

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 15 xx xx RD2FL RB2BS xx RA2LL

Nom 2.5 inch dia cylinder with flood optic and linear spread lens

Test Number

SP-01273_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
-------------	--------

Lumen Output

Output Lumens	1475
Efficacy	75.65 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.65
Two luminaires, plane 90°	0.49
Four luminaires	0.6

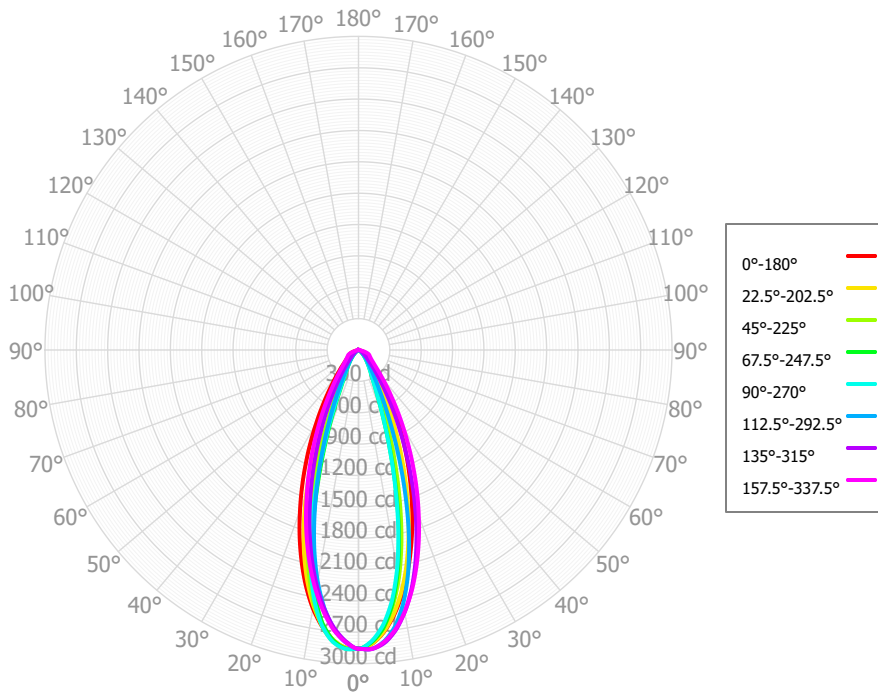
Full Beam Angle

0° - 180°	43°
90° - 270°	31°

IES File Header Contents

Keyword	Value
TEST	SP-01273_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 RB2BS xx RA2LL
LUMINAIRE	Nom 2.5 inch dia cylinder with flood optic and linear spread lens
OTHER	Beam Angle: 31 X 43 degrees
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°	252.70	17.13%	90.00° - 100.00°	1.56	0.11%
10.00° - 20.00°	489.48	33.18%	100.00° - 110.00°	1.54	0.10%
20.00° - 30.00°	347.34	23.55%	100.00° - 120.00°	2.98	0.20%
30.00° - 40.00°	181.98	12.34%	120.00° - 130.00°	1.37	0.09%
40.00° - 50.00°	93.92	6.37%	130.00° - 140.00°	1.25	0.08%
50.00° - 60.00°	53.51	3.63%	140.00° - 150.00°	1.09	0.07%
60.00° - 70.00°	33.21	2.25%	150.00° - 160.00°	0.84	0.06%
70.00° - 80.00°	11.50	0.78%	160.00° - 170.00°	0.49	0.03%
80.00° - 90.00°	1.73	0.12%	170.00° - 180.00°	0.17	0.01%
0.00° - 90.00°	1465.37	99.34%	0.00° - 180.00°	1475.12	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°	2858.84	2858.84	2858.84	2858.84	2858.84	2858.84	2858.84	2858.84	2858.84	2858.84	2858.84	2858.84	2858.84	2858.84	2858.84	2858.84	2858.84
2.50°	2818.11	2817.37	2800.18	2801.79	2791.60	2801.68	2790.05	2799.57	2851.16	2851.40	2858.42	2859.34	2862.27	2863.35	2863.51	2864.31	2818.11
5.00°	2717.27	2712.64	2676.80	2677.95	2650.76	2681.56	2670.78	2692.87	2789.39	2781.16	2800.32	2786.58	2804.55	2799.65	2816.12	2804.67	2717.27
7.50°	2568.72	2557.06	2481.50	2460.63	2430.60	2493.78	2501.00	2533.94	2668.96	2657.70	2665.91	2638.06	2664.39	2669.66	2708.42	2698.34	2568.72
10.00°	2383.36	2355.49	2220.59	2158.91	2127.51	2249.43	2294.01	2342.57	2511.49	2483.92	2465.67	2392.49	2433.96	2463.78	2546.92	2545.04	2383.36
12.50°	2174.04	2117.32	1894.56	1786.43	1758.57	1954.76	2058.70	2130.10	2318.02	2264.03	2191.97	2057.34	2113.75	2190.90	2343.24	2356.81	2174.04
15.00°	1944.47	1850.60	1538.00	1383.71	1362.41	1624.92	1805.07	1901.51	2100.80	2011.83	1862.90	1659.22	1724.22	1866.61	2105.51	2142.51	1944.47
17.50°	1712.60	1575.88	1189.09	1006.67	995.50	1290.78	1547.10	1670.40	1872.10	1738.95	1506.02	1248.06	1317.47	1517.18	1845.07	1916.61	1712.60
20.00°	1482.54	1302.18	880.81	692.20	692.79	983.98	1293.65	1438.99	1636.09	1461.50	1154.03	885.55	941.50	1177.18	1576.70	1684.68	1482.54
22.50°	1263.60	1050.17	627.50	475.22	474.62	722.51	1056.10	1223.05	1408.09	1196.64	847.33	596.51	640.08	873.05	1314.50	1459.52	1263.60
25.00°	1062.57	826.40	442.53	344.14	340.12	520.38	844.75	1020.25	1188.58	951.27	598.95	400.27	429.05	624.05	1067.59	1240.56	1062.57
27.50°	875.28	634.41	322.66	267.06	265.25	368.81	662.55	838.04	988.95	737.06	413.33	293.71	307.14	436.89	845.95	1039.59	875.28
30.00°	711.68	480.54	247.12	217.26	214.88	274.58	507.68	681.22	806.48	562.16	298.10	233.04	240.04	311.11	657.69	856.12	711.68
32.50°	569.01	360.05	197.24	178.72	176.59	210.46	386.25	547.80	652.01	417.32	227.23	189.59	196.10	232.91	501.51	694.89	569.01
35.00°	455.67	266.92	161.55	145.78	144.88	169.42	294.01	441.56	521.85	312.89	181.58	155.70	160.00	183.19	376.51	557.40	455.67
37.50°	365.81	199.89	132.99	121.40	120.08	139.18	221.85	358.74	416.28	233.59	148.84	130.35	133.98	148.41	281.41	449.06	365.81
40.00°	293.42	153.19	110.03	100.36	97.98	111.28	170.71	293.77	335.16	173.49	121.91	107.14	110.74	121.90	211.40	360.98	293.42
42.50°	241.96	117.83	88.78	82.13	80.64	89.75	132.06	244.01	272.72	133.94	99.23	88.23	92.64	99.87	158.32	294.37	241.96
45.00°	202.03	93.75	70.12	67.91	66.52	72.32	104.29	208.87	227.00	103.97	80.56	73.58	76.05	80.91	124.02	245.16	202.03
47.50°	172.21	72.65	55.69	55.22	51.79	55.90	84.21	183.79	189.77	81.59	63.90	59.68	63.69	66.11	98.00	207.18	172.21
50.00°	149.05	59.59	43.35	45.83	42.65	43.50	68.61	163.43	164.16	65.47	50.09	49.82	50.42	51.09	78.05	181.48	149.05
52.50°	134.40	48.17	33.26	35.61	32.60	33.69	56.75	147.58	145.36	52.59	38.37	39.77	41.37	39.98	62.16	161.02	134.40
55.00°	121.84	38.21	26.45	27.34	25.32	25.86	45.62	137.16	129.06	41.75	30.17	31.01	30.57	30.87	51.25	146.41	121.84
57.50°	110.78	30.65	19.71	19.14	18.99	18.43	38.33	126.88	116.23	33.14	21.92	22.84	23.81	23.22	42.42	135.78	110.78
60.00°	103.87	25.10	13.90	13.88	13.26	13.52	31.98	119.82	107.53	26.07	16.36	16.31	18.25	17.72	33.90	126.44	103.87
62.50°	96.15	19.05	10.07	11.29	10.93	10.57	23.80	113.35	100.66	20.42	12.70	11.67	12.69	14.04	28.25	120.11	96.15
65.00°	89.48	16.02	7.71	7.84	7.15	8.74	19.62	105.22	92.03	15.65	9.19	9.21	9.82	9.76	22.88	113.45	89.48
67.50°	76.49	11.54	5.53	5.07	5.16	5.12	13.19	90.49	85.30	12.87	6.79	6.86	6.38	7.79	16.45	105.23	76.49
70.00°	59.21	7.53	4.16	3.76	3.76	4.13	8.90	72.23	68.75	8.63	4.91	5.18	4.97	5.54	13.09	90.93	59.21
72.50°	39.49	4.89	2.98	2.86	2.93	2.67	5.78	49.04	51.52	4.85	4.01	4.00	3.53	3.43	9.00	72.40	39.49
75.00°	20.01	3.07	1.84	2.15	2.52	1.67	3.23	25.88	33.06	3.01	3.06	3.29	2.48	2.63	5.33	50.62	20.01
77.50°	7.50	1.77	1.54	1.57	2.04	1.30	2.23	5.11	12.36	2.12	1.93	2.16	1.95	2.12	2.49	24.08	7.50
80.00°	2.33	1.65	1.52	1.43	1.65	1.22	1.65	2.19	5.78	1.62	1.84	1.50	1.67	1.78	2.33	9.45	2.33
82.50°	1.65	1.59	1.80	1.38	1.32	1.29	1.59	1.29	1.81	1.38	1.72	1.28	1.46	1.59	2.03	2.29	1.65
85.00°	1.30	1.44	1.80	1.54	1.19	1.70	1.47	1.31	1.70	1.25	1.54	1.39	1.40	1.37	1.62	1.31	1.30
87.50°	0.99	1.27	1.72	1.57	1.09	1.83	1.29	1.30	1.59	1.15	1.46	1.60	1.32	1.13	1.46	1.12	0.99
90.00°	1.35	1.05	1.90	1.46	1.30	1.64	1.30	1.23	1.47	1.36	1.48	1.50	1.19	1.20	1.41	1.25	1.35
92.50°	1.69	1.03	2.13	1.44	1.54	1.55	1.40	1.23	1.38	1.59	1.48	1.36	1.18	1.31	1.40	1.39	1.69
95.00°	1.58	1.30	1.78	1.53	1.48	1.56	1.60	1.34	1.34	1.31	1.49	1.36	1.32	1.25	1.42	1.69	1.58
97.50°	1.48	1.46	1.32	1.53	1.39	1.53	1.85	1.37	1.33	1.01	1.48	1.38	1.28	1.16	1.24	1.98	1.48
100.00°	1.47	1.47	1.27	1.44	1.48	1.47	1.75	1.24	1.37	1.18	1.47	1.34	1.03	1.25	1.00	1.92	1.47
102.50°	1.46	1.51	1.30	1.37	1.59	1.34	1.48	1.26	1.42	1.36	1.54	1.29	1.10	1.35	1.23	1.86	1.46
105.00°	1.45	1.60	1.47	1.32	1.64	1.15	1.33	1.52	1.48	1.43	1.67	1.31	1.54	1.54	1.64	1.47	1.45
107.50°	1.44	1.56	1.67	1.45	1.68	1.13	1.24	1.67	1.49	1.49	1.62	1.33	1.66	1.75	1.74	1.09	1.44
110.00°	1.51	1.35	1.38	1.74	1.70	1.29	1.40	1.66	1.42	1.64	1.42	1.25	1.43	1.65	1.73	1.29	1.51
112.50°	1.58	1.28	1.00	1.70	1.70	1.39	1.68	1.57	1.39	1.78	1.31	1.15	1.38	1.53	1.53	1.49	1.58

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	1754	1754	1754	1754	1712	1712	1712	1712	1634	1634	1634	1562	1562	1562	1496	1496	1465
	1	1671	1629	1592	1559	1633	1596	1563	1533	1535	1508	1484	1478	1457	1438	1426	1410	1395
	2	1588	1516	1456	1406	1554	1489	1435	1389	1440	1396	1357	1395	1358	1327	1353	1323	1298
	3	1510	1416	1343	1285	1480	1395	1328	1274	1354	1298	1252	1317	1271	1231	1283	1244	1220
	4	1438	1328	1248	1186	1410	1311	1236	1179	1278	1214	1164	1247	1193	1149	1219	1173	1150
	5	1370	1250	1166	1104	1346	1236	1158	1099	1209	1140	1088	1183	1124	1078	1159	1109	1068
	6	1308	1181	1096	1035	1286	1169	1089	1031	1146	1076	1023	1125	1063	1015	1105	1050	1008
	7	1251	1119	1034	974	1231	1109	1029	972	1090	1018	966	1072	1008	960	1055	998	954
	8	1198	1064	980	922	1180	1055	975	919	1039	966	915	1023	958	911	1008	950	906
	9	1148	1013	931	875	1132	1006	927	873	992	920	870	978	913	866	966	907	863
	10	1103	968	887	833	1088	961	884	832	949	878	829	937	872	827	926	867	824

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	94.5 fc	3.5 ft
6.5 ft	67.7 fc	4.1 ft
7.5 ft	50.8 fc	4.8 ft
8.0 ft	44.7 fc	5.1 ft
10.0 ft	28.6 fc	6.4 ft
12.0 ft	19.9 fc	7.6 ft
14.0 ft	14.6 fc	8.9 ft
16.0 ft	11.2 fc	10.2 ft
20.0 ft	7.1 fc	12.7 ft
24.0 ft	5.0 fc	15.2 ft
28.0 ft	3.6 fc	17.8 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	888447	888447	888447
45.00°	88791	30819	29235
55.00°	66012	14333	13717
65.00°	65798	5667	5256
75.00°	24025	2209	3022
85.00°	4643	6433	4229

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	22.9	24.0	23.3	24.3	24.6	12.0	13.1	12.4	13.4	13.8
	3H	24.9	25.8	25.3	26.2	26.5	12.3	13.2	12.7	13.6	13.9
	4H	25.1	26.0	25.6	26.4	26.8	12.3	13.2	12.7	13.5	13.9
	6H	25.1	25.9	25.5	26.3	26.7	12.3	13.1	12.7	13.5	13.9
	8H	25.0	25.8	25.5	26.2	26.6	12.3	13.0	12.7	13.5	13.9
	12H	25.0	25.7	25.4	26.1	26.5	12.3	13.0	12.8	13.4	13.9
4H	2H	22.7	23.5	23.1	23.9	24.3	12.6	13.5	13.0	13.8	14.2
	3H	25.0	25.7	25.4	26.1	26.5	12.9	13.6	13.3	14.0	14.5
	4H	25.4	26.1	25.9	26.5	27.0	12.9	13.6	13.4	14.0	14.5
	6H	25.4	26.0	25.9	26.4	26.9	13.0	13.5	13.4	14.0	14.5
	8H	25.4	25.9	25.9	26.3	26.8	13.0	13.5	13.5	13.9	14.4
	12H	25.3	25.7	25.8	26.2	26.7	13.0	13.5	13.5	14.0	14.5
8H	4H	25.3	25.8	25.8	26.3	26.7	13.9	14.4	14.4	14.8	15.3
	6H	25.3	25.7	25.8	26.2	26.7	13.9	14.3	14.4	14.8	15.3
	8H	25.2	25.6	25.8	26.1	26.6	13.9	14.3	14.4	14.8	15.3
	12H	25.2	25.5	25.7	26.0	26.6	14.0	14.3	14.5	14.8	15.4
12H	4H	25.2	25.7	25.7	26.2	26.7	13.8	14.3	14.3	14.8	15.3
	6H	25.2	25.6	25.8	26.1	26.6	13.9	14.2	14.4	14.7	15.3
	8H	25.2	25.5	25.7	26.0	26.6	13.9	14.2	14.4	14.7	15.3

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0