

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CF04XXPC 20L 35K WD XX CL XX
Nom 4" diam Gamma Cylinder, WD optic, clear glass lens

Test Number

SP-01070

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 |
|-------------|--------|

Lumen Output

| | |
|---------------|-------------|
| Output Lumens | 1487 |
| Efficacy | 115.28 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 |

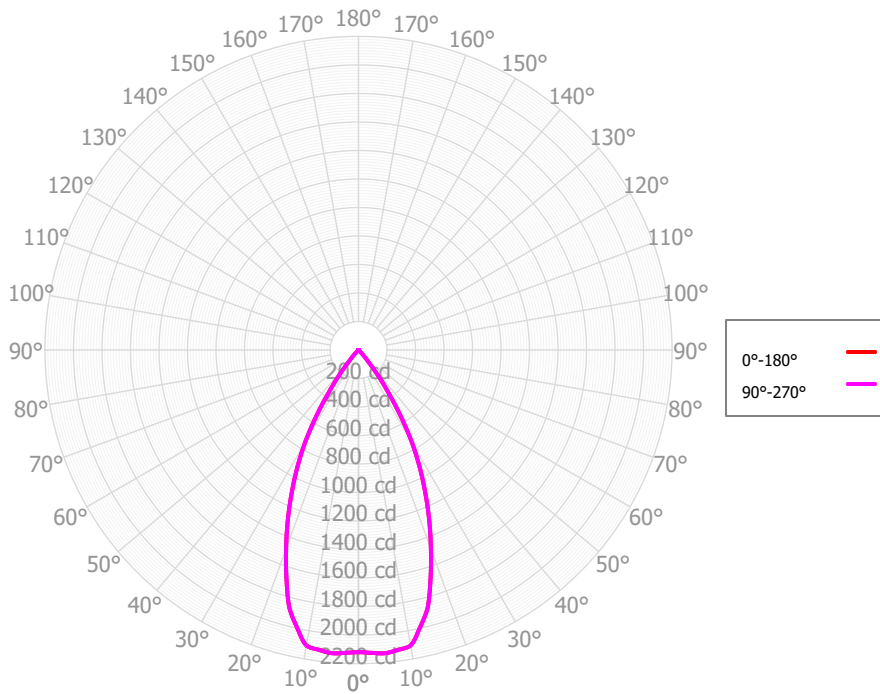
Full Beam Angle

| | |
|------------|-----|
| 0° - 180° | 51° |
| 90° - 270° | 51° |

IES File Header Contents

| Keyword | Value |
|-----------|--|
| TEST | SP-01070 |
| TESTLAB | Spectrum Lighting Photometric Lab, VLS-245-981 |
| MANUFAC | Spectrum Lighting |
| TESTDATE | 1/31/2020 |
| ISSUEDATE | 12/8/2020 |
| LUMCAT | CF04XXPC 20L 35K WD XX CL XX |
| LUMINAIRE | Nom 4" diam Gamma Cylinder, WD optic, clear glass lens |
| OTHER | Beam Angle: 51.2 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° | 206.75 | 13.90% | 90.00° - 100.00° | 0.13 | 0.01% |
| 10.00° - 20.00° | 509.66 | 34.27% | 100.00° - 110.00° | 0.00 | 0.00% |
| 20.00° - 30.00° | 503.80 | 33.88% | 100.00° - 120.00° | 0.00 | 0.00% |
| 30.00° - 40.00° | 236.54 | 15.91% | 120.00° - 130.00° | 0.00 | 0.00% |
| 40.00° - 50.00° | 23.61 | 1.59% | 130.00° - 140.00° | 0.00 | 0.00% |
| 50.00° - 60.00° | 2.42 | 0.16% | 140.00° - 150.00° | 0.00 | 0.00% |
| 60.00° - 70.00° | 1.84 | 0.12% | 150.00° - 160.00° | 0.00 | 0.00% |
| 70.00° - 80.00° | 2.02 | 0.14% | 160.00° - 170.00° | 0.00 | 0.00% |
| 80.00° - 90.00° | 1.45 | 0.10% | 170.00° - 180.00° | 0.00 | 0.00% |
| 0.00° - 90.00° | 1488.09 | 100.06% | 0.00° - 180.00° | 1488.22 | 100.07% |

Candela Distribution

| | 0.00° | 90.00° | 180.00° |
|---------|---------|---------|---------|
| 0.00° | 2120.57 | 2120.57 | 2120.57 |
| 2.50° | 2127.43 | 2127.43 | 2127.43 |
| 5.00° | 2135.88 | 2135.88 | 2135.88 |
| 7.50° | 2122.42 | 2122.42 | 2122.42 |
| 10.00° | 2105.35 | 2105.35 | 2105.35 |
| 12.50° | 1994.53 | 1994.53 | 1994.53 |
| 15.00° | 1874.27 | 1874.27 | 1874.27 |
| 17.50° | 1681.30 | 1681.30 | 1681.30 |
| 20.00° | 1485.30 | 1485.30 | 1485.30 |
| 22.50° | 1297.80 | 1297.80 | 1297.80 |
| 25.00° | 1110.77 | 1110.77 | 1110.77 |
| 27.50° | 931.52 | 931.52 | 931.52 |
| 30.00° | 750.38 | 750.38 | 750.38 |
| 32.50° | 553.49 | 553.49 | 553.49 |
| 35.00° | 365.11 | 365.11 | 365.11 |
| 37.50° | 223.52 | 223.52 | 223.52 |
| 40.00° | 100.81 | 100.81 | 100.81 |
| 42.50° | 52.43 | 52.43 | 52.43 |
| 45.00° | 14.76 | 14.76 | 14.76 |
| 47.50° | 8.59 | 8.59 | 8.59 |
| 50.00° | 4.02 | 4.02 | 4.02 |
| 52.50° | 3.13 | 3.13 | 3.13 |
| 55.00° | 2.47 | 2.47 | 2.47 |
| 57.50° | 2.23 | 2.23 | 2.23 |
| 60.00° | 2.05 | 2.05 | 2.05 |
| 62.50° | 1.97 | 1.97 | 1.97 |
| 65.00° | 1.85 | 1.85 | 1.85 |
| 67.50° | 1.69 | 1.69 | 1.69 |
| 70.00° | 1.76 | 1.76 | 1.76 |
| 72.50° | 2.01 | 2.01 | 2.01 |
| 75.00° | 2.05 | 2.05 | 2.05 |
| 77.50° | 1.92 | 1.92 | 1.92 |
| 80.00° | 1.54 | 1.54 | 1.54 |
| 82.50° | 1.41 | 1.41 | 1.41 |
| 85.00° | 1.34 | 1.34 | 1.34 |
| 87.50° | 1.30 | 1.30 | 1.30 |
| 90.00° | 0.98 | 0.98 | 0.98 |
| 92.50° | 0.00 | 0.00 | 0.00 |
| 95.00° | 0.00 | 0.00 | 0.00 |
| 97.50° | 0.00 | 0.00 | 0.00 |
| 100.00° | 0.00 | 0.00 | 0.00 |
| 102.50° | 0.00 | 0.00 | 0.00 |
| 105.00° | 0.00 | 0.00 | 0.00 |
| 107.50° | 0.00 | 0.00 | 0.00 |
| 110.00° | 0.00 | 0.00 | 0.00 |
| 112.50° | 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 | 1772 | 1772 | 1772 | 1772 | 1730 | 1730 | 1730 | 1730 | 1654 | 1654 | 1654 | 1583 | 1583 | 1583 | 1518 | 1518 | 1488 |
| | 1 | 1696 | 1657 | 1623 | 1592 | 1660 | 1625 | 1595 | 1567 | 1565 | 1541 | 1519 | 1510 | 1491 | 1473 | 1460 | 1445 | 1416 |
| | 2 | 1621 | 1554 | 1499 | 1453 | 1589 | 1529 | 1479 | 1437 | 1481 | 1441 | 1405 | 1438 | 1405 | 1375 | 1397 | 1371 | 1344 |
| | 3 | 1549 | 1462 | 1394 | 1340 | 1520 | 1441 | 1379 | 1330 | 1403 | 1351 | 1309 | 1368 | 1324 | 1288 | 1335 | 1299 | 1274 |
| | 4 | 1480 | 1378 | 1303 | 1246 | 1454 | 1361 | 1292 | 1238 | 1330 | 1271 | 1224 | 1301 | 1251 | 1210 | 1274 | 1231 | 1209 |
| | 5 | 1414 | 1301 | 1223 | 1164 | 1391 | 1288 | 1214 | 1159 | 1262 | 1198 | 1149 | 1238 | 1183 | 1139 | 1216 | 1168 | 1147 |
| | 6 | 1352 | 1232 | 1151 | 1093 | 1331 | 1220 | 1144 | 1089 | 1199 | 1132 | 1082 | 1179 | 1120 | 1075 | 1160 | 1108 | 1089 |
| | 7 | 1293 | 1168 | 1086 | 1029 | 1275 | 1158 | 1081 | 1026 | 1140 | 1071 | 1021 | 1123 | 1062 | 1016 | 1107 | 1052 | 1035 |
| | 8 | 1238 | 1109 | 1028 | 972 | 1221 | 1101 | 1024 | 970 | 1085 | 1016 | 966 | 1071 | 1008 | 962 | 1057 | 1001 | 985 |
| | 9 | 1186 | 1055 | 975 | 920 | 1171 | 1048 | 971 | 919 | 1035 | 965 | 916 | 1022 | 958 | 913 | 1010 | 952 | 938 |
| | 10 | 1137 | 1005 | 926 | 873 | 1123 | 999 | 923 | 872 | 987 | 918 | 870 | 976 | 913 | 868 | 966 | 908 | 895 |

Cone of Light

| Mtg Height | Light Level | Beam Diameter |
|------------|-------------|---------------|
| 5.5 ft | 70.1 fc | 5.3 ft |
| 6.5 ft | 50.2 fc | 6.2 ft |
| 7.5 ft | 37.7 fc | 7.2 ft |
| 8.0 ft | 33.1 fc | 7.7 ft |
| 10.0 ft | 21.2 fc | 9.6 ft |
| 12.0 ft | 14.7 fc | 11.5 ft |
| 14.0 ft | 10.8 fc | 13.4 ft |
| 16.0 ft | 8.3 fc | 15.3 ft |
| 20.0 ft | 5.3 fc | 19.2 ft |
| 24.0 ft | 3.7 fc | 23.0 ft |
| 28.0 ft | 2.7 fc | 26.8 ft |

Average Luminaire Luminance [cd/m²]

| | 0.00° | 45.00° | 90.00° |
|---------------|--------|--------|--------|
| 0.00° | 266873 | 266873 | 266873 |
| 45.00° | 2626 | 2626 | 2626 |
| 55.00° | 543 | 543 | 543 |
| 65.00° | 552 | 552 | 552 |
| 75.00° | 998 | 998 | 998 |
| 85.00° | 1934 | 1934 | 1934 |

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 | -6.3 | -5.4 | -6.0 | -5.1 | -4.8 | -6.3 | -5.4 | -6.0 | -5.1 | -4.8 |
| | 3H | -3.9 | -3.1 | -3.5 | -2.7 | -2.4 | -3.9 | -3.1 | -3.5 | -2.7 | -2.4 |
| | 4H | -1.8 | -1.1 | -1.4 | -0.7 | -0.3 | -1.8 | -1.1 | -1.4 | -0.7 | -0.3 |
| | 6H | -0.1 | 0.6 | 0.4 | 1.0 | 1.4 | -0.1 | 0.6 | 0.4 | 1.0 | 1.4 |
| | 8H | 0.7 | 1.3 | 1.1 | 1.7 | 2.1 | 0.7 | 1.3 | 1.1 | 1.7 | 2.1 |
| | 12H | 1.5 | 2.1 | 1.9 | 2.5 | 2.9 | 1.5 | 2.1 | 1.9 | 2.5 | 2.9 |
| 4H | 2H | -5.7 | -4.9 | -5.3 | -4.6 | -4.2 | -5.7 | -4.9 | -5.3 | -4.6 | -4.2 |
| | 3H | -2.7 | -2.1 | -2.3 | -1.7 | -1.3 | -2.7 | -2.1 | -2.3 | -1.7 | -1.3 |
| | 4H | -0.4 | 0.1 | 0.0 | 0.5 | 1.0 | -0.4 | 0.1 | 0.0 | 0.5 | 1.0 |
| | 6H | 1.4 | 1.9 | 1.9 | 2.3 | 2.8 | 1.4 | 1.9 | 1.9 | 2.3 | 2.8 |
| | 8H | 2.2 | 2.6 | 2.6 | 3.0 | 3.5 | 2.2 | 2.6 | 2.6 | 3.0 | 3.5 |
| | 12H | 3.1 | 3.4 | 3.6 | 3.9 | 4.4 | 3.1 | 3.4 | 3.6 | 3.9 | 4.4 |
| 8H | 4H | 0.3 | 0.7 | 0.8 | 1.2 | 1.7 | 0.3 | 0.7 | 0.8 | 1.2 | 1.7 |
| | 6H | 2.3 | 2.6 | 2.8 | 3.1 | 3.6 | 2.3 | 2.6 | 2.8 | 3.1 | 3.6 |
| | 8H | 3.2 | 3.5 | 3.7 | 4.0 | 4.5 | 3.2 | 3.5 | 3.7 | 4.0 | 4.5 |
| | 12H | 4.3 | 4.6 | 4.9 | 5.1 | 5.7 | 4.3 | 4.6 | 4.9 | 5.1 | 5.7 |
| 12H | 4H | 0.4 | 0.8 | 0.9 | 1.3 | 1.8 | 0.4 | 0.8 | 0.9 | 1.3 | 1.8 |
| | 6H | 2.5 | 2.8 | 3.0 | 3.2 | 3.8 | 2.5 | 2.8 | 3.0 | 3.2 | 3.8 |
| | 8H | 3.5 | 3.8 | 4.0 | 4.3 | 4.9 | 3.5 | 3.8 | 4.0 | 4.3 | 4.9 |

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0