RD2XS RB2BS xx xx

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

Test Number

SP-01276

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	1650
Efficacy	84.63 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.21
Two luminaires, plane 90°	0.21
Four luminaires	0.23

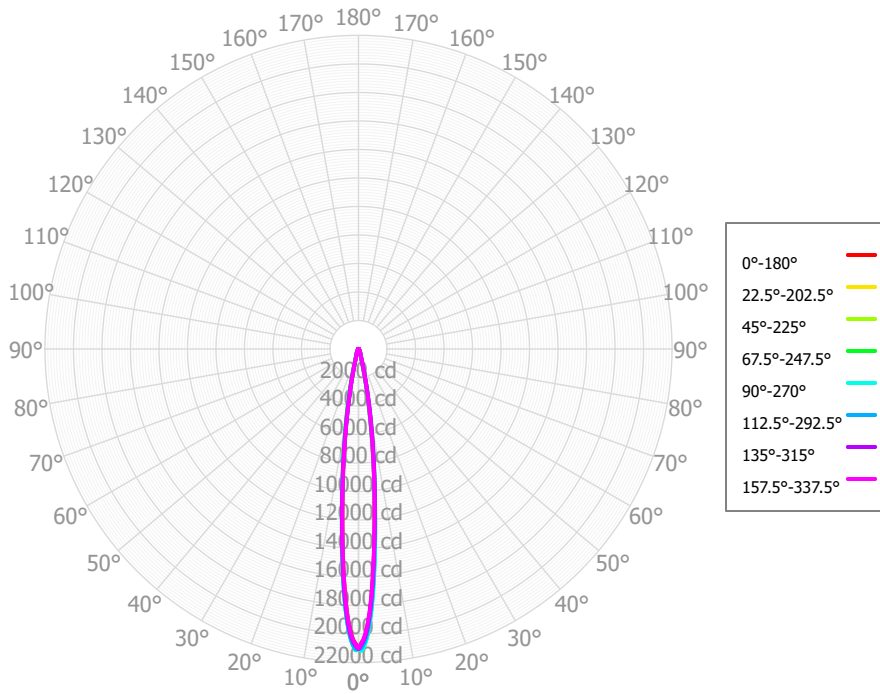
Full Beam Angle

0° - 180°	12°
90° - 270°	12°

IES File Header Contents

Keyword	Value
TEST	SP-01276
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	9/23/2021
ISSUEDATE	10/1/2021
LUMCAT	CR2 835 15 xx xx RD2XS RB2BS xx xx
LUMINAIRE	Nom 2.5 inch dia cylinder with xtra narrow spot optic and standard black bezel
OTHER	Beam Angle: 12 deg
LAMPCAT	N/A
LAMP	N/A, 6mm LES
OTHER	80 CRI, 3500K tested
OTHER	LER (luminaire efficacy) = 85 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+

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	967.94	58.65%	90.00° - 100.00°	1.36	0.08%
10.00° - 20.00°	373.69	22.64%	100.00° - 110.00°	1.22	0.07%
20.00° - 30.00°	124.95	7.57%	100.00° - 120.00°	2.38	0.14%
30.00° - 40.00°	85.44	5.18%	120.00° - 130.00°	1.04	0.06%
40.00° - 50.00°	55.87	3.39%	130.00° - 140.00°	0.96	0.06%
50.00° - 60.00°	26.14	1.58%	140.00° - 150.00°	0.87	0.05%
60.00° - 70.00°	5.77	0.35%	150.00° - 160.00°	0.70	0.04%
70.00° - 80.00°	1.47	0.09%	160.00° - 170.00°	0.42	0.03%
80.00° - 90.00°	1.26	0.08%	170.00° - 180.00°	0.11	0.01%
0.00° - 90.00°	1642.51	99.52%	0.00° - 180.00°	1650.36	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°	21034.22	21034.22	21034.22	21034.22	21034.22	21034.22	21034.22	21034.22	21034.22	21034.22	21034.22	21034.22	21034.22	21034.22	21034.22	21034.22
0.50°	20689.10	20862.24	21074.60	21174.14	21184.55	21064.44	20847.19	20754.89	20711.75	20907.30	21065.44	21143.16	21143.58	21015.10	20774.97	20673.85
1.00°	20383.27	20567.79	20787.97	20902.26	20926.85	20819.10	20576.77	20470.67	20436.68	20625.07	20811.31	20817.81	20834.77	20713.91	20474.30	20351.89
1.50°	19907.47	20096.83	20311.32	20427.56	20474.55	20375.47	20157.85	20002.00	19973.13	20165.76	20367.16	20357.06	20384.66	20251.61	19991.74	19853.54
2.00°	19224.32	19432.50	19641.96	19779.29	19833.33	19727.62	19535.19	19353.09	19328.48	19512.05	19730.45	19706.30	19756.89	19596.13	19329.71	19164.22
2.50°	18406.94	18582.29	18797.04	18931.84	19012.94	18911.10	18716.89	18568.84	18491.97	18700.53	18907.96	18913.92	18945.88	18773.44	18470.87	18317.28
3.00°	17418.07	17607.71	17793.00	17935.38	18046.82	17939.22	17744.52	17571.84	17493.51	17706.49	17928.08	17922.58	17976.35	17810.51	17444.64	17308.28
3.50°	16322.95	16506.80	16684.23	16845.46	16954.57	16841.59	16662.26	16464.72	16396.58	16614.39	16825.33	16811.15	16870.73	16682.29	16313.06	16202.58
4.00°	15200.76	15360.55	15505.90	15692.67	15796.46	15627.58	15486.50	15302.82	15262.05	15439.87	15636.42	15635.59	15682.16	15497.57	15158.79	15075.23
4.50°	14058.86	14203.57	14348.80	14507.67	14595.97	14429.06	14302.31	14107.59	14105.95	14250.30	14435.35	14425.64	14466.18	14306.09	13999.42	13933.25
5.00°	12917.94	13067.32	13221.19	13331.49	13403.73	13263.18	13126.97	12963.72	12949.61	13078.75	13259.06	13212.65	13276.39	13148.14	12901.52	12831.31
5.50°	11832.12	11984.42	12128.49	12168.99	12230.12	12145.11	12010.79	11845.70	11837.32	11961.46	12128.46	12064.58	12149.44	12066.96	11877.62	11766.00
6.00°	10795.38	10944.89	11076.42	11043.93	11108.84	11073.86	10970.68	10789.84	10798.23	10928.23	11073.78	11010.94	11088.71	11055.51	10912.88	10770.65
6.50°	9812.86	9957.72	10076.43	9988.11	10044.95	10062.72	9979.86	9812.66	9830.21	9973.53	10098.76	10026.08	10106.67	10111.92	10002.70	9839.91
7.00°	8875.12	9020.33	9131.02	9000.56	9060.74	9103.07	9057.42	8881.11	8928.97	9080.38	9191.74	9121.94	9209.45	9246.26	9131.15	8938.24
7.50°	8006.81	8148.67	8242.26	8066.40	8130.13	8199.42	8177.81	7990.05	8094.25	8254.05	8351.92	8264.33	8352.55	8425.44	8291.41	8071.36
8.00°	7193.38	7329.71	7389.23	7180.60	7256.65	7322.44	7327.63	7151.85	7298.44	7443.70	7556.71	7457.33	7555.34	7640.63	7511.11	7256.82
8.50°	6410.27	6551.71	6575.79	6358.08	6443.21	6510.26	6525.31	6358.50	6540.46	6690.07	6806.84	6709.01	6812.58	6892.07	6749.27	6483.41
9.00°	5717.46	5840.97	5840.87	5611.79	5691.19	5761.89	5778.56	5629.82	5840.40	5994.31	6115.11	6008.76	6109.86	6187.35	6042.34	5771.68
9.50°	5060.98	5173.21	5149.62	4925.61	5003.95	5069.82	5089.57	4964.10	5173.83	5330.80	5457.21	5355.58	5453.47	5520.35	5376.03	5113.95
10.00°	4458.29	4561.05	4515.95	4299.66	4381.43	4434.09	4457.10	4364.66	4553.59	4707.21	4837.16	4732.70	4831.21	4887.72	4754.76	4514.48
10.50°	3910.60	3995.12	3929.36	3744.59	3810.25	3848.44	3876.64	3817.56	3990.82	4125.11	4264.49	4166.79	4267.87	4308.71	4188.53	3962.08
11.00°	3414.39	3473.64	3404.36	3239.59	3290.96	3322.46	3352.76	3312.80	3473.30	3604.76	3742.23	3653.87	3747.67	3784.36	3670.01	3454.55
11.50°	2959.50	3003.31	2940.18	2788.73	2827.19	2847.84	2881.00	2858.36	3001.23	3133.60	3255.11	3187.11	3269.60	3298.00	3190.48	2994.30
12.00°	2556.87	2584.15	2510.35	2392.72	2413.41	2434.80	2457.12	2454.09	2580.45	2698.88	2814.77	2759.43	2831.46	2850.47	2756.53	2586.46
12.50°	2199.16	2209.23	2134.60	2041.31	2049.93	2072.16	2089.66	2092.31	2207.39	2313.78	2421.97	2379.47	2433.98	2450.12	2368.40	2225.03
13.00°	1875.40	1877.62	1809.02	1730.77	1741.26	1758.81	1769.85	1775.88	1874.47	1976.91	2067.23	2035.45	2083.02	2097.36	2028.84	1907.04
13.50°	1603.06	1593.05	1533.24	1468.47	1482.42	1490.25	1497.42	1510.37	1582.93	1676.82	1752.61	1732.83	1774.01	1787.08	1730.69	1630.61
14.00°	1367.66	1351.38	1298.11	1249.38	1268.50	1267.59	1273.73	1287.55	1352.73	1424.28	1486.49	1472.57	1507.32	1522.75	1475.41	1397.47
14.50°	1173.71	1155.20	1110.40	1071.69	1083.87	1088.30	1090.12	1101.45	1155.19	1219.67	1263.98	1254.50	1283.15	1298.86	1261.15	1199.50
15.00°	1017.42	997.38	960.04	928.31	941.22	941.34	941.67	954.48	991.81	1044.84	1079.83	1075.24	1097.64	1113.59	1082.44	1034.99
15.50°	886.84	872.25	839.41	821.41	824.70	825.06	827.46	836.95	869.12	909.60	933.10	935.05	953.99	966.76	938.15	905.49
16.00°	785.67	771.47	742.18	732.74	732.95	732.84	735.13	744.10	772.92	804.52	826.46	821.78	833.80	844.17	822.78	797.77
16.50°	701.82	690.30	668.84	655.16	658.31	657.70	660.49	670.16	695.58	719.05	735.94	728.42	739.42	750.75	735.43	713.81
17.00°	635.84	627.22	607.23	597.61	601.85	597.59	600.56	607.00	630.68	651.29	668.44	658.05	666.50	670.04	663.18	646.24
17.50°	583.96	572.32	559.33	549.38	551.65	547.23	550.56	555.21	578.82	598.43	609.30	599.70	599.92	608.80	602.61	589.82
18.00°	537.44	528.05	514.19	510.64	509.70	508.22	506.40	513.11	527.05	553.42	556.13	547.11	553.10	559.25	553.76	544.33
18.50°	498.78	493.77	479.95	471.76	477.28	472.38	474.15	476.87	494.03	514.84	513.91	503.98	514.17	520.58	510.52	502.75
19.00°	469.80	462.56	451.23	440.91	445.90	443.99	440.98	447.08	464.83	479.68	482.18	470.41	479.04	482.58	474.80	469.37
19.50°	441.10	438.32	425.25	417.41	418.01	418.91	419.54	419.85	439.27	449.73	452.52	440.67	443.16	451.69	447.57	444.63
20.00°	417.02	416.39	408.73	398.10	399.76	396.76	396.80	400.85	415.43	430.87	423.14	414.66	417.81	425.16	424.25	419.16

CR2 835 15 xx xx RD2XS RB2BS xx xx

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Page 4 of 6

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%	20%	0%
	pcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	1963	1963	1963	1963	1916	1916	1916	1916	1829	1829	1829	1750	1750	1750	1677	1677	1677	1643
	1	1901	1867	1837	1810	1861	1831	1805	1781	1765	1744	1725	1703	1688	1673	1646	1635	1624	1602
	2	1842	1786	1739	1700	1808	1758	1716	1681	1706	1673	1644	1658	1631	1608	1613	1593	1574	1562
	3	1789	1717	1661	1617	1760	1695	1645	1604	1654	1612	1578	1616	1582	1553	1580	1553	1530	1524
	4	1741	1658	1598	1552	1715	1641	1585	1542	1608	1561	1524	1577	1538	1507	1548	1516	1490	1489
	5	1697	1607	1545	1499	1674	1593	1535	1492	1566	1517	1479	1541	1499	1466	1518	1483	1454	1457
	6	1656	1563	1500	1455	1637	1551	1493	1450	1529	1478	1441	1509	1465	1431	1490	1452	1422	1428
	7	1619	1524	1461	1418	1602	1514	1456	1414	1496	1445	1407	1479	1434	1400	1463	1424	1393	1401
	8	1586	1489	1428	1386	1571	1481	1423	1383	1466	1414	1378	1452	1406	1373	1438	1398	1367	1377
	9	1555	1458	1398	1358	1541	1451	1395	1356	1438	1388	1352	1426	1381	1348	1415	1374	1344	1354
	10	1526	1430	1372	1334	1514	1424	1369	1332	1413	1363	1329	1403	1358	1325	1393	1352	1322	1334

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	695.3 fc	1.2 ft
6.5 ft	497.9 fc	1.4 ft
7.5 ft	373.9 fc	1.6 ft
8.0 ft	328.7 fc	1.7 ft
10.0 ft	210.3 fc	2.1 ft
12.0 ft	146.1 fc	2.6 ft
14.0 ft	107.3 fc	3.0 ft
16.0 ft	82.2 fc	3.4 ft
20.0 ft	52.6 fc	4.3 ft
24.0 ft	36.5 fc	5.1 ft
28.0 ft	26.8 fc	6.0 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	6536843	6536843	6536843
45.00°	30301	26231	28698
55.00°	15048	13422	14013
65.00°	3274	3574	3139
75.00°	1175	1822	1785
85.00°	3408	4765	2793

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	10.6	11.6	11.0	11.9	12.2	11.3	12.2	11.7	12.6	12.9
	3H	10.5	11.4	10.9	11.7	12.1	11.3	12.1	11.6	12.4	12.8
	4H	10.5	11.2	10.9	11.6	12.0	11.2	12.0	11.6	12.3	12.7
	6H	10.4	11.1	10.8	11.5	11.9	11.1	11.8	11.6	12.2	12.6
	8H	10.4	11.1	10.9	11.5	11.9	11.1	11.8	11.6	12.2	12.6
	12H	10.4	11.0	10.9	11.4	11.9	11.1	11.7	11.5	12.1	12.6
4H	2H	10.4	11.2	10.9	11.6	12.0	11.2	11.9	11.6	12.3	12.7
	3H	10.4	11.0	10.8	11.5	11.9	11.1	11.8	11.6	12.2	12.6
	4H	10.4	10.9	10.8	11.4	11.8	11.1	11.7	11.5	12.1	12.5
	6H	10.3	10.8	10.8	11.3	11.8	11.1	11.5	11.6	12.0	12.5
	8H	10.4	10.8	10.8	11.3	11.7	11.1	11.5	11.6	12.0	12.5
	12H	10.4	10.8	10.9	11.3	11.8	11.1	11.5	11.6	12.0	12.5
8H	4H	10.2	10.7	10.7	11.1	11.6	10.9	11.4	11.4	11.9	12.3
	6H	10.2	10.6	10.8	11.1	11.6	11.0	11.3	11.5	11.8	12.3
	8H	10.3	10.6	10.9	11.2	11.7	11.1	11.4	11.6	11.9	12.4
	12H	10.5	10.8	11.1	11.3	11.9	11.3	11.6	11.9	12.1	12.7
12H	4H	10.2	10.5	10.7	11.0	11.5	10.9	11.3	11.4	11.8	12.3
	6H	10.2	10.5	10.7	11.0	11.6	10.9	11.3	11.5	11.7	12.3
	8H	10.3	10.6	10.9	11.1	11.7	11.1	11.4	11.7	11.9	12.5

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0