## Indoor Distribution Test Report

# Spectrum Lighting Inc.

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## Spectrum Lighting Photometric Lab

**Luminaire**

SAZI4XT 20L 35K WD xx SA4NXT MW GLX (aimed at 0 deg - nadir)
Nom 4 inch square adj accent downlight (measured at nadir) with WD optic

**Test Number**

SP-01257_2

**Test Date**

8/4/2021

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

## Summary of Results

### Power

| | |
|---|---|
| **Input Watts** | 24.6 W |

### Lumen Output

| | |
|---|---|
| **Output Lumens** | 1584 |
| **Efficacy** | 64.39 lm/W |

### Luminous Dimensions

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

### Spacing Criterion

| | |
|---|---|
| **Two luminaires, plane 0°** | 0.73 |
| **Two luminaires, plane 90°** | 0.72 |
| **Four luminaires** | 0.78 |

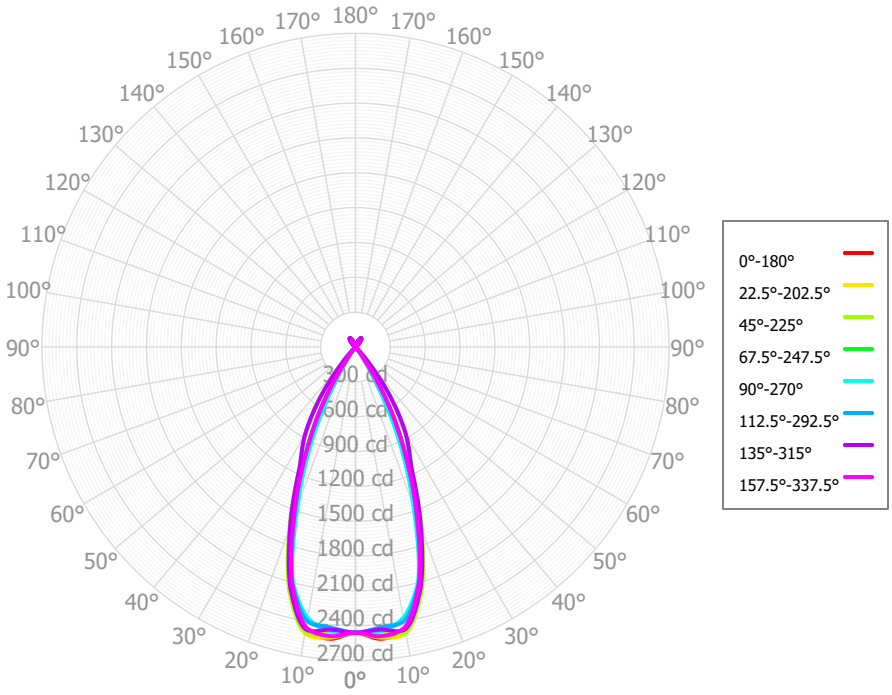
### Full Beam Angle

| | |
|---|---|
| **0° - 180°** | 44° |
| **90° - 270°** | 43° |

## IES File Header Contents

| Keyword | Value |
|---|---|
| TEST | SP-01257_2 |
| TESTLAB | Spectrum Lighting Photometric Lab, VLS-245-981 |
| MANUFAC | Spectrum Lighting |
| TESTDATE | 8/4/2021 |
| ISSUEDATE | 8/5/2021 |
| LUMCAT | SAZI4XT 20L 35K WD xx SA4NXT MW GLX (aimed at 0 deg - nadir) |
| LUMINAIRE | Nom 4 inch square adj accent downlight (measured at nadir) with WD optic |
| OTHER | Matte white finish, Clear glass lens |
| OTHER | Beam Angle: 44 deg |
| LAMP | N/A |
| LAMPCAT | N/A, 19mm LES |
| OTHER | LEDXT lumen output is the same for all available CCT's |
| OTHER | Total luminaire wattage is approximate |
| OTHER | This report prepared by Spectrum Lighting |
| _CRI | 83 |
| _CCTMULT | Same for all avialable CCT's |
| _LAMPMULT | 10L x 0.48, 13L x 0.65 |

## Candela Polar Plot




## Zonal Lumen Summary

| Zone | Lumens | % Fixture | Zone | Lumens | % Fixture |
|---|---|---|---|---|---|
| 0.00° - 10.00° | 248.98 | 15.72% | 90.00° - 100.00° | 1.40 | 0.09% |
| 10.00° - 20.00° | 564.72 | 35.65% | 100.00° - 110.00° | 1.44 | 0.09% |
| 20.00° - 30.00° | 460.75 | 29.09% | 100.00° - 120.00° | 4.43 | 0.28% |
| 30.00° - 40.00° | 164.29 | 10.37% | 120.00° - 130.00° | 9.33 | 0.59% |
| 40.00° - 50.00° | 23.41 | 1.48% | 130.00° - 140.00° | 23.39 | 1.48% |
| 50.00° - 60.00° | 8.39 | 0.53% | 140.00° - 150.00° | 37.31 | 2.36% |
| 60.00° - 70.00° | 5.57 | 0.35% | 150.00° - 160.00° | 22.73 | 1.44% |
| 70.00° - 80.00° | 3.33 | 0.21% | 160.00° - 170.00° | 3.74 | 0.24% |
| 80.00° - 90.00° | 1.84 | 0.12% | 170.00° - 180.00° | 0.27 | 0.02% |
| 0.00° - 90.00° | 1481.29 | 93.52% | 0.00° - 180.00° | 1583.88 | 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°** | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 | 2460.22 |
| **5.00°** | 2522.19 | 2512.47 | 2460.35 | 2453.52 | 2458.70 | 2425.48 | 2443.46 | 2499.42 | 2522.19 | 2512.47 | 2460.35 | 2453.52 | 2458.70 | 2425.48 | 2443.46 | 2499.42 | 2522.19 |
| **10.00°** | 2469.23 | 2504.33 | 2490.60 | 2379.38 | 2369.81 | 2396.43 | 2467.98 | 2450.92 | 2469.23 | 2504.33 | 2490.60 | 2379.38 | 2369.81 | 2396.43 | 2467.98 | 2450.92 | 2469.23 |
| **15.00°** | 2110.72 | 2159.36 | 2191.90 | 2116.71 | 2086.68 | 2105.70 | 2159.63 | 2110.18 | 2110.72 | 2159.36 | 2191.90 | 2116.71 | 2086.68 | 2105.70 | 2159.63 | 2110.18 | 2110.72 |
| **20.00°** | 1489.24 | 1575.78 | 1663.76 | 1576.27 | 1458.82 | 1535.88 | 1644.49 | 1546.11 | 1489.24 | 1575.78 | 1663.76 | 1576.27 | 1458.82 | 1535.88 | 1644.49 | 1546.11 | 1489.24 |
| **25.00°** | 920.35 | 1003.08 | 1139.45 | 1018.25 | 882.64 | 1022.88 | 1133.25 | 1001.39 | 920.35 | 1003.08 | 1139.45 | 1018.25 | 882.64 | 1022.88 | 1133.25 | 1001.39 | 920.35 |
| **30.00°** | 363.74 | 561.62 | 848.98 | 545.79 | 354.74 | 524.68 | 868.95 | 557.35 | 363.74 | 561.62 | 848.98 | 545.79 | 354.74 | 524.68 | 868.95 | 557.35 | 363.74 |
| **35.00°** | 78.22 | 145.96 | 548.87 | 179.23 | 71.43 | 168.10 | 523.09 | 132.14 | 78.22 | 145.96 | 548.87 | 179.23 | 71.43 | 168.10 | 523.09 | 132.14 | 78.22 |
| **40.00°** | 24.02 | 33.22 | 196.30 | 40.04 | 22.36 | 41.06 | 181.75 | 27.17 | 24.02 | 33.22 | 196.30 | 40.04 | 22.36 | 41.06 | 181.75 | 27.17 | 24.02 |
| **45.00°** | 15.78 | 16.46 | 41.43 | 17.98 | 20.17 | 19.11 | 24.20 | 16.07 | 15.78 | 16.46 | 41.43 | 17.98 | 20.17 | 19.11 | 24.20 | 16.07 | 15.78 |
| **50.00°** | 11.35 | 11.74 | 13.67 | 12.87 | 15.92 | 12.95 | 11.46 | 11.03 | 11.35 | 11.74 | 13.67 | 12.87 | 15.92 | 12.95 | 11.46 | 11.03 | 11.35 |
| **55.00°** | 7.90 | 9.04 | 10.59 | 9.12 | 10.18 | 8.51 | 9.40 | 9.12 | 7.90 | 9.04 | 10.59 | 9.12 | 10.18 | 8.51 | 9.40 | 9.12 | 7.90 |
| **60.00°** | 6.86 | 6.79 | 7.52 | 6.95 | 6.32 | 6.54 | 6.65 | 6.24 | 6.86 | 6.79 | 7.52 | 6.95 | 6.32 | 6.54 | 6.65 | 6.24 | 6.86 |
| **65.00°** | 5.99 | 5.45 | 5.54 | 6.14 | 5.79 | 6.00 | 5.18 | 5.92 | 5.99 | 5.45 | 5.54 | 6.14 | 5.79 | 6.00 | 5.18 | 5.92 | 5.99 |
| **70.00°** | 4.44 | 4.17 | 4.19 | 4.80 | 4.25 | 4.96 | 3.81 | 4.13 | 4.44 | 4.17 | 4.19 | 4.80 | 4.25 | 4.96 | 3.81 | 4.13 | 4.44 |
| **75.00°** | 3.69 | 3.00 | 2.78 | 3.22 | 2.79 | 3.12 | 2.92 | 3.05 | 3.69 | 3.00 | 2.78 | 3.22 | 2.79 | 3.12 | 2.92 | 3.05 | 3.69 |
| **80.00°** | 2.25 | 2.18 | 2.11 | 2.20 | 2.08 | 2.31 | 2.23 | 2.09 | 2.25 | 2.18 | 2.11 | 2.20 | 2.08 | 2.31 | 2.23 | 2.09 | 2.25 |
| **85.00°** | 1.81 | 1.49 | 1.52 | 1.61 | 1.94 | 1.42 | 1.63 | 1.53 | 1.81 | 1.49 | 1.52 | 1.61 | 1.94 | 1.42 | 1.63 | 1.53 | 1.81 |
| **90.00°** | 1.56 | 1.20 | 1.13 | 1.58 | 1.53 | 1.24 | 1.25 | 1.27 | 1.56 | 1.20 | 1.13 | 1.58 | 1.53 | 1.24 | 1.25 | 1.27 | 1.56 |
| **95.00°** | 1.48 | 1.21 | 1.06 | 1.29 | 1.64 | 1.26 | 1.16 | 1.01 | 1.48 | 1.21 | 1.06 | 1.29 | 1.64 | 1.26 | 1.16 | 1.01 | 1.48 |
| **100.00°** | 1.35 | 1.13 | 1.20 | 1.10 | 1.50 | 1.18 | 1.36 | 1.18 | 1.35 | 1.13 | 1.20 | 1.10 | 1.50 | 1.18 | 1.36 | 1.18 | 1.35 |
| **105.00°** | 1.38 | 1.18 | 1.35 | 1.37 | 1.49 | 1.35 | 1.37 | 1.38 | 1.38 | 1.18 | 1.35 | 1.37 | 1.49 | 1.35 | 1.37 | 1.38 | 1.38 |
| **110.00°** | 1.36 | 1.44 | 1.46 | 1.38 | 1.69 | 1.90 | 1.37 | 1.40 | 1.36 | 1.44 | 1.46 | 1.38 | 1.69 | 1.90 | 1.37 | 1.40 | 1.36 |
| **115.00°** | 1.33 | 1.52 | 1.40 | 3.51 | 3.52 | 5.24 | 1.96 | 1.38 | 1.33 | 1.52 | 1.40 | 3.51 | 3.52 | 5.24 | 1.96 | 1.38 | 1.33 |
| **120.00°** | 1.40 | 1.65 | 2.36 | 12.34 | 9.49 | 13.88 | 3.22 | 1.66 | 1.40 | 1.65 | 2.36 | 12.34 | 9.49 | 13.88 | 3.22 | 1.66 | 1.40 |
| **125.00°** | 1.35 | 1.85 | 4.87 | 22.45 | 17.49 | 24.55 | 6.17 | 2.14 | 1.35 | 1.85 | 4.87 | 22.45 | 17.49 | 24.55 | 6.17 | 2.14 | 1.35 |
| **130.00°** | 2.00 | 3.00 | 13.27 | 31.56 | 23.95 | 36.86 | 16.13 | 3.60 | 2.00 | 3.00 | 13.27 | 31.56 | 23.95 | 36.86 | 16.13 | 3.60 | 2.00 |
| **135.00°** | 5.45 | 6.68 | 44.67 | 49.92 | 30.24 | 52.20 | 40.53 | 8.51 | 5.45 | 6.68 | 44.67 | 49.92 | 30.24 | 52.20 | 40.53 | 8.51 | 5.45 |
| **140.00°** | 13.57 | 18.72 | 70.00 | 70.41 | 38.88 | 68.88 | 72.70 | 29.69 | 13.57 | 18.72 | 70.00 | 70.41 | 38.88 | 68.88 | 72.70 | 29.69 | 13.57 |
| **145.00°** | 19.78 | 37.17 | 85.74 | 85.15 | 46.08 | 83.65 | 92.29 | 61.49 | 19.78 | 37.17 | 85.74 | 85.15 | 46.08 | 83.65 | 92.29 | 61.49 | 19.78 |
| **150.00°** | 18.63 | 33.84 | 87.15 | 88.51 | 42.79 | 84.91 | 89.59 | 67.13 | 18.63 | 33.84 | 87.15 | 88.51 | 42.79 | 84.91 | 89.59 | 67.13 | 18.63 |
| **155.00°** | 14.69 | 25.64 | 76.05 | 71.77 | 34.39 | 65.02 | 66.58 | 45.99 | 14.69 | 25.64 | 76.05 | 71.77 | 34.39 | 65.02 | 66.58 | 45.99 | 14.69 |
| **160.00°** | 11.00 | 15.53 | 32.33 | 34.12 | 21.05 | 31.66 | 32.93 | 23.03 | 11.00 | 15.53 | 32.33 | 34.12 | 21.05 | 31.66 | 32.93 | 23.03 | 11.00 |
| **165.00°** | 6.53 | 6.45 | 8.15 | 10.45 | 8.78 | 10.40 | 9.60 | 8.34 | 6.53 | 6.45 | 8.15 | 10.45 | 8.78 | 10.40 | 9.60 | 8.34 | 6.53 |
| **170.00°** | 3.06 | 2.65 | 3.37 | 4.12 | 3.00 | 3.41 | 3.29 | 3.58 | 3.06 | 2.65 | 3.37 | 4.12 | 3.00 | 3.41 | 3.29 | 3.58 | 3.06 |
| **175.00°** | 2.06 | 2.16 | 2.32 | 1.86 | 2.19 | 1.97 | 2.01 | 2.21 | 2.06 | 2.16 | 2.32 | 1.86 | 2.19 | 1.97 | 2.01 | 2.21 | 2.06 |
| **180.00°** | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 | 1.82 |

## Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

| | ρfc | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 0% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ρcc | 80% | 80% | 80% | 80% | 70% | 70% | 70% | 70% | 50% | 50% | 50% | 30% | 30% | 30% | 10% | 10% | 10% | 0% |
| | ρw | 70% | 50% | 30% | 10% | 70% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 30% |
| RCR | 0 | 1861 | 1861 | 1861 | 1861 | 1806 | 1806 | 1806 | 1806 | 1703 | 1703 | 1703 | 1609 | 1609 | 1609 | 1522 | 1522 | 1522 | 1481 |
| | 1 | 1779 | 1737 | 1700 | 1667 | 1730 | 1693 | 1661 | 1631 | 1611 | 1585 | 1562 | 1535 | 1516 | 1498 | 1465 | 1451 | 1437 | 1413 |
| | 2 | 1699 | 1628 | 1569 | 1519 | 1655 | 1592 | 1539 | 1495 | 1525 | 1483 | 1447 | 1463 | 1430 | 1401 | 1406 | 1380 | 1357 | 1346 |
| | 3 | 1624 | 1531 | 1459 | 1402 | 1584 | 1501 | 1436 | 1384 | 1446 | 1393 | 1349 | 1395 | 1352 | 1316 | 1348 | 1313 | 1283 | 1282 |
| | 4 | 1552 | 1444 | 1365 | 1304 | 1517 | 1420 | 1347 | 1291 | 1374 | 1313 | 1265 | 1331 | 1281 | 1240 | 1291 | 1250 | 1216 | 1221 |
| | 5 | 1485 | 1366 | 1283 | 1221 | 1453 | 1345 | 1269 | 1211 | 1306 | 1241 | 1192 | 1270 | 1215 | 1172 | 1237 | 1190 | 1153 | 1164 |
| | 6 | 1421 | 1295 | 1210 | 1149 | 1393 | 1278 | 1199 | 1141 | 1245 | 1177 | 1126 | 1214 | 1155 | 1111 | 1185 | 1135 | 1096 | 1111 |
| | 7 | 1362 | 1231 | 1145 | 1086 | 1336 | 1216 | 1136 | 1079 | 1187 | 1118 | 1067 | 1161 | 1100 | 1055 | 1136 | 1083 | 1043 | 1062 |
| | 8 | 1306 | 1172 | 1087 | 1029 | 1283 | 1159 | 1079 | 1024 | 1134 | 1064 | 1014 | 1111 | 1049 | 1004 | 1089 | 1035 | 994 | 1015 |
| | 9 | 1254 | 1118 | 1034 | 978 | 1232 | 1106 | 1028 | 974 | 1085 | 1015 | 965 | 1064 | 1002 | 957 | 1045 | 990 | 949 | 972 |
| | 10 | 1205 | 1068 | 986 | 932 | 1185 | 1058 | 980 | 928 | 1039 | 969 | 921 | 1021 | 958 | 914 | 1004 | 948 | 907 | 932 |

## Cone of Light

| Mtg Height | Light Level | Beam Diameter |
|---|---|---|
| 5.5 ft | 81.3 fc | 4.4 ft |
| 6.5 ft | 58.2 fc | 5.2 ft |
| 7.5 ft | 43.7 fc | 6.0 ft |
| 8.0 ft | 38.4 fc | 6.4 ft |
| 10.0 ft | 24.6 fc | 8.0 ft |
| 12.0 ft | 17.1 fc | 9.6 ft |
| 14.0 ft | 12.6 fc | 11.2 ft |
| 16.0 ft | 9.6 fc | 12.8 ft |
| 20.0 ft | 6.2 fc | 16.0 ft |
| 24.0 ft | 4.3 fc | 19.3 ft |
| 28.0 ft | 3.1 fc | 22.5 ft |

## Average Luminaire Luminance [cd/m²]

| | 0.00° | 45.00° | 90.00° |
|---|---|---|---|
| 0.00° | 243173 | 243173 | 243173 |
| 45.00° | 2206 | 5792 | 2819 |
| 55.00° | 1361 | 1825 | 1754 |
| 65.00° | 1401 | 1296 | 1353 |
| 75.00° | 1411 | 1061 | 1066 |
| 85.00° | 2051 | 1721 | 2201 |

## 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 | 1.7 | 2.5 | 2.2 | 3.0 | 3.5 | 1.8 | 2.7 | 2.3 | 3.1 | 3.6 |
| | 3H | 3.4 | 4.2 | 3.9 | 4.6 | 5.2 | 3.6 | 4.4 | 4.1 | 4.8 | 5.4 |
| | 4H | 4.2 | 4.9 | 4.7 | 5.3 | 5.9 | 4.2 | 4.9 | 4.7 | 5.3 | 5.9 |
| | 6H | 4.8 | 5.4 | 5.3 | 5.9 | 6.5 | 4.7 | 5.3 | 5.2 | 5.8 | 6.4 |
| | 8H | 5.1 | 5.7 | 5.6 | 6.2 | 6.8 | 4.9 | 5.5 | 5.5 | 6.1 | 6.6 |
| | 12H | 5.4 | 6.0 | 6.0 | 6.5 | 7.1 | 5.3 | 5.9 | 5.9 | 6.4 | 7.0 |
| 4H | 2H | 2.1 | 2.8 | 2.6 | 3.3 | 3.8 | 2.2 | 2.9 | 2.7 | 3.4 | 4.0 |
| | 3H | 4.0 | 4.6 | 4.5 | 5.1 | 5.7 | 4.3 | 4.8 | 4.8 | 5.4 | 5.9 |
| | 4H | 4.9 | 5.4 | 5.4 | 5.9 | 6.5 | 5.0 | 5.5 | 5.5 | 6.0 | 6.6 |
| | 6H | 5.6 | 6.1 | 6.2 | 6.6 | 7.3 | 5.6 | 6.1 | 6.2 | 6.6 | 7.3 |
| | 8H | 6.0 | 6.4 | 6.6 | 7.0 | 7.6 | 6.0 | 6.4 | 6.6 | 7.0 | 7.6 |
| | 12H | 6.5 | 6.8 | 7.1 | 7.4 | 8.0 | 6.5 | 6.8 | 7.1 | 7.4 | 8.1 |
| 8H | 4H | 5.1 | 5.5 | 5.7 | 6.1 | 6.7 | 5.2 | 5.6 | 5.7 | 6.1 | 6.8 |
| | 6H | 6.0 | 6.3 | 6.6 | 7.0 | 7.6 | 6.0 | 6.4 | 6.6 | 7.0 | 7.6 |
| | 8H | 6.5 | 6.8 | 7.2 | 7.4 | 8.1 | 6.5 | 6.8 | 7.2 | 7.5 | 8.1 |
| | 12H | 7.2 | 7.4 | 7.8 | 8.0 | 8.7 | 7.2 | 7.5 | 7.8 | 8.1 | 8.8 |
| 12H | 4H | 5.1 | 5.4 | 5.7 | 6.0 | 6.7 | 5.2 | 5.5 | 5.8 | 6.1 | 6.7 |
| | 6H | 6.1 | 6.4 | 6.7 | 7.0 | 7.7 | 6.1 | 6.4 | 6.7 | 7.0 | 7.7 |
| | 8H | 6.7 | 6.9 | 7.3 | 7.5 | 8.3 | 6.7 | 6.9 | 7.3 | 7.6 | 8.3 |

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0