

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CF04XXPC 15L 35K WD XX NL XX
Nom 4" diam Gamma Cylinder, WD optic, no lens

Test Number

SP-01070_1_M-15L

Test Date

1/31/2020

The results contained in this report pertain only to this IES file.

Summary of Results

Power

Input Watts	9.5 W
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Lumen Output

Output Lumens	1185
Efficacy	124.74 lm/W

Luminous Dimensions

0° - 180° Size	-0.33
90° - 270° Size	-0.33
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.81
Two luminaires, plane 90°	0.81
Four luminaires	0.79

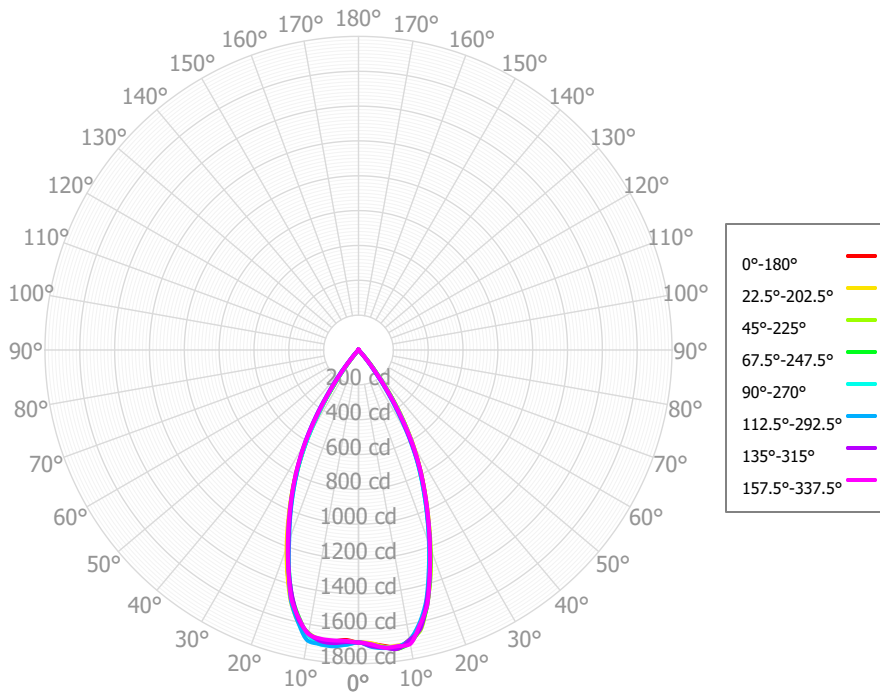
Full Beam Angle

0° - 180°	51°
90° - 270°	51°

IES File Header Contents

Keyword	Value
TEST	SP-01070_1_M-15L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/31/2020
ISSUEDATE	3/19/2020
LUMCAT	CF04XXPC 15L 35K WD XX NL XX
LUMINAIRE	Nom 4" diam Gamma Cylinder, WD optic, no lens
OTHER	Beam Angle: 49.4 deg
LAMPCAT	N/A
LAMP	N/A
OTHER	CCT Output Multipliers: 27K x 0.972, 30K x 0.981, 40K x 1.04, 27HK x 0.89, 30HK x 0.83
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	164.27	13.86%	90.00° - 100.00°	1.14	0.10%
10.00° - 20.00°	408.64	34.48%	100.00° - 110.00°	1.07	0.09%
20.00° - 30.00°	404.37	34.12%	100.00° - 120.00°	2.03	0.17%
30.00° - 40.00°	184.64	15.58%	120.00° - 130.00°	0.91	0.08%
40.00° - 50.00°	11.63	0.98%	130.00° - 140.00°	0.85	0.07%
50.00° - 60.00°	1.05	0.09%	140.00° - 150.00°	0.77	0.06%
60.00° - 70.00°	1.13	0.10%	150.00° - 160.00°	0.59	0.05%
70.00° - 80.00°	1.31	0.11%	160.00° - 170.00°	0.35	0.03%
80.00° - 90.00°	1.20	0.10%	170.00° - 180.00°	0.12	0.01%
0.00° - 90.00°	1178.23	99.43%	0.00° - 180.00°	1184.98	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°	1679.34	1679.34	1679.34	1679.34	1679.34	1679.34	1679.34	1679.34	1679.34	1679.34	1679.34	1679.34	1679.34	1679.34	1679.34	1679.34	1679.34
2.50°	1688.67	1685.14	1692.75	1699.13	1693.63	1693.63	1678.85	1671.72	1666.67	1674.23	1672.92	1682.78	1695.04	1706.00	1701.92	1691.27	1688.67
5.00°	1705.63	1710.64	1710.96	1715.06	1715.57	1707.44	1689.08	1673.66	1679.10	1678.51	1680.79	1691.42	1700.35	1718.20	1716.09	1715.47	1705.63
7.50°	1722.32	1712.16	1730.90	1728.49	1718.19	1702.51	1684.67	1671.86	1677.67	1682.72	1676.81	1679.64	1704.44	1718.53	1729.89	1715.55	1722.32
10.00°	1688.89	1703.78	1695.70	1707.67	1701.33	1692.46	1653.11	1656.21	1660.84	1658.77	1650.39	1661.15	1662.94	1689.78	1691.58	1713.20	1688.89
12.50°	1631.32	1622.88	1647.01	1634.61	1628.98	1601.70	1587.12	1579.24	1595.77	1599.13	1588.04	1575.10	1597.02	1610.19	1640.14	1619.70	1631.32
15.00°	1505.53	1519.08	1517.26	1522.44	1509.88	1494.43	1468.44	1485.64	1487.23	1498.47	1471.25	1472.68	1473.96	1497.77	1506.70	1521.42	1505.53
17.50°	1353.18	1366.28	1373.82	1362.08	1359.48	1332.46	1332.02	1336.11	1349.78	1355.66	1338.56	1327.52	1326.77	1339.22	1358.88	1358.44	1353.18
20.00°	1195.18	1201.60	1211.90	1200.35	1187.76	1163.19	1173.67	1187.58	1191.24	1206.64	1185.86	1174.81	1177.05	1182.84	1200.14	1196.85	1195.18
22.50°	1035.51	1049.95	1047.94	1037.23	1031.22	1020.69	1028.05	1041.62	1041.50	1052.30	1039.95	1031.31	1026.49	1028.92	1040.23	1046.09	1035.51
25.00°	895.20	900.47	902.37	887.54	882.97	880.09	895.20	897.93	897.10	902.41	901.00	888.81	882.23	881.21	897.21	897.51	895.20
27.50°	759.04	763.12	757.74	749.06	744.52	746.35	756.77	758.77	744.25	755.60	748.96	738.96	739.54	739.38	755.11	759.83	759.04
30.00°	615.80	626.97	615.71	604.83	610.43	612.10	613.68	607.72	587.33	586.72	586.08	588.76	573.83	581.68	594.58	617.05	615.80
32.50°	471.48	476.65	473.47	456.70	462.80	457.67	460.52	437.09	421.83	405.52	420.09	416.05	404.12	411.75	434.71	455.93	471.48
35.00°	326.68	325.80	327.68	317.33	310.51	306.06	300.53	283.29	253.12	255.44	251.95	246.62	260.85	265.77	286.93	303.61	326.68
37.50°	181.84	202.50	187.64	182.69	189.50	185.45	176.85	151.77	139.80	119.53	135.05	138.93	120.39	134.66	146.40	176.00	181.84
40.00°	97.44	83.88	98.58	94.13	76.52	75.28	72.87	64.46	42.84	53.36	46.53	40.19	61.91	60.98	73.59	74.79	97.44
42.50°	16.07	41.43	21.50	25.88	34.43	36.05	27.21	24.60	15.39	11.82	12.99	19.47	7.89	16.65	10.84	31.09	16.07
45.00°	8.45	3.23	10.53	5.76	5.77	3.62	7.36	4.59	2.76	2.37	3.52	1.75	4.46	2.97	5.59	3.07	8.45
47.50°	1.35	2.13	1.75	2.04	1.96	2.12	1.77	2.38	1.29	1.38	0.99	1.31	1.20	1.59	1.40	2.13	1.35
50.00°	1.15	1.19	1.45	1.21	1.12	1.00	1.06	1.40	1.40	1.01	0.89	0.99	1.27	1.26	1.43	1.56	1.15
52.50°	0.97	1.10	1.23	1.13	1.04	1.13	1.05	1.32	1.29	0.77	1.06	1.20	1.32	1.26	1.42	1.55	0.97
55.00°	0.96	1.03	1.22	1.13	0.99	1.20	1.22	1.23	1.16	1.03	1.30	1.35	1.24	1.32	1.24	1.36	0.96
57.50°	0.97	1.09	1.18	1.14	1.08	1.09	1.21	1.15	1.15	1.35	1.25	1.30	1.18	1.38	1.11	0.97	0.97
60.00°	1.09	1.10	1.04	1.09	1.16	1.05	1.16	1.32	1.15	1.21	1.15	1.25	1.22	1.23	1.08	0.95	1.09
62.50°	1.18	1.01	0.96	1.03	0.93	1.18	1.18	1.61	1.22	1.05	0.93	1.22	1.27	1.03	1.02	1.28	1.18
65.00°	1.15	0.94	0.98	1.07	0.74	1.21	1.20	1.51	1.28	0.99	0.69	1.20	1.36	1.18	0.93	1.34	1.15
67.50°	1.16	0.92	0.99	1.11	0.99	1.11	1.24	1.26	1.17	0.94	0.96	1.20	1.37	1.37	1.02	1.20	1.16
70.00°	1.29	0.94	1.00	1.12	1.17	1.05	1.28	1.24	1.08	1.05	1.26	1.18	1.16	1.43	1.40	1.64	1.29
72.50°	1.40	1.02	1.07	1.13	0.86	1.04	1.25	1.27	1.12	1.14	1.17	1.13	1.04	1.49	1.69	2.44	1.40
75.00°	1.49	1.05	1.22	1.19	0.66	1.12	1.21	1.29	1.14	0.99	1.08	1.11	1.11	1.38	1.84	2.34	1.49
77.50°	1.41	0.98	1.30	1.23	0.95	1.28	1.08	1.30	1.05	0.87	1.08	1.13	1.14	1.28	1.78	1.77	1.41
80.00°	1.06	1.00	1.32	1.02	1.14	1.35	0.98	1.22	0.96	0.86	1.07	1.16	1.11	1.23	1.49	1.51	1.06
82.50°	0.88	1.12	1.32	0.85	1.04	1.35	1.15	1.12	0.87	0.84	0.94	1.18	1.07	1.21	1.24	1.36	0.88
85.00°	0.94	1.18	1.32	0.95	0.98	1.36	1.28	1.18	0.83	0.71	0.84	1.12	1.01	1.34	1.03	1.27	0.94
87.50°	0.99	1.17	1.37	1.01	1.00	1.37	1.20	1.25	0.91	0.65	0.82	0.99	1.02	1.44	1.04	1.18	0.99
90.00°	1.05	1.15	1.45	0.87	1.03	1.30	1.16	1.14	1.00	0.81	0.78	0.94	1.11	1.28	1.20	1.22	1.05
92.50°	1.09	1.12	1.31	0.80	1.09	1.19	1.24	1.03	1.11	0.90	0.69	0.95	1.06	1.16	1.27	1.28	1.09
95.00°	1.11	1.05	1.05	0.94	1.09	1.12	1.27	0.93	1.12	0.86	0.66	0.95	0.87	1.20	1.30	1.29	1.11
97.50°	1.08	0.96	0.94	0.96	1.00	1.07	1.18	0.85	0.96	0.82	0.85	0.94	0.82	1.20	1.33	1.29	1.08
100.00°	1.02	1.13	0.88	0.70	0.92	1.00	1.14	1.18	0.86	0.81	0.95	0.87	0.89	1.09	1.34	1.30	1.02
102.50°	0.98	1.42	0.92	0.62	0.88	0.92	1.26	1.44	0.83	0.87	0.81	0.76	0.88	1.05	1.28	1.31	0.98
105.00°	0.95	1.35	0.98	0.89	0.94	0.97	1.27	1.21	0.83	1.07	0.76	0.77	0.81	1.13	1.19	1.19	0.95
107.50°	0.92	1.13	0.99	0.97	1.09	1.06	1.08	1.03	0.84	1.09	0.85	0.81	0.78	1.17	1.23	1.06	0.92
110.00°	0.89	1.09	0.99	0.77	1.06	1.12	1.01	1.06	0.79	0.87	0.86	0.78	0.76	1.15	1.31	1.30	0.89
112.50°	0.88	1.12	0.90	0.64	0.87	1.18	1.13	1.13	0.68	0.80	0.75	0.73	0.93	1.09	1.23	1.52	0.88

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	1409	1409	1409	1409	1376	1376	1376	1376	1313	1313	1313	1256	1256	1256	1203	1203	1178
	1	1349	1318	1291	1266	1319	1292	1268	1246	1243	1224	1206	1198	1183	1169	1157	1145	1134
	2	1290	1237	1193	1157	1264	1216	1177	1143	1177	1145	1117	1141	1115	1092	1108	1087	1069
	3	1233	1164	1110	1067	1209	1147	1098	1058	1115	1075	1041	1086	1052	1024	1059	1031	1011
	4	1178	1097	1038	993	1157	1084	1029	986	1058	1011	974	1034	994	962	1012	978	951
	5	1126	1037	974	928	1108	1026	967	924	1004	954	915	984	941	907	966	928	898
	6	1077	982	917	871	1060	972	912	868	954	901	862	938	891	856	922	882	850
	7	1030	931	866	821	1015	923	862	819	908	854	814	894	845	809	881	838	805
	8	987	884	820	776	973	878	816	774	865	810	770	853	803	767	841	797	764
	9	945	841	778	735	933	836	775	733	824	769	731	814	764	728	804	759	725
	10	906	802	739	697	895	797	737	696	787	732	694	778	728	692	769	723	690

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	55.5 fc	5.2 ft
6.5 ft	39.7 fc	6.2 ft
7.5 ft	29.9 fc	7.1 ft
8.0 ft	26.2 fc	7.6 ft
10.0 ft	16.8 fc	9.5 ft
12.0 ft	11.7 fc	11.4 ft
14.0 ft	8.6 fc	13.3 ft
16.0 ft	6.6 fc	15.2 ft
20.0 ft	4.2 fc	19.0 ft
24.0 ft	2.9 fc	22.8 ft
28.0 ft	2.1 fc	26.6 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	211344	211344	211344
45.00°	1504	1874	1028
55.00°	211	268	218
65.00°	341	291	219
75.00°	722	592	322
85.00°	1352	1912	1412

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	-11.0	-10.1	-10.6	-9.8	-9.4	-9.9	-9.0	-9.6	-8.7	-8.4
	3H	-6.7	-5.9	-6.3	-5.6	-5.2	-6.5	-5.7	-6.1	-5.4	-5.0
	4H	-3.7	-3.0	-3.3	-2.6	-2.2	-5.1	-4.4	-4.7	-4.0	-3.6
	6H	-1.7	-1.1	-1.3	-0.7	-0.3	-2.9	-2.3	-2.5	-1.9	-1.5
	8H	-1.1	-0.5	-0.6	-0.1	0.4	-1.8	-1.2	-1.3	-0.8	-0.3
	12H	-0.2	0.3	0.2	0.7	1.2	-0.6	0.0	-0.2	0.4	0.8
4H	2H	-10.1	-9.4	-9.7	-9.0	-8.6	-9.3	-8.6	-8.9	-8.2	-7.8
	3H	-5.0	-4.4	-4.6	-4.0	-3.6	-5.4	-4.8	-5.0	-4.4	-4.0
	4H	-1.9	-1.3	-1.4	-0.9	-0.4	-3.7	-3.1	-3.2	-2.7	-2.2
	6H	0.0	0.5	0.5	0.9	1.4	-1.3	-0.8	-0.8	-0.3	0.1
	8H	0.8	1.2	1.3	1.7	2.2	0.0	0.4	0.5	0.9	1.4
	12H	1.7	2.1	2.2	2.6	3.0	1.3	1.6	1.8	2.1	2.6
8H	4H	-1.0	-0.6	-0.5	-0.1	0.3	-2.9	-2.5	-2.4	-2.0	-1.5
	6H	1.1	1.4	1.6	1.9	2.4	-0.2	0.1	0.3	0.7	1.2
	8H	2.1	2.4	2.6	2.9	3.4	1.3	1.6	1.9	2.1	2.6
	12H	3.3	3.5	3.8	4.0	4.6	2.9	3.1	3.4	3.6	4.2
12H	4H	-0.9	-0.5	-0.4	0.0	0.5	-2.7	-2.3	-2.2	-1.8	-1.3
	6H	1.4	1.7	1.9	2.1	2.7	0.1	0.4	0.6	0.9	1.4
	8H	2.5	2.8	3.1	3.3	3.9	1.7	2.0	2.3	2.5	3.1

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0