

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CF04XXPC 20L 35K MD XX NL XX

Nom 4" diam Gamma Cylinder (damp location), MD optic, no lens

Test Number

SP-01068_1

Test Date

1/31/2020

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

Summary of Results

Power

Input Watts	12.9 W
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Lumen Output

Output Lumens	1635
Efficacy	126.73 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.43
Two luminaires, plane 90°	0.43
Four luminaires	0.46

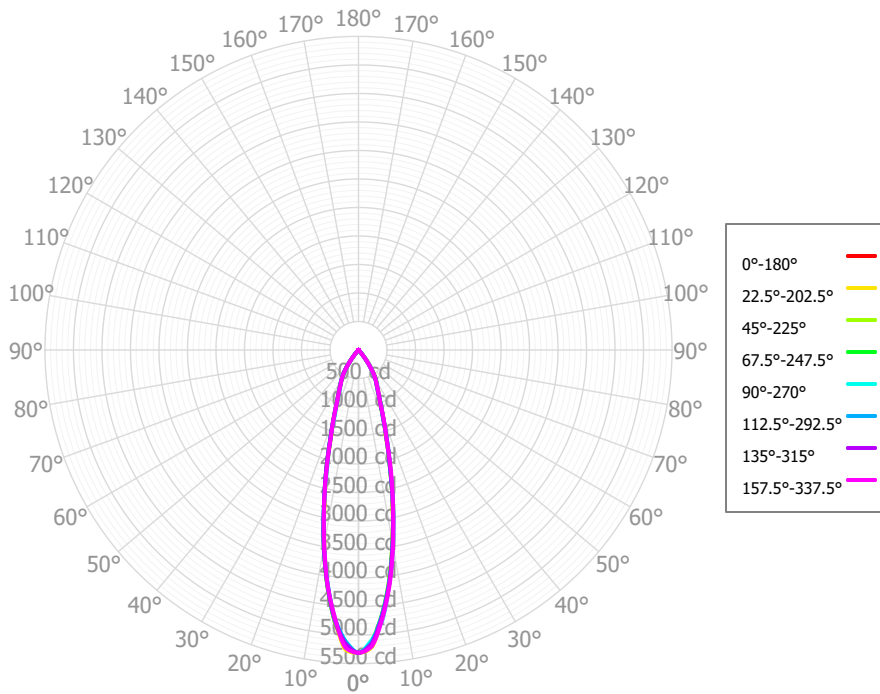
Full Beam Angle

0° - 180°	26°
90° - 270°	26°

IES File Header Contents

Keyword	Value
TEST	SP-01068_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/31/2020
ISSUEDATE	12/7/2020
LUMCAT	CF04XXPC 20L 35K MD XX NL XX
LUMINAIRE	Nom 4" diam Gamma Cylinder (damp location), MD optic, no lens
OTHER	Beam Angle: 26 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
_CRI	80
_CCTMULT	27K x 0.972, 30K x 0.981, 40K x 1.04
_CCTMULTA	27HK x 0.89, 30HK x 0.83
_LAMPMULT	10L x 0.5, 15L x 0.74

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	413.67	25.30%	90.00° - 100.00°	1.36	0.08%
10.00° - 20.00°	594.88	36.39%	100.00° - 110.00°	1.20	0.07%
20.00° - 30.00°	385.03	23.55%	100.00° - 120.00°	2.30	0.14%
30.00° - 40.00°	210.77	12.89%	120.00° - 130.00°	0.99	0.06%
40.00° - 50.00°	16.79	1.03%	130.00° - 140.00°	1.05	0.06%
50.00° - 60.00°	1.29	0.08%	140.00° - 150.00°	0.93	0.06%
60.00° - 70.00°	1.58	0.10%	150.00° - 160.00°	0.71	0.04%
70.00° - 80.00°	1.49	0.09%	160.00° - 170.00°	0.41	0.03%
80.00° - 90.00°	1.41	0.09%	170.00° - 180.00°	0.13	0.01%
0.00° - 90.00°	1626.91	99.52%	0.00° - 180.00°	1634.79	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°	5310.51	5310.51	5310.51	5310.51	5310.51	5310.51	5310.51	5310.51	5310.51	5310.51	5310.51	5310.51	5310.51	5310.51	5310.51	5310.51	5310.51
2.50°	5195.59	5225.02	5121.04	5140.75	5105.45	5125.36	5160.29	5227.16	5196.77	5258.99	5144.62	5168.58	5118.17	5136.71	5168.44	5209.53	5195.59
5.00°	4708.72	4706.51	4686.03	4673.07	4767.35	4732.44	4759.69	4722.44	4776.44	4729.69	4785.29	4769.58	4761.20	4684.91	4704.85	4750.78	4708.72
7.50°	4127.26	4136.11	4093.25	4109.47	4137.99	4150.42	4165.30	4154.86	4164.61	4169.44	4154.87	4179.55	4139.53	4121.81	4132.27	4165.85	4127.26
10.00°	3436.87	3450.42	3425.82	3433.75	3494.33	3496.79	3504.21	3457.07	3491.31	3452.11	3490.31	3508.23	3480.59	3445.58	3450.47	3492.04	3436.87
12.50°	2774.06	2756.39	2771.43	2776.96	2800.18	2794.96	2798.23	2782.02	2782.27	2756.51	2778.27	2790.40	2798.85	2785.32	2788.87	2791.93	2774.06
15.00°	2139.01	2173.96	2122.30	2139.49	2158.85	2190.35	2191.44	2148.17	2183.25	2148.83	2154.80	2183.59	2114.86	2139.24	2145.23	2201.45	2139.01
17.50°	1640.47	1595.86	1651.71	1639.55	1672.45	1642.53	1642.57	1620.33	1640.29	1601.50	1640.29	1631.53	1656.11	1638.89	1647.13	1637.50	1640.47
20.00°	1263.77	1277.49	1243.06	1264.18	1254.93	1269.17	1267.70	1258.87	1276.07	1258.33	1245.53	1260.84	1211.69	1251.61	1262.00	1291.44	1263.77
22.50°	996.86	965.41	998.95	999.01	1010.88	985.15	981.92	976.52	989.89	964.87	979.49	967.97	989.38	987.72	998.34	987.25	996.86
25.00°	815.52	826.10	802.32	821.03	811.93	816.03	811.30	803.79	822.39	811.62	797.81	805.78	773.55	808.48	816.81	832.22	815.52
27.50°	694.76	689.97	699.90	699.37	709.80	697.37	691.23	671.71	698.86	675.38	696.53	691.10	683.40	686.26	691.35	699.72	694.76
30.00°	615.76	603.88	619.64	617.13	603.70	595.89	586.52	588.78	588.60	580.44	585.29	579.76	591.69	598.01	599.31	598.14	615.76
32.50°	498.94	512.51	498.14	500.19	490.16	500.80	487.62	477.48	482.54	468.83	465.75	469.44	459.65	472.56	475.26	499.91	498.94
35.00°	359.48	369.90	368.76	362.15	365.60	365.87	354.29	335.80	342.23	322.65	331.72	333.28	327.74	327.97	334.74	356.32	359.48
37.50°	228.19	231.57	233.43	231.26	223.16	218.25	210.00	207.40	193.00	191.61	187.17	190.54	197.48	199.61	206.19	209.45	228.19
40.00°	101.13	123.54	97.23	104.19	111.52	117.20	113.95	91.45	100.59	87.59	92.15	101.20	76.48	78.52	83.00	112.98	101.13
42.50°	40.83	30.01	48.09	42.81	43.93	28.38	30.57	28.89	20.38	19.60	28.91	23.04	37.97	29.31	31.61	18.29	40.83
45.00°	10.64	14.35	8.28	11.56	5.15	7.82	9.93	10.02	5.67	8.21	4.74	7.49	4.42	7.53	7.60	9.52	10.64
47.50°	1.89	1.65	3.83	2.35	2.30	1.68	2.87	1.94	1.90	1.57	2.29	2.08	2.78	1.77	1.85	1.35	1.89
50.00°	1.37	1.80	1.76	1.75	1.10	0.96	1.51	1.68	1.36	1.44	1.34	1.45	1.39	1.25	2.06	1.56	1.37
52.50°	1.07	1.83	1.69	1.46	1.71	1.16	1.12	1.79	1.22	1.29	1.11	1.39	1.28	1.20	1.78	1.78	1.07
55.00°	0.85	1.45	1.68	1.27	1.84	1.35	1.11	2.14	1.25	1.13	1.15	1.42	1.21	1.28	1.36	2.01	0.85
57.50°	1.16	1.19	1.42	1.35	1.50	1.55	1.15	2.09	1.29	1.19	1.30	1.46	1.32	1.30	1.61	2.19	1.16
60.00°	1.63	1.27	1.18	1.51	1.53	1.22	1.36	1.80	1.34	1.49	1.38	1.59	1.42	1.30	1.99	1.93	1.63
62.50°	1.45	1.36	1.38	1.50	1.86	0.85	1.58	2.14	1.38	1.60	1.43	1.72	1.48	1.50	2.16	1.74	1.45
65.00°	1.12	1.43	1.57	1.44	1.74	0.92	1.70	2.78	1.41	1.53	1.74	1.46	1.48	1.74	2.29	2.07	1.12
67.50°	1.05	1.46	1.76	1.39	1.30	1.00	1.81	2.69	1.44	1.37	2.12	1.20	1.35	1.56	2.19	2.35	1.05
70.00°	1.01	1.38	1.91	1.33	0.99	0.84	1.98	2.32	1.19	1.15	1.88	1.39	1.36	1.33	2.05	2.33	1.01
72.50°	0.99	1.31	1.68	1.14	0.79	0.67	2.13	1.96	0.97	1.11	1.50	1.57	1.71	1.54	1.95	2.27	0.99
75.00°	0.96	1.25	1.46	0.93	0.77	0.93	1.92	1.61	1.19	1.20	1.40	1.52	1.96	1.79	1.85	2.03	0.96
77.50°	1.07	1.15	1.30	1.02	0.87	1.18	1.71	1.28	1.36	1.23	1.35	1.49	2.02	1.49	1.60	1.77	1.07
80.00°	1.19	0.98	1.17	1.13	1.10	1.44	1.43	0.97	1.02	1.22	1.42	1.71	2.03	1.15	1.34	1.44	1.19
82.50°	1.21	0.90	1.25	1.06	1.40	1.65	1.16	1.20	0.74	1.25	1.51	1.87	1.95	1.26	1.34	1.20	1.21
85.00°	1.22	0.97	1.32	0.97	1.28	1.26	1.04	1.56	0.87	1.31	1.29	1.69	1.94	1.39	1.34	1.25	1.22
87.50°	1.20	1.17	1.38	1.16	0.97	0.91	0.93	1.39	0.98	1.25	1.03	1.57	2.04	1.32	1.51	1.31	1.20
90.00°	1.18	1.56	1.51	1.36	0.91	0.85	0.90	1.10	0.94	1.14	1.09	1.85	2.06	1.26	1.66	1.40	1.18
92.50°	0.92	1.80	1.89	1.16	0.93	0.82	0.90	1.02	0.91	1.22	1.17	2.02	1.97	1.17	1.43	1.39	0.92
95.00°	0.69	1.89	1.99	0.98	1.13	1.01	1.04	0.97	0.94	1.39	1.22	1.69	1.78	1.09	1.21	1.19	0.69
97.50°	1.11	1.75	1.31	1.00	1.39	1.13	1.16	1.02	0.94	1.24	1.27	1.44	1.49	1.06	1.04	1.09	1.11
100.00°	1.47	1.38	0.96	1.03	1.45	0.91	1.20	1.08	0.87	0.98	1.09	1.47	1.30	1.05	0.89	1.17	1.47
102.50°	1.13	1.27	1.39	1.38	1.46	0.78	1.20	1.12	0.82	1.05	0.92	1.47	1.22	1.15	0.86	1.16	1.13
105.00°	0.83	1.38	1.58	1.66	1.15	1.00	1.08	1.16	0.87	1.20	0.93	1.41	1.07	1.21	0.93	0.99	0.83
107.50°	0.86	1.36	1.23	1.32	0.78	1.18	1.00	1.06	1.00	1.22	0.94	1.33	0.85	1.05	1.62	0.89	0.86
110.00°	0.92	1.25	1.05	1.04	0.86	1.20	1.04	0.95	1.35	1.20	1.01	1.22	0.84	0.92	2.08	0.87	0.92
112.50°	1.15	1.27	1.18	1.12	1.01	1.20	1.06	0.92	1.57	1.11	1.06	1.17	0.99	0.93	1.43	0.90	1.15

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	1944	1944	1944	1944	1898	1898	1898	1898	1812	1812	1812	1733	1733	1733	1661	1661	1627
	1	1869	1830	1795	1763	1828	1794	1763	1735	1727	1703	1680	1666	1647	1629	1609	1594	1562
	2	1795	1729	1673	1627	1760	1700	1650	1608	1647	1607	1572	1599	1566	1538	1554	1528	1498
	3	1726	1639	1571	1518	1695	1616	1555	1505	1574	1523	1480	1535	1492	1457	1498	1464	1436
	4	1660	1558	1484	1427	1632	1540	1471	1418	1506	1447	1401	1474	1424	1385	1444	1403	1377
	5	1597	1485	1408	1350	1573	1471	1398	1344	1442	1380	1332	1416	1362	1320	1391	1345	1321
	6	1538	1419	1340	1283	1516	1407	1332	1278	1384	1318	1269	1362	1304	1261	1341	1291	1269
	7	1482	1359	1279	1223	1463	1349	1273	1220	1329	1262	1213	1311	1251	1207	1293	1241	1220
	8	1430	1304	1224	1170	1412	1295	1220	1167	1278	1211	1162	1263	1202	1157	1248	1193	1175
	9	1381	1253	1175	1122	1365	1245	1171	1120	1231	1163	1116	1218	1156	1112	1205	1149	1132
	10	1335	1206	1129	1078	1320	1200	1126	1076	1187	1120	1073	1175	1114	1070	1164	1108	1092

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	175.6 fc	2.5 ft
6.5 ft	125.7 fc	3.0 ft
7.5 ft	94.4 fc	3.5 ft
8.0 ft	83.0 fc	3.7 ft
10.0 ft	53.1 fc	4.6 ft
12.0 ft	36.9 fc	5.5 ft
14.0 ft	27.1 fc	6.5 ft
16.0 ft	20.7 fc	7.4 ft
20.0 ft	13.3 fc	9.2 ft
24.0 ft	9.2 fc	11.1 ft
28.0 ft	6.8 fc	12.9 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	668326	668326	668326
45.00°	1894	1474	917
55.00°	186	368	404
65.00°	334	468	518
75.00°	465	711	376
85.00°	1756	1906	1844

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	-8.7	-7.9	-8.4	-7.5	-7.2	-9.5	-8.6	-9.1	-8.3	-7.9
	3H	-5.7	-4.9	-5.3	-4.6	-4.2	-6.9	-6.1	-6.5	-5.8	-5.4
	4H	-4.4	-3.7	-4.0	-3.3	-2.9	-4.9	-4.1	-4.4	-3.8	-3.4
	6H	-2.9	-2.2	-2.4	-1.8	-1.4	-2.2	-1.6	-1.8	-1.2	-0.8
	8H	-1.9	-1.3	-1.5	-0.9	-0.5	-0.7	-0.1	-0.3	0.3	0.7
	12H	-0.8	-0.2	-0.3	0.2	0.7	0.8	1.4	1.2	1.7	2.2
4H	2H	-7.3	-6.6	-6.9	-6.2	-5.8	-8.1	-7.4	-7.7	-7.0	-6.6
	3H	-3.9	-3.3	-3.5	-2.9	-2.5	-5.3	-4.7	-4.9	-4.3	-3.9
	4H	-2.3	-1.8	-1.9	-1.4	-0.9	-3.4	-2.8	-2.9	-2.4	-1.9
	6H	-0.8	-0.4	-0.3	0.1	0.6	-0.7	-0.2	-0.2	0.2	0.7
	8H	0.0	0.5	0.5	0.9	1.4	0.9	1.4	1.4	1.8	2.3
	12H	1.2	1.5	1.7	2.0	2.5	2.5	2.9	3.0	3.4	3.9
8H	4H	-1.6	-1.2	-1.1	-0.7	-0.3	-2.3	-1.9	-1.9	-1.5	-1.0
	6H	0.1	0.5	0.6	1.0	1.5	0.5	0.8	1.0	1.3	1.8
	8H	1.1	1.4	1.7	1.9	2.4	2.3	2.6	2.8	3.1	3.6
	12H	2.4	2.7	3.0	3.2	3.8	4.0	4.3	4.5	4.8	5.4
12H	4H	-1.5	-1.2	-1.0	-0.7	-0.2	-2.2	-1.8	-1.7	-1.3	-0.8
	6H	0.4	0.7	0.9	1.1	1.7	0.8	1.0	1.3	1.5	2.1
	8H	1.5	1.8	2.0	2.3	2.9	2.6	2.9	3.2	3.4	4.0

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0