

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CR2 835 15 xx xx RD2XS RB2BS xx RA2LS
Nom 2.5 inch dia cylinder with xtra narrow spot optic and Solite lens

Test Number

SP-01276_3

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	1550
Efficacy	79.51 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.3
Two luminaires, plane 90°	0.3
Four luminaires	0.32

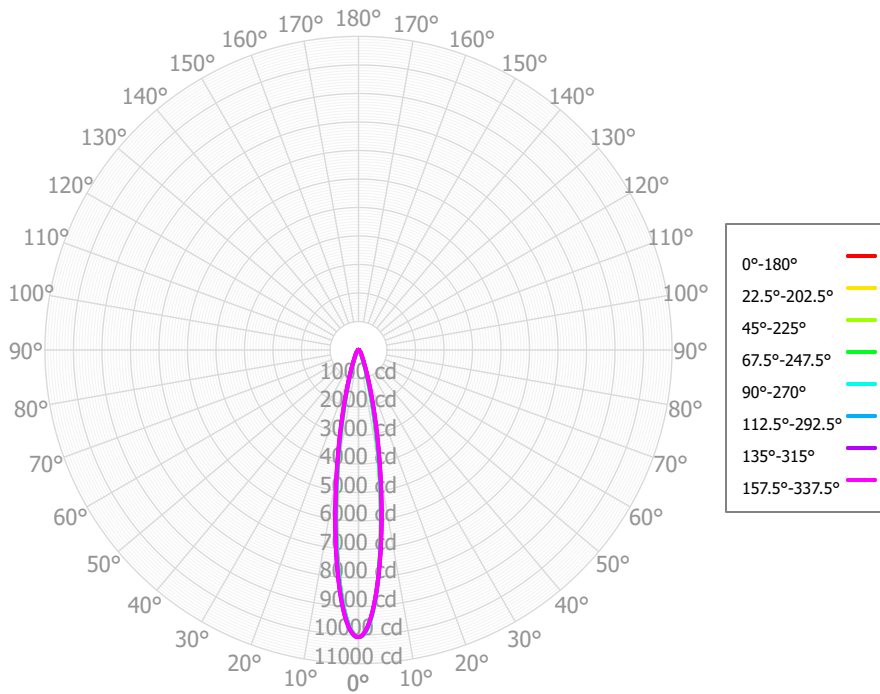
Full Beam Angle

0° - 180°	18°
90° - 270°	18°

IES File Header Contents

Keyword	Value
TEST	SP-01276_3
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 RD2XS RB2BS xx RA2LS
LUMINAIRE	Nom 2.5 inch dia cylinder with xtra narrow spot optic and Solite lens
OTHER	Beam Angle: 18 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°	637.41	41.11%	90.00° - 100.00°	1.46	0.09%
10.00° - 20.00°	526.92	33.98%	100.00° - 110.00°	1.49	0.10%
20.00° - 30.00°	178.01	11.48%	100.00° - 120.00°	2.87	0.19%
30.00° - 40.00°	97.85	6.31%	120.00° - 130.00°	1.21	0.08%
40.00° - 50.00°	61.77	3.98%	130.00° - 140.00°	1.10	0.07%
50.00° - 60.00°	28.07	1.81%	140.00° - 150.00°	1.06	0.07%
60.00° - 70.00°	7.43	0.48%	150.00° - 160.00°	0.81	0.05%
70.00° - 80.00°	2.33	0.15%	160.00° - 170.00°	0.47	0.03%
80.00° - 90.00°	1.58	0.10%	170.00° - 180.00°	0.15	0.01%
0.00° - 90.00°	1541.36	99.41%	0.00° - 180.00°	1550.50	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°	10070.06	10070.06	10070.06	10070.06	10070.06	10070.06	10070.06	10070.06	10070.06	10070.06	10070.06	10070.06	10070.06	10070.06	10070.06	10070.06
0.50°	10043.43	10037.79	10055.27	10059.83	10054.32	10063.32	10062.51	10050.08	10038.94	10034.03	10045.49	10045.51	10033.42	10043.36	10041.29	10040.41
1.00°	9960.09	9966.86	9987.01	9991.21	9992.76	10001.29	9996.88	9982.20	9970.78	9959.77	9966.89	9955.31	9959.95	9959.89	9964.42	9959.49
1.50°	9843.31	9847.14	9871.73	9881.16	9882.64	9900.77	9885.05	9871.23	9852.83	9842.43	9842.41	9836.07	9832.73	9831.43	9840.35	9833.43
2.00°	9678.12	9684.69	9700.62	9720.98	9728.28	9747.37	9742.76	9716.33	9683.20	9677.82	9673.23	9660.49	9661.59	9660.44	9679.15	9666.57
2.50°	9471.51	9478.49	9492.72	9510.43	9523.29	9553.81	9545.63	9519.09	9479.31	9466.69	9456.48	9449.31	9448.98	9457.18	9473.11	9464.15
3.00°	9225.30	9235.07	9245.75	9259.80	9288.39	9323.20	9317.03	9286.97	9239.60	9218.21	9204.35	9198.72	9203.99	9212.59	9231.47	9223.73
3.50°	8952.06	8957.95	8956.85	8984.12	9020.56	9053.51	9053.67	9017.18	8968.37	8932.33	8926.94	8915.57	8923.73	8938.19	8959.07	8947.92
4.00°	8650.43	8650.61	8650.73	8673.36	8712.73	8760.06	8758.25	8721.29	8661.64	8620.92	8608.83	8599.52	8614.39	8634.71	8663.28	8648.77
4.50°	8324.96	8314.81	8316.71	8331.67	8377.56	8427.24	8437.23	8402.47	8334.30	8284.34	8258.12	8263.08	8279.72	8315.64	8345.22	8327.11
5.00°	7985.38	7956.31	7957.58	7979.71	8018.00	8081.71	8093.85	8057.45	7987.18	7935.39	7896.39	7896.67	7936.83	7976.89	8009.40	7989.50
5.50°	7624.18	7595.22	7581.90	7600.65	7644.45	7719.26	7742.17	7701.31	7621.94	7564.62	7532.91	7533.07	7575.11	7624.11	7663.75	7640.83
6.00°	7249.12	7217.02	7193.71	7210.06	7265.91	7345.69	7378.17	7333.49	7248.65	7173.27	7146.10	7148.00	7201.54	7257.40	7304.58	7278.73
6.50°	6870.00	6827.93	6798.21	6817.82	6874.54	6965.16	6996.08	6963.01	6866.57	6792.93	6762.28	6761.79	6823.77	6889.28	6939.34	6911.59
7.00°	6491.28	6441.04	6396.45	6418.84	6485.05	6583.23	6619.56	6585.34	6494.41	6421.30	6379.75	6374.31	6438.32	6518.14	6572.23	6542.29
7.50°	6112.40	6043.70	5999.08	6017.97	6092.19	6192.99	6245.67	6201.10	6121.02	6032.70	5992.17	5985.34	6051.04	6144.94	6203.37	6171.39
8.00°	5734.65	5657.52	5616.19	5624.76	5700.79	5805.85	5866.09	5822.10	5737.25	5650.42	5614.30	5606.49	5676.74	5773.46	5837.70	5803.65
8.50°	5366.64	5282.38	5241.65	5240.70	5317.69	5428.33	5493.10	5453.99	5365.34	5274.82	5235.22	5237.25	5306.10	5408.49	5476.83	5441.36
9.00°	5006.41	4912.18	4871.54	4870.67	4940.83	5057.33	5127.67	5088.83	5006.74	4917.06	4879.85	4874.23	4943.74	5056.59	5124.35	5088.79
9.50°	4662.87	4563.35	4507.22	4508.63	4584.03	4700.34	4773.03	4747.05	4656.72	4571.35	4524.69	4521.01	4595.59	4713.68	4786.06	4747.75
10.00°	4323.04	4218.93	4160.96	4160.28	4235.32	4362.11	4437.73	4410.17	4318.44	4233.13	4182.67	4180.74	4260.12	4380.31	4456.60	4414.97
10.50°	4004.86	3897.16	3826.77	3828.89	3909.05	4033.65	4111.19	4083.91	3994.43	3910.51	3860.01	3860.95	3937.19	4061.39	4136.76	4099.94
11.00°	3694.59	3587.98	3512.27	3513.36	3595.54	3722.26	3800.06	3774.91	3695.73	3599.29	3559.93	3562.53	3629.68	3758.20	3830.29	3793.80
11.50°	3404.69	3288.05	3217.21	3215.06	3300.19	3426.42	3506.81	3480.45	3406.97	3309.54	3267.04	3271.58	3340.36	3468.68	3539.80	3499.60
12.00°	3126.64	3014.84	2940.63	2939.22	3023.43	3146.73	3229.40	3204.01	3130.77	3039.06	2998.10	3000.10	3064.69	3192.93	3269.70	3227.14
12.50°	2867.73	2762.43	2685.36	2680.08	2764.09	2885.77	2964.45	2941.45	2872.35	2781.81	2741.01	2745.46	2807.65	2934.79	3010.38	2972.81
13.00°	2627.42	2524.80	2442.10	2440.95	2517.63	2642.24	2720.38	2697.95	2632.06	2544.58	2506.27	2507.08	2572.51	2697.18	2769.89	2734.00
13.50°	2404.41	2297.54	2227.10	2221.04	2296.27	2415.29	2492.06	2473.50	2405.51	2319.20	2287.93	2286.81	2351.67	2472.73	2547.66	2509.65
14.00°	2197.04	2102.00	2021.56	2019.33	2093.89	2205.60	2280.12	2264.80	2200.55	2113.90	2082.18	2082.04	2147.45	2265.22	2339.73	2302.79
14.50°	2005.34	1909.75	1836.17	1833.18	1906.23	2016.81	2085.25	2071.84	2011.23	1927.41	1897.74	1897.04	1958.92	2074.14	2145.87	2107.89
15.00°	1829.44	1737.26	1668.29	1660.96	1734.52	1837.60	1908.96	1897.49	1836.59	1759.51	1727.06	1729.59	1783.50	1896.08	1965.02	1930.72
15.50°	1663.63	1575.23	1509.64	1506.48	1576.67	1673.62	1746.88	1731.60	1675.99	1603.52	1571.27	1574.99	1625.30	1732.76	1797.11	1764.91
16.00°	1518.06	1436.37	1374.73	1366.83	1432.68	1526.66	1593.32	1583.40	1527.13	1459.30	1431.52	1432.96	1479.86	1581.55	1642.79	1613.41
16.50°	1385.62	1303.11	1247.75	1243.05	1303.22	1390.82	1454.04	1445.22	1396.92	1329.19	1303.43	1303.50	1349.66	1446.37	1504.53	1472.86
17.00°	1266.58	1190.90	1136.93	1131.24	1188.24	1269.40	1326.78	1322.33	1275.41	1213.58	1187.25	1189.22	1231.43	1323.29	1378.07	1350.63
17.50°	1156.21	1086.67	1037.66	1032.21	1082.62	1159.44	1213.21	1210.47	1166.32	1109.57	1084.19	1085.30	1127.26	1210.80	1265.86	1233.80
18.00°	1057.68	989.83	945.92	940.63	986.56	1060.38	1112.61	1109.91	1067.83	1016.77	991.83	989.64	1029.70	1109.86	1159.80	1129.83
18.50°	970.68	906.79	863.29	857.27	902.63	970.47	1020.96	1016.75	973.73	929.99	909.64	905.27	941.30	1017.09	1064.67	1043.71
19.00°	890.15	828.43	791.48	783.66	824.91	888.19	936.26	931.96	895.50	853.62	831.39	830.84	862.50	931.31	978.31	956.06
19.50°	816.65	761.59	724.63	717.65	755.52	816.68	860.40	857.27	821.55	784.19	765.76	765.42	789.45	855.44	897.78	874.49
20.00°	750.75	701.83	665.46	658.92	694.40	751.10	793.05	790.46	758.27	723.22	707.30	702.19	727.90	789.73	825.56	805.76
20.50°	692.50	645.53	611.46	605.47	638.00	691.44	731.29	726.30	698.55	668.12	650.17	648.09	668.71	727.21	761.17	744.20
21.00°	640.61	594.41	563.95	557.83	587.97	635.79	674.32	668.64	643.58	615.01	601.41	599.75	619.68	668.17	704.72	686.13
21.50°	592.85	548.11	522.38	513.34	542.21	588.20	622.68	620.98	595.56	569.77	556.37	556.71	572.22	620.82	650.52	637.11
22.00°	549.86	511.86	487.41	478.40	501.03	544.05	576.02	575.89	549.87	527.81	514.27	514.65	531.77	573.95	604.88	588.30
22.50°	509.78	475.36	451.58	447.09	469.08	507.66	534.96	533.89	510.43	490.70	481.05	477.82	495.79	532.95	558.15	547.89

CR2 835 15 xx xx RD2XS RB2BS xx RA2LS

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	1844	1844	1844	1844	1800	1800	1800	1800	1718	1718	1718	1643	1643	1643	1574	1574	1541
	1	1777	1743	1711	1683	1739	1709	1681	1656	1645	1624	1604	1587	1570	1555	1533	1520	1509
	2	1714	1655	1606	1565	1681	1628	1584	1547	1578	1543	1512	1532	1504	1479	1489	1467	1447
	3	1655	1579	1520	1473	1626	1558	1504	1460	1518	1473	1437	1481	1444	1414	1446	1417	1391
	4	1600	1512	1448	1399	1575	1495	1436	1390	1463	1413	1373	1433	1391	1357	1405	1370	1341
	5	1550	1454	1387	1337	1528	1440	1378	1331	1414	1360	1319	1389	1343	1308	1366	1327	1296
	6	1503	1402	1334	1285	1483	1391	1327	1281	1369	1314	1272	1349	1300	1264	1330	1288	1255
	7	1460	1356	1288	1241	1442	1346	1283	1237	1328	1272	1231	1311	1262	1224	1295	1252	1218
	8	1420	1314	1247	1202	1404	1306	1243	1199	1291	1234	1194	1276	1226	1189	1263	1218	1184
	9	1383	1276	1211	1167	1369	1269	1207	1165	1256	1200	1161	1244	1194	1157	1233	1187	1153
	10	1348	1242	1178	1136	1336	1236	1175	1134	1225	1169	1131	1214	1164	1128	1204	1158	1125

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	332.9 fc	1.7 ft
6.5 ft	238.3 fc	2.0 ft
7.5 ft	179.0 fc	2.4 ft
8.0 ft	157.3 fc	2.5 ft
10.0 ft	100.7 fc	3.1 ft
12.0 ft	69.9 fc	3.8 ft
14.0 ft	51.4 fc	4.4 ft
16.0 ft	39.3 fc	5.0 ft
20.0 ft	25.2 fc	6.3 ft
24.0 ft	17.5 fc	7.5 ft
28.0 ft	12.8 fc	8.8 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	3129492	3129492	3129492
45.00°	36597	32210	33353
55.00°	17441	15932	16859
65.00°	5270	3983	6653
75.00°	3045	3004	3300
85.00°	5637	7287	4799

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	12.2	13.2	12.6	13.5	13.8	12.2	13.2	12.6	13.5	13.8
	3H	12.3	13.1	12.7	13.5	13.9	12.3	13.1	12.7	13.5	13.8
	4H	12.3	13.1	12.7	13.4	13.8	12.3	13.1	12.7	13.4	13.8
	6H	12.3	13.0	12.7	13.4	13.8	12.3	13.0	12.7	13.4	13.8
	8H	12.3	12.9	12.7	13.4	13.8	12.3	12.9	12.7	13.3	13.8
	12H	12.3	13.0	12.8	13.4	13.8	12.3	12.9	12.7	13.3	13.8
4H	2H	12.0	12.8	12.4	13.2	13.6	12.1	12.8	12.5	13.2	13.6
	3H	12.1	12.8	12.6	13.2	13.6	12.2	12.8	12.6	13.2	13.6
	4H	12.1	12.7	12.6	13.1	13.6	12.2	12.8	12.6	13.2	13.7
	6H	12.2	12.7	12.7	13.1	13.6	12.2	12.7	12.7	13.2	13.7
	8H	12.2	12.7	12.7	13.1	13.6	12.2	12.7	12.7	13.2	13.6
	12H	12.3	12.7	12.8	13.2	13.7	12.3	12.7	12.8	13.2	13.7
8H	4H	12.0	12.5	12.5	12.9	13.4	12.1	12.5	12.6	13.0	13.5
	6H	12.1	12.4	12.6	13.0	13.5	12.1	12.5	12.6	13.0	13.5
	8H	12.2	12.5	12.7	13.0	13.5	12.2	12.5	12.7	13.0	13.5
	12H	12.4	12.7	12.9	13.2	13.8	12.4	12.6	12.9	13.1	13.7
12H	4H	12.0	12.4	12.5	12.9	13.4	12.0	12.4	12.5	12.9	13.4
	6H	12.1	12.4	12.6	12.9	13.4	12.1	12.4	12.6	12.9	13.4
	8H	12.2	12.5	12.7	13.0	13.6	12.2	12.5	12.7	13.0	13.6

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0