

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CW04XXPC 20L 35K XW XX CL XX

Nom 4" diam Gamma Cylinder (wet location), XW optic, clear glass lens

Test Number

SP-01074

Test Date

1/30/2020

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	1227
Efficacy	95.13 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.95
Two luminaires, plane 90°	0.94
Four luminaires	0.83

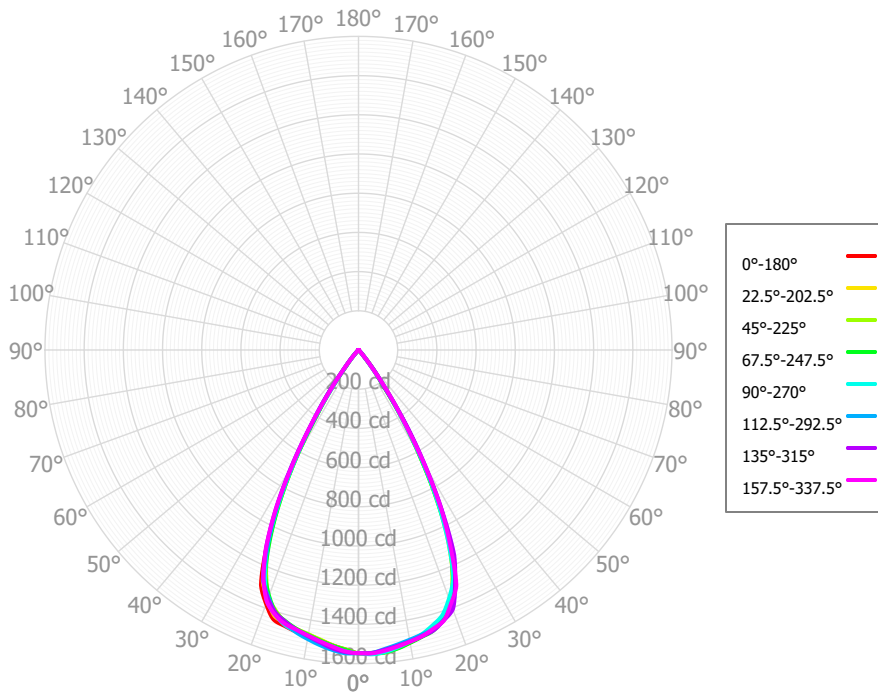
Full Beam Angle

0° - 180°	58°
90° - 270°	57°

IES File Header Contents

Keyword	Value
TEST	SP-01074
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/30/2020
ISSUEDATE	12/8/2020
LUMCAT	CW04XXPC 20L 35K XW XX CL XX
LUMINAIRE	Nom 4" diam Gamma Cylinder (wet location), XW optic, clear glass lens
OTHER	Beam Angle: 57.2 deg
OTHER	Extra Wide optic
LAMPCAT	N/A
LAMP	N/A
OTHER	CCT Output Multipliers: 27K x 0.97, 30K x 0.98, 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 0.97, 30K x 0.98, 40K x 1.04
_CCTMULTA	27HK x 0.89, 30HK x 0.83
_LAMPMULT	10L x 0.50, 15L x 0.74

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	147.18	11.99%	90.00° - 100.00°	0.09	0.01%
10.00° - 20.00°	408.54	33.29%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	482.93	39.35%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	169.21	13.79%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	11.69	0.95%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	2.39	0.20%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	1.91	0.16%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	1.78	0.15%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.43	0.12%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1227.07	99.99%	0.00° - 180.00°	1227.16	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°	1547.26	1547.26	1547.26	1547.26	1547.26	1547.26	1547.26	1547.26	1547.26	1547.26	1547.26	1547.26	1547.26	1547.26	1547.26	1547.26	1547.26
2.50°	1548.15	1550.07	1547.24	1551.59	1554.57	1549.18	1543.10	1539.24	1529.80	1533.20	1528.81	1531.66	1540.14	1547.46	1547.59	1549.92	1548.15
5.00°	1543.84	1543.91	1550.38	1548.56	1547.24	1536.34	1528.47	1519.31	1513.27	1513.00	1513.97	1514.76	1521.16	1531.77	1535.62	1540.45	1543.84
7.50°	1532.85	1534.65	1532.26	1536.38	1530.94	1518.63	1505.16	1499.43	1494.42	1491.01	1493.04	1495.77	1503.97	1516.45	1523.02	1526.92	1532.85
10.00°	1514.82	1515.89	1514.15	1517.25	1510.53	1497.55	1482.97	1479.63	1481.63	1474.89	1472.88	1477.18	1488.20	1501.68	1510.19	1511.97	1514.82
12.50°	1494.85	1495.31	1496.05	1499.09	1487.31	1475.21	1462.28	1462.08	1471.95	1459.42	1458.53	1458.87	1471.13	1488.00	1495.91	1496.67	1494.85
15.00°	1473.22	1470.43	1474.87	1481.51	1456.07	1443.48	1436.80	1447.95	1457.83	1441.80	1439.59	1434.03	1453.21	1475.57	1481.20	1473.12	1473.22
17.50°	1432.72	1431.33	1432.18	1438.57	1420.39	1409.02	1406.13	1417.53	1441.90	1424.06	1397.92	1405.22	1414.59	1445.69	1446.84	1448.08	1432.72
20.00°	1378.84	1365.70	1375.54	1383.21	1350.21	1343.25	1349.96	1367.03	1378.64	1353.51	1341.88	1335.06	1364.82	1399.64	1407.99	1378.86	1378.84
22.50°	1265.36	1259.18	1254.03	1259.46	1264.43	1270.91	1270.61	1267.15	1300.15	1276.84	1232.59	1244.92	1247.08	1289.42	1288.18	1304.60	1265.36
25.00°	1117.33	1089.53	1106.17	1108.51	1086.90	1093.43	1116.81	1117.71	1111.10	1081.89	1092.24	1071.50	1100.36	1129.43	1155.80	1112.98	1117.33
27.50°	901.78	885.24	869.25	880.05	877.12	901.30	908.09	914.38	895.77	882.63	865.30	866.58	883.73	912.44	921.71	914.11	901.78
30.00°	655.10	637.62	635.44	628.02	645.03	666.49	679.77	666.38	657.18	640.91	639.48	636.62	644.10	659.70	678.42	666.33	655.10
32.50°	438.19	420.62	409.91	412.77	407.05	428.43	439.80	447.23	414.79	410.48	416.10	399.18	430.45	439.89	451.32	421.98	438.19
35.00°	231.98	234.75	223.26	205.70	246.12	266.74	267.39	247.73	255.28	247.54	235.08	244.21	223.42	236.59	226.48	258.43	231.98
37.50°	127.00	114.99	117.78	113.56	99.58	109.92	128.11	129.99	104.62	106.77	127.24	107.20	124.60	124.43	132.42	105.34	127.00
40.00°	50.56	51.54	43.60	38.67	52.06	62.59	61.87	57.03	57.84	57.68	52.66	57.49	45.18	49.47	43.11	59.59	50.56
42.50°	24.01	19.78	21.53	19.94	17.16	18.29	23.71	24.74	16.19	18.43	25.74	20.54	23.78	22.21	23.50	19.13	24.01
45.00°	7.57	9.93	7.34	6.51	9.55	10.72	10.50	10.08	9.90	10.49	9.85	11.29	8.87	9.87	5.99	11.08	7.57
47.50°	4.44	5.18	4.07	4.49	3.73	3.96	4.59	5.19	3.92	4.60	6.77	4.55	6.21	5.92	4.54	4.36	4.44
50.00°	3.07	3.28	2.32	2.91	2.96	3.11	3.07	3.71	3.65	3.70	4.79	3.54	4.29	3.89	3.26	3.24	3.07
52.50°	3.01	2.38	2.29	2.85	2.27	2.39	2.53	3.23	3.35	3.01	3.85	2.72	3.68	3.12	2.85	2.44	3.01
55.00°	3.06	1.95	2.22	2.78	2.19	2.31	2.54	3.00	2.81	2.71	3.18	2.38	3.09	2.57	2.49	2.67	3.06
57.50°	2.56	1.99	2.11	2.49	2.11	2.24	2.63	2.79	2.33	2.40	2.72	2.05	2.48	2.65	2.28	2.77	2.56
60.00°	2.07	2.19	1.87	2.19	2.03	2.21	2.23	2.57	2.13	2.08	2.34	2.09	1.90	2.80	2.08	2.56	2.07
62.50°	2.14	1.99	1.54	1.79	1.94	2.13	1.79	2.10	1.96	1.96	1.99	2.10	1.62	2.45	1.89	2.30	2.14
65.00°	2.18	1.70	1.57	1.44	1.87	1.88	1.92	1.60	1.92	2.09	2.00	1.91	1.44	2.09	1.80	1.94	2.18
67.50°	1.88	1.98	1.81	1.39	1.74	1.70	1.98	1.87	1.88	2.21	2.16	1.75	1.80	1.88	1.94	1.80	1.88
70.00°	1.70	2.36	1.85	1.46	1.41	1.63	1.51	2.00	1.82	2.32	2.22	1.75	2.03	1.73	2.10	1.99	1.70
72.50°	2.07	1.82	1.82	1.79	1.22	1.37	1.34	1.71	1.56	1.96	2.16	1.64	1.99	1.85	2.27	2.12	2.07
75.00°	2.00	1.40	1.83	2.10	1.17	1.08	1.48	1.40	1.32	1.62	1.71	1.41	1.87	1.70	2.39	2.23	2.00
77.50°	1.41	1.28	1.65	2.22	1.30	1.28	1.69	1.16	1.57	1.50	1.56	2.02	1.79	1.26	2.39	1.89	1.41
80.00°	1.37	1.36	1.22	1.57	1.28	1.40	1.55	1.15	1.05	1.05	1.52	2.06	2.20	1.14	1.52	1.72	1.37
82.50°	1.30	1.41	1.65	1.51	1.36	1.41	1.09	1.47	1.20	1.14	1.43	1.74	2.72	1.45	1.53	1.74	1.30
85.00°	1.18	1.32	1.40	1.38	1.53	1.27	1.24	1.54	1.25	1.90	1.22	1.49	1.50	1.66	1.67	1.28	1.18
87.50°	1.17	1.12	1.15	1.34	1.20	0.87	1.63	1.00	1.08	1.29	1.25	2.01	1.42	1.34	1.72	1.02	1.17
90.00°	1.02	1.33	1.17	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70	1.18	1.30	1.23	1.02
92.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	1461	1461	1461	1461	1427	1427	1427	1427	1363	1363	1363	1305	1305	1305	1252	1252	1227
	1	1398	1366	1337	1312	1368	1340	1314	1291	1290	1270	1251	1245	1229	1214	1203	1190	1167
	2	1336	1280	1235	1196	1309	1260	1218	1183	1220	1186	1157	1184	1157	1132	1151	1129	1107
	3	1276	1203	1147	1103	1252	1187	1135	1094	1155	1112	1077	1126	1090	1060	1099	1069	1049
	4	1219	1134	1072	1024	1197	1120	1063	1018	1094	1045	1006	1070	1028	995	1048	1013	994
	5	1164	1070	1005	956	1145	1059	998	952	1037	984	944	1018	972	935	999	959	942
	6	1112	1012	945	896	1095	1002	939	893	985	929	887	968	919	881	952	909	894
	7	1063	958	891	843	1047	950	886	841	935	878	836	921	870	832	908	863	848
	8	1016	909	841	795	1002	902	838	793	889	832	790	877	825	787	866	819	806
	9	973	864	797	752	960	858	794	750	847	789	748	836	783	745	826	778	767
	10	931	822	756	712	920	816	753	711	807	749	709	798	745	707	789	741	730

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	51.1 fc	6.0 ft
6.5 ft	36.6 fc	7.1 ft
7.5 ft	27.5 fc	8.2 ft
8.0 ft	24.2 fc	8.7 ft
10.0 ft	15.5 fc	10.9 ft
12.0 ft	10.7 fc	13.1 ft
14.0 ft	7.9 fc	15.3 ft
16.0 ft	6.0 fc	17.5 ft
20.0 ft	3.9 fc	21.9 ft
24.0 ft	2.7 fc	26.2 ft
28.0 ft	2.0 fc	30.6 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	194722	194722	194722
45.00°	1347	1307	1699
55.00°	671	486	481
65.00°	648	466	558
75.00°	974	890	568
85.00°	1707	2023	2216

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	-5.0	-4.1	-4.7	-3.8	-3.5	-5.8	-4.9	-5.4	-4.6	-4.3
	3H	-2.5	-1.7	-2.1	-1.4	-1.0	-3.2	-2.5	-2.9	-2.1	-1.8
	4H	-0.8	-0.1	-0.4	0.2	0.6	-2.0	-1.3	-1.6	-0.9	-0.5
	6H	0.3	1.0	0.7	1.3	1.7	0.0	0.7	0.4	1.0	1.4
	8H	1.0	1.6	1.4	2.0	2.4	1.5	2.1	1.9	2.5	2.9
	12H	1.7	2.3	2.2	2.7	3.2	2.6	3.2	3.1	3.6	4.0
4H	2H	-4.6	-3.9	-4.2	-3.6	-3.2	-5.0	-4.3	-4.6	-3.9	-3.5
	3H	-1.5	-0.9	-1.1	-0.5	-0.1	-2.2	-1.6	-1.8	-1.2	-0.8
	4H	0.3	0.9	0.8	1.3	1.7	-0.9	-0.4	-0.5	0.1	0.5
	6H	1.7	2.2	2.2	2.6	3.1	1.4	1.9	1.9	2.3	2.8
	8H	2.5	2.9	3.0	3.4	3.9	2.9	3.4	3.4	3.8	4.3
	12H	3.4	3.8	3.9	4.2	4.7	4.2	4.5	4.7	5.0	5.5
8H	4H	1.0	1.5	1.5	1.9	2.4	-0.2	0.2	0.3	0.7	1.2
	6H	2.7	3.0	3.2	3.5	4.0	2.4	2.7	2.9	3.2	3.7
	8H	3.7	4.0	4.2	4.5	5.0	4.0	4.3	4.5	4.8	5.3
	12H	4.8	5.0	5.3	5.5	6.1	5.4	5.6	5.9	6.1	6.7
12H	4H	1.1	1.5	1.6	2.0	2.5	-0.1	0.3	0.4	0.8	1.3
	6H	2.9	3.2	3.4	3.7	4.2	2.6	2.9	3.1	3.3	3.9
	8H	4.1	4.3	4.6	4.8	5.4	4.2	4.5	4.8	5.0	5.6

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0