

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CR2 835 15 xx xx RD2XF RB2BS xx RA2LL

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

Test Number

SP-01275_2

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	1769
Efficacy	90.74 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	1.12
Two luminaires, plane 90°	0.87
Four luminaires	1

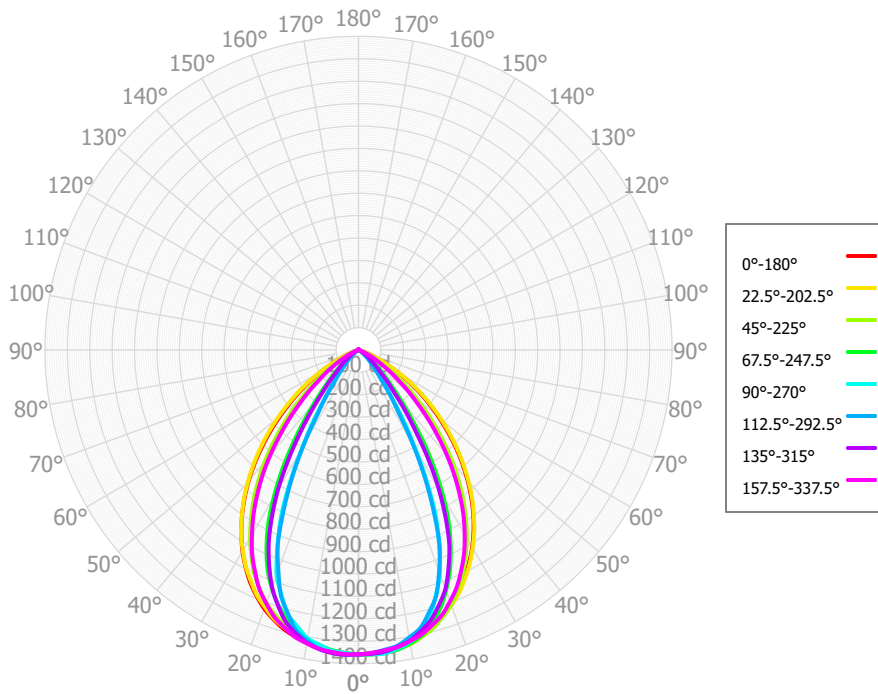
Full Beam Angle

0° - 180°	85°
90° - 270°	54°

IES File Header Contents

Keyword	Value
TEST	SP-01275_2
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 RD2XF RB2BS xx RA2LL
LUMINAIRE	Nom 2.5 inch dia cylinder with xtra wide flood optic and linear spread lens
OTHER	Beam Angle: 54 X 85 degrees
LAMPCAT	N/A
LAMP	N/A, 6mm LES
OTHER	80 CRI, 3500K tested
OTHER	LER (luminaire efficacy) = 91 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°	129.96	7.34%	90.00° - 100.00°	1.91	0.11%
10.00° - 20.00°	351.46	19.86%	100.00° - 110.00°	1.81	0.10%
20.00° - 30.00°	452.92	25.60%	100.00° - 120.00°	3.61	0.20%
30.00° - 40.00°	381.94	21.59%	120.00° - 130.00°	1.67	0.09%
40.00° - 50.00°	253.10	14.30%	130.00° - 140.00°	1.48	0.08%
50.00° - 60.00°	134.75	7.62%	140.00° - 150.00°	1.25	0.07%
60.00° - 70.00°	44.42	2.51%	150.00° - 160.00°	0.96	0.05%
70.00° - 80.00°	7.35	0.42%	160.00° - 170.00°	0.57	0.03%
80.00° - 90.00°	1.91	0.11%	170.00° - 180.00°	0.20	0.01%
0.00° - 90.00°	1757.81	99.34%	0.00° - 180.00°	1769.47	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°	1359.34	1359.34	1359.34	1359.34	1359.34	1359.34	1359.34	1359.34	1359.34	1359.34	1359.34	1359.34	1359.34	1359.34	1359.34	1359.34	1359.34
2.50°	1355.13	1357.60	1358.52	1361.10	1359.93	1362.31	1362.11	1359.25	1358.75	1359.43	1354.33	1355.31	1353.88	1354.35	1357.97	1353.52	1355.13
5.00°	1347.91	1350.28	1355.81	1356.59	1359.69	1355.27	1358.47	1353.54	1354.36	1350.25	1347.74	1345.30	1348.24	1343.71	1351.90	1346.23	1347.91
7.50°	1336.41	1341.77	1346.19	1349.27	1343.16	1347.85	1345.73	1346.58	1343.47	1340.01	1335.47	1331.55	1328.21	1332.02	1336.91	1337.44	1336.41
10.00°	1321.05	1324.09	1333.81	1329.90	1324.78	1316.38	1327.78	1330.06	1328.99	1323.94	1321.94	1310.47	1307.67	1303.30	1319.03	1320.16	1321.05
12.50°	1299.57	1305.15	1311.25	1305.16	1279.42	1284.21	1296.05	1312.24	1310.49	1307.32	1298.66	1282.36	1264.38	1272.69	1286.23	1301.00	1299.57
15.00°	1274.01	1277.66	1285.82	1262.24	1231.18	1217.88	1256.13	1281.76	1289.90	1282.92	1273.40	1241.24	1220.59	1214.26	1248.75	1272.17	1274.01
17.50°	1242.29	1248.90	1250.08	1211.42	1148.34	1151.02	1195.89	1249.76	1261.75	1257.91	1238.86	1193.01	1145.30	1152.63	1194.47	1240.41	1242.29
20.00°	1206.81	1212.39	1210.36	1142.65	1062.26	1047.09	1128.00	1203.90	1229.76	1222.01	1202.59	1132.34	1069.51	1052.27	1135.28	1194.85	1206.81
22.50°	1165.79	1174.09	1157.36	1066.55	940.10	942.93	1042.26	1156.46	1189.34	1185.33	1153.08	1061.12	943.17	947.23	1050.94	1146.49	1165.79
25.00°	1120.71	1125.34	1101.27	973.85	814.57	792.42	948.34	1093.11	1144.86	1137.88	1101.32	971.84	816.36	794.24	959.76	1085.40	1120.71
27.50°	1069.94	1075.42	1035.59	874.78	656.72	641.88	836.11	1028.19	1092.42	1089.81	1035.87	871.95	656.41	641.00	841.60	1021.83	1069.94
30.00°	1015.52	1019.28	967.42	758.30	502.13	490.04	717.52	951.05	1036.36	1033.12	968.19	754.83	496.96	485.45	716.34	947.94	1015.52
32.50°	956.23	961.80	891.74	635.45	374.61	340.03	585.26	872.90	973.38	976.06	892.71	635.34	372.06	337.07	583.48	871.87	956.23
35.00°	893.27	897.79	814.47	514.42	254.16	253.80	460.37	788.14	907.34	908.37	816.08	512.18	248.89	248.70	448.76	787.45	893.27
37.50°	825.53	832.77	732.76	394.04	189.39	169.09	350.48	702.87	836.20	840.28	733.69	399.74	187.34	166.09	344.76	702.42	825.53
40.00°	756.28	763.07	650.77	302.71	129.06	128.96	256.90	613.05	762.92	767.09	650.55	303.40	127.07	125.98	247.65	615.15	756.28
42.50°	685.18	693.11	568.02	220.92	99.78	89.76	194.64	522.95	685.66	693.78	566.02	223.95	97.83	88.64	187.50	528.65	685.18
45.00°	613.05	622.04	487.06	168.18	72.35	70.14	142.47	441.18	606.82	619.12	481.32	168.64	69.19	69.47	135.35	444.83	613.05
47.50°	539.73	551.31	410.73	124.34	56.47	50.96	109.20	359.81	529.67	544.44	404.17	124.67	53.32	51.30	103.95	364.51	539.73
50.00°	468.81	481.94	338.08	96.17	41.41	38.95	80.88	292.48	453.17	470.25	327.83	96.09	37.86	39.49	76.67	295.53	468.81
52.50°	400.62	413.11	274.33	72.65	31.20	27.32	61.35	225.75	382.36	396.11	265.44	72.16	29.25	28.25	59.02	230.80	400.62
55.00°	334.55	346.40	215.11	55.09	21.74	21.44	44.65	177.59	313.60	328.80	204.33	54.40	20.92	20.32	43.11	179.42	334.55
57.50°	270.79	280.36	166.23	39.16	16.25	15.71	32.69	129.97	250.95	261.63	157.50	39.47	16.43	13.16	31.67	132.23	270.79
60.00°	208.69	216.75	121.72	28.57	11.25	11.79	22.63	96.16	190.36	201.56	111.89	28.13	12.06	10.02	21.00	97.36	208.69
62.50°	148.29	156.83	86.97	19.34	8.64	8.04	15.70	62.58	139.29	141.92	79.20	19.34	9.11	7.16	15.47	65.84	148.29
65.00°	101.12	109.15	57.06	13.76	6.24	5.98	10.33	43.04	91.34	99.34	47.41	13.62	6.29	5.73	10.74	43.57	101.12
67.50°	67.05	67.45	37.33	9.07	4.78	4.09	7.41	23.68	60.68	57.65	31.91	9.03	4.80	4.39	7.53	25.02	67.05
70.00°	41.83	44.95	21.30	6.38	3.49	3.95	4.93	16.01	35.32	39.08	17.33	5.75	3.41	3.53	4.54	16.43	41.83
72.50°	25.19	25.24	12.63	4.15	2.94	3.73	3.12	8.41	21.15	20.98	10.66	3.63	2.81	2.72	3.71	9.23	25.19
75.00°	13.09	13.90	6.02	3.02	2.40	2.81	2.10	5.36	10.16	12.06	4.39	2.80	2.25	2.21	3.18	5.55	13.09
77.50°	5.19	4.99	3.40	2.12	1.93	1.96	2.22	2.36	5.26	3.58	3.11	2.23	2.05	1.79	2.43	2.81	5.19
80.00°	1.36	2.93	1.68	1.88	1.59	1.71	2.18	2.15	2.05	2.64	2.02	1.92	1.90	1.79	1.65	2.30	1.36
82.50°	1.12	1.43	1.61	1.76	1.68	1.53	1.92	1.95	1.61	1.75	2.04	1.66	2.09	1.75	1.79	1.93	1.12
85.00°	1.10	1.47	1.58	1.80	1.74	1.87	1.74	1.82	1.87	1.54	2.09	1.47	2.19	1.53	2.01	1.89	1.10
87.50°	1.27	1.60	1.65	1.86	1.73	2.12	1.65	1.71	1.91	1.35	1.92	1.59	1.66	1.39	1.84	1.85	1.27
90.00°	1.38	1.97	1.68	1.87	1.75	1.83	1.63	1.88	1.90	1.38	1.74	2.00	1.25	1.49	1.63	1.79	1.38
92.50°	1.43	2.16	1.63	1.86	1.86	1.60	1.70	2.02	1.83	1.40	2.04	2.26	1.65	1.64	1.66	1.70	1.43
95.00°	1.35	1.92	1.69	1.67	1.93	1.81	1.70	1.81	1.74	1.39	2.33	2.38	1.97	1.99	1.71	1.53	1.35
97.50°	1.16	1.79	1.91	1.45	1.87	1.95	1.64	1.60	1.48	1.37	2.21	2.25	1.86	2.18	1.78	1.46	1.16
100.00°	1.20	1.92	2.00	1.45	1.77	1.75	1.73	1.58	1.17	1.34	2.10	1.89	1.75	1.88	1.85	1.56	1.20
102.50°	1.40	1.93	1.89	1.49	1.54	1.62	1.99	1.57	1.26	1.32	2.03	1.69	1.70	1.66	1.84	1.67	1.40
105.00°	1.56	1.67	1.92	1.60	1.39	1.78	2.15	1.65	1.44	1.48	1.96	1.65	1.65	1.66	1.83	1.76	1.56
107.50°	1.71	1.51	2.14	1.71	1.48	1.89	2.20	1.72	1.43	1.60	1.97	1.81	1.58	1.68	1.72	1.86	1.71
110.00°	1.78	1.57	2.24	1.78	1.54	1.73	1.96	1.77	1.40	1.47	1.98	2.15	1.56	1.74	1.61	1.96	1.78
112.50°	1.80	1.70	2.14	1.84	1.49	1.64	1.42	1.83	1.38	1.37	1.74	2.17	1.80	1.78	1.58	1.97	1.80

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	2104	2104	2104	2104	2053	2053	2053	2053	1960	1960	1960	1874	1874	1874	1795	1795	1758
	1	1986	1929	1878	1831	1940	1889	1843	1801	1814	1777	1743	1746	1716	1689	1683	1659	1625
	2	1864	1762	1677	1606	1822	1729	1652	1587	1669	1605	1550	1613	1560	1514	1561	1519	1487
	3	1746	1611	1507	1424	1708	1585	1489	1411	1535	1454	1387	1489	1420	1363	1446	1389	1360
	4	1637	1478	1363	1274	1601	1456	1349	1265	1415	1322	1249	1376	1297	1232	1340	1272	1247
	5	1535	1361	1239	1149	1503	1342	1229	1143	1307	1208	1131	1275	1188	1120	1245	1169	1146
	6	1442	1257	1133	1044	1412	1242	1125	1040	1212	1109	1031	1184	1093	1023	1158	1078	1057
	7	1357	1166	1042	955	1330	1152	1035	952	1127	1022	945	1103	1009	939	1081	997	979
	8	1279	1084	962	878	1254	1073	957	876	1051	946	871	1031	936	866	1012	926	909
	9	1208	1012	892	811	1186	1002	888	809	983	879	806	966	870	802	949	862	848
	10	1143	948	831	753	1123	939	827	751	923	820	748	907	812	745	893	805	793

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	44.9 fc	7.9 ft
6.5 ft	32.2 fc	9.3 ft
7.5 ft	24.2 fc	10.7 ft
8.0 ft	21.2 fc	11.5 ft
10.0 ft	13.6 fc	14.3 ft
12.0 ft	9.4 fc	17.2 ft
14.0 ft	6.9 fc	20.1 ft
16.0 ft	5.3 fc	22.9 ft
20.0 ft	3.4 fc	28.7 ft
24.0 ft	2.4 fc	34.4 ft
28.0 ft	1.7 fc	40.1 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	422444	422444	422444
45.00°	269435	214060	31798
55.00°	181262	116550	11776
65.00°	74358	41958	4592
75.00°	15722	7225	2881
85.00°	3912	5648	6208

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	27.8	29.0	28.2	29.3	29.7	13.1	14.3	13.5	14.6	15.0
	3H	27.9	29.0	28.3	29.4	29.7	13.2	14.2	13.6	14.6	15.0
	4H	27.9	28.9	28.3	29.2	29.6	13.1	14.1	13.6	14.5	14.9
	6H	27.8	28.7	28.2	29.1	29.5	13.1	14.0	13.6	14.4	14.8
	8H	27.8	28.6	28.2	29.0	29.4	13.1	14.0	13.6	14.4	14.8
	12H	27.7	28.5	28.2	28.9	29.4	13.2	14.0	13.6	14.4	14.9
4H	2H	27.6	28.6	28.0	29.0	29.4	15.0	16.0	15.4	16.4	16.8
	3H	27.8	28.6	28.2	29.0	29.4	15.1	15.9	15.5	16.3	16.8
	4H	27.7	28.4	28.2	28.9	29.3	15.1	15.8	15.5	16.2	16.7
	6H	27.6	28.3	28.1	28.7	29.2	15.1	15.7	15.5	16.1	16.6
	8H	27.6	28.2	28.1	28.6	29.1	15.1	15.6	15.5	16.1	16.6
	12H	27.5	28.0	28.0	28.5	29.0	15.1	15.6	15.6	16.1	16.6
8H	4H	27.6	28.1	28.1	28.6	29.1	15.2	15.8	15.7	16.2	16.7
	6H	27.5	27.9	28.0	28.4	28.9	15.2	15.6	15.7	16.2	16.6
	8H	27.4	27.8	27.9	28.4	28.9	15.2	15.6	15.7	16.1	16.6
	12H	27.4	27.7	27.9	28.2	28.8	15.3	15.7	15.8	16.2	16.8
12H	4H	27.5	28.0	28.0	28.5	29.0	15.1	15.6	15.6	16.1	16.6
	6H	27.4	27.8	28.0	28.3	28.9	15.1	15.6	15.7	16.0	16.6
	8H	27.4	27.7	27.9	28.2	28.8	15.2	15.6	15.7	16.1	16.6

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0