

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: PORTFOLIO

Report Number: P840196

Luminaire Tested: **LD4C45D010 EU4459050 4LBCSSQMMS**

Issue Date: 5/25/2022

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.



Test Information

Test Method: LM-79-08
Report Number: P840196
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P209253)
Test Lab: INNOVATION CENTER
Issue Date: 5/25/2022
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: PORTFOLIO
Catalog Number: LD4C45D010 EU4459050 4LBCSSQMMS
Description: 4 INCH 4500 LUMEN PORTFOLIO LED DOWNLIGHT WITH, 5000K, 90CRI LEDS
AND 4LBCSSQ TRIM WITH MMS FINISH
Light Source: -
Ballast/Driver: -

Luminaire Equipment: Sample No. Condition Description

Summary

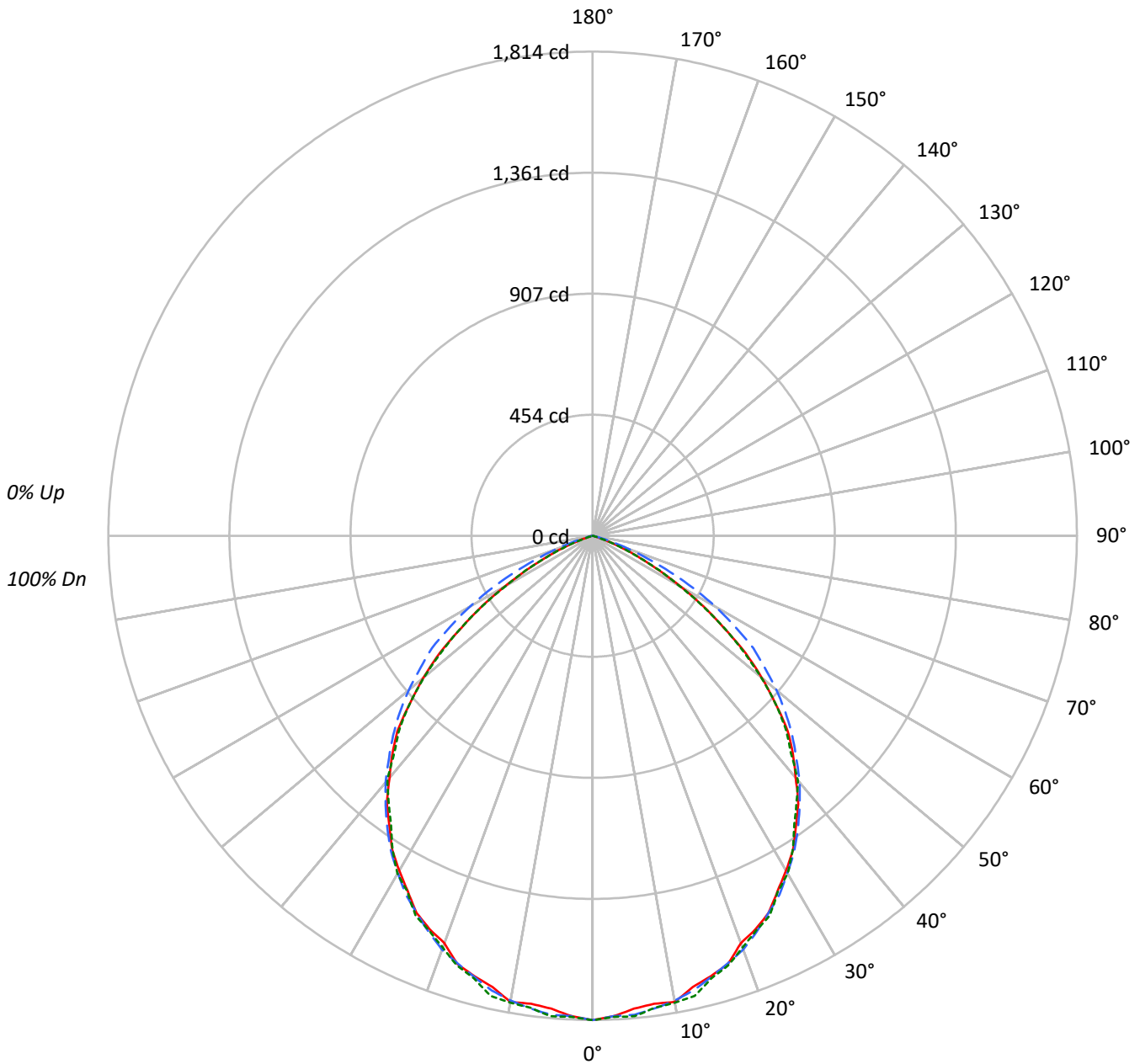
Lumens per Lamp: N/A
Luminaire Lumens: 3876.0 lumens
Efficiency: N/A
Efficacy: 78.1 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 49.6
Input Voltage (V):
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT

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CATALOG NUMBER: LD4C45D010 EU4459050 4LBCSSQMMS

Luminous Intensity Polar Plot





TEST NUMBER: P840196

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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|--|--|--|--|---|
| RF | 20 | | | | | 20 | | | | | 20 | | | | | 20 | | | | | 20 | | | | | |
| RC | 80 | | | | | 70 | | | | | 50 | | | | | 30 | | | | | 10 | | | | | 0 |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 | | | | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | | | | | |
| 1 | 111 | 108 | 104 | 101 | 109 | 105 | 102 | 100 | 101 | 99 | 96 | 97 | 95 | 94 | 94 | 92 | 91 | 89 | | | | | | | | |
| 2 | 103 | 96 | 91 | 86 | 100 | 94 | 89 | 85 | 91 | 87 | 83 | 88 | 84 | 81 | 85 | 82 | 79 | 77 | | | | | | | | |
| 3 | 95 | 86 | 79 | 74 | 93 | 85 | 78 | 73 | 82 | 76 | 72 | 79 | 74 | 71 | 77 | 73 | 69 | 67 | | | | | | | | |
| 4 | 88 | 77 | 70 | 64 | 86 | 76 | 69 | 63 | 74 | 67 | 63 | 71 | 66 | 62 | 69 | 65 | 61 | 59 | | | | | | | | |
| 5 | 81 | 70 | 62 | 56 | 79 | 69 | 61 | 56 | 67 | 60 | 55 | 65 | 59 | 54 | 63 | 58 | 54 | 52 | | | | | | | | |
| 6 | 75 | 63 | 55 | 49 | 73 | 62 | 55 | 49 | 61 | 54 | 49 | 59 | 53 | 48 | 57 | 52 | 48 | 46 | | | | | | | | |
| 7 | 70 | 58 | 50 | 44 | 68 | 57 | 49 | 44 | 55 | 49 | 44 | 54 | 48 | 43 | 53 | 47 | 43 | 41 | | | | | | | | |
| 8 | 65 | 53 | 45 | 40 | 64 | 52 | 45 | 39 | 51 | 44 | 39 | 50 | 44 | 39 | 49 | 43 | 39 | 37 | | | | | | | | |
| 9 | 61 | 49 | 41 | 36 | 60 | 48 | 41 | 36 | 47 | 40 | 36 | 46 | 40 | 35 | 45 | 39 | 35 | 33 | | | | | | | | |
| 10 | 57 | 45 | 38 | 33 | 56 | 44 | 37 | 33 | 44 | 37 | 32 | 43 | 37 | 32 | 42 | 36 | 32 | 31 | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 175079 | 175079 | 175079 |
| 5° | 172251 | 174489 | 174992 |
| 10° | 173743 | 173234 | 173988 |
| 15° | 170697 | 170946 | 171466 |
| 20° | 166724 | 169373 | 168582 |
| 25° | 166009 | 166009 | 167105 |
| 30° | 161375 | 162522 | 162823 |
| 35° | 156344 | 157864 | 155131 |
| 40° | 149007 | 151917 | 150620 |
| 45° | 141027 | 144193 | 139622 |
| 50° | 124201 | 135024 | 123421 |
| 55° | 100581 | 123560 | 101018 |
| 60° | 73602 | 102452 | 72116 |
| 65° | 44726 | 72969 | 43562 |
| 70° | 17435 | 39270 | 16729 |
| 75° | 1939 | 10588 | 1939 |
| 80° | 1445 | 1445 | 1445 |
| 85° | 0 | 0 | 0 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 171.3 | 4.4 |
| 10°-20° | 484.6 | 12.5 |
| 20°-30° | 719.1 | 18.6 |
| 30°-40° | 833.2 | 21.5 |
| 40°-50° | 798.9 | 20.6 |
| 50°-60° | 587.4 | 15.2 |
| 60°-70° | 253.7 | 6.5 |
| 70°-80° | 27.4 | 0.7 |
| 80°-90° | 0.4 | 0.0 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 1375.0 | 35.5 |
| 0°-40° | 2208.3 | 57.0 |
| 0°-60° | 3594.6 | 92.7 |
| 0°-90° | 3876.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3876.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1814 | 1814 | 1814 | 1814 | 1814 | |
| 5° | 1778 | 1796 | 1802 | 1804 | 1807 | 170 |
| 15° | 1709 | 1719 | 1711 | 1714 | 1716 | 482 |
| 25° | 1559 | 1557 | 1559 | 1562 | 1570 | 714 |
| 35° | 1327 | 1335 | 1340 | 1338 | 1317 | 830 |
| 45° | 1034 | 1036 | 1057 | 1041 | 1023 | 786 |
| 55° | 598 | 660 | 734 | 657 | 600 | 538 |
| 65° | 196 | 245 | 320 | 242 | 191 | 201 |
| 75° | 5 | 8 | 28 | 5 | 5 | 16 |
| 85° | 0 | 0 | 0 | 0 | 0 | 0 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P840196

CATALOG NUMBER: LD4C45D010 EU4459050 4LBCSSQMMS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 10° | 15° | 20° | 22.5° | 25° | 30° | 35° | 40° | 45° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 |
| 2.5° | 1801.5 | 1822.2 | 1824.8 | 1811.8 | 1806.7 | 1799.0 | 1817.0 | 1804.2 | 1809.3 | 1804.2 | 1801.5 |
| 5° | 1778.4 | 1801.5 | 1804.2 | 1804.2 | 1799.0 | 1796.4 | 1804.2 | 1801.5 | 1799.0 | 1793.9 | 1801.5 |
| 7.5° | 1768.1 | 1780.9 | 1793.9 | 1778.4 | 1786.1 | 1783.6 | 1801.5 | 1793.9 | 1791.2 | 1791.2 | 1786.1 |
| 10° | 1773.3 | 1770.6 | 1780.9 | 1765.5 | 1770.6 | 1765.5 | 1780.9 | 1780.9 | 1775.8 | 1770.6 | 1768.1 |
| 12.5° | 1731.9 | 1752.5 | 1752.5 | 1750.0 | 1744.9 | 1737.1 | 1752.5 | 1762.9 | 1747.4 | 1747.4 | 1744.9 |
| 15° | 1708.8 | 1713.9 | 1716.5 | 1716.5 | 1713.9 | 1719.1 | 1726.8 | 1716.5 | 1719.1 | 1706.2 | 1711.3 |
| 17.5° | 1683.0 | 1672.7 | 1680.4 | 1675.3 | 1677.9 | 1683.0 | 1693.3 | 1693.3 | 1677.9 | 1675.3 | 1680.4 |
| 20° | 1623.7 | 1654.6 | 1657.3 | 1641.8 | 1644.3 | 1644.3 | 1662.4 | 1647.0 | 1657.3 | 1644.3 | 1649.5 |
| 22.5° | 1595.3 | 1615.9 | 1618.6 | 1598.0 | 1610.8 | 1595.3 | 1613.4 | 1590.2 | 1615.9 | 1598.0 | 1605.6 |
| 25° | 1559.3 | 1556.7 | 1564.4 | 1554.1 | 1556.7 | 1556.7 | 1569.6 | 1559.3 | 1567.0 | 1556.7 | 1559.3 |
| 27.5° | 1500.1 | 1520.7 | 1518.0 | 1507.7 | 1512.9 | 1510.4 | 1536.1 | 1507.7 | 1523.2 | 1510.4 | 1515.5 |
| 30° | 1448.4 | 1466.5 | 1461.4 | 1451.1 | 1451.1 | 1443.3 | 1471.7 | 1463.9 | 1461.4 | 1461.4 | 1458.7 |
| 32.5° | 1396.9 | 1399.5 | 1394.4 | 1396.9 | 1399.5 | 1389.2 | 1412.4 | 1402.1 | 1399.5 | 1402.1 | 1404.7 |
| 35° | 1327.3 | 1327.3 | 1332.4 | 1324.8 | 1335.1 | 1335.1 | 1355.7 | 1342.7 | 1340.2 | 1332.4 | 1340.2 |
| 37.5° | 1265.5 | 1257.8 | 1260.3 | 1260.3 | 1265.5 | 1270.6 | 1280.9 | 1275.8 | 1275.8 | 1268.1 | 1273.2 |
| 40° | 1183.0 | 1177.9 | 1185.5 | 1185.5 | 1193.3 | 1193.3 | 1203.6 | 1198.5 | 1206.1 | 1206.1 | 1206.1 |
| 42.5° | 1110.9 | 1110.9 | 1105.7 | 1113.4 | 1116.0 | 1113.4 | 1131.5 | 1128.9 | 1131.5 | 1126.3 | 1128.9 |
| 45° | 1033.5 | 1033.5 | 1028.3 | 1025.8 | 1038.6 | 1036.1 | 1056.7 | 1048.9 | 1059.2 | 1054.1 | 1056.7 |
| 47.5° | 927.8 | 940.7 | 933.0 | 940.7 | 956.2 | 958.8 | 971.6 | 966.5 | 976.8 | 969.1 | 979.4 |
| 50° | 827.4 | 827.4 | 835.0 | 845.4 | 860.8 | 863.4 | 878.9 | 889.2 | 894.4 | 896.9 | 899.5 |
| 52.5° | 721.7 | 719.1 | 726.8 | 739.7 | 752.6 | 762.9 | 778.4 | 793.8 | 804.1 | 819.6 | 811.8 |
| 55° | 597.9 | 603.1 | 610.9 | 626.3 | 646.9 | 659.8 | 672.7 | 693.3 | 711.4 | 719.1 | 734.5 |
| 57.5° | 492.2 | 487.1 | 492.2 | 512.9 | 536.1 | 546.4 | 564.5 | 585.1 | 610.9 | 626.3 | 631.5 |
| 60° | 381.4 | 384.0 | 389.2 | 407.3 | 425.3 | 440.7 | 448.5 | 481.9 | 505.2 | 520.6 | 530.9 |
| 62.5° | 281.0 | 286.1 | 291.3 | 306.7 | 324.7 | 337.7 | 350.5 | 378.9 | 399.5 | 414.9 | 425.3 |
| 65° | 195.9 | 198.4 | 206.2 | 213.9 | 232.0 | 244.8 | 255.1 | 278.3 | 299.0 | 311.9 | 319.6 |
| 67.5° | 121.1 | 123.7 | 128.8 | 139.2 | 152.1 | 162.4 | 172.7 | 188.1 | 206.2 | 219.0 | 221.7 |
| 70° | 61.8 | 64.5 | 67.0 | 74.8 | 85.1 | 90.2 | 97.9 | 110.8 | 123.7 | 134.0 | 139.2 |
| 72.5° | 20.6 | 20.6 | 23.2 | 28.4 | 33.5 | 38.7 | 41.2 | 54.2 | 64.5 | 69.6 | 72.1 |
| 75° | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 7.8 | 7.8 | 15.5 | 20.6 | 25.8 | 28.4 |
| 77.5° | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 5.2 | 5.2 |
| 80° | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



TEST NUMBER: P840196

CATALOG NUMBER: LD4C45D010 EU4459050 4LBCSSQMMS

CANDELA DISTRIBUTION (continued):

| | 50° | 55° | 60° | 65° | 67.5° | 70° | 75° | 80° | 85° | 90° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 | 1814.5 |
| 2.5° | 1814.5 | 1809.3 | 1806.7 | 1809.3 | 1809.3 | 1806.7 | 1814.5 | 1824.8 | 1837.6 | 1804.2 |
| 5° | 1811.8 | 1806.7 | 1811.8 | 1796.4 | 1804.2 | 1799.0 | 1809.3 | 1806.7 | 1817.0 | 1806.7 |
| 7.5° | 1804.2 | 1793.9 | 1796.4 | 1788.7 | 1799.0 | 1786.1 | 1793.9 | 1809.3 | 1799.0 | 1783.6 |
| 10° | 1778.4 | 1773.3 | 1791.2 | 1765.5 | 1760.3 | 1770.6 | 1791.2 | 1775.8 | 1770.6 | 1775.8 |
| 12.5° | 1752.5 | 1752.5 | 1760.3 | 1739.7 | 1742.2 | 1747.4 | 1757.7 | 1747.4 | 1752.5 | 1765.5 |
| 15° | 1724.3 | 1719.1 | 1731.9 | 1716.5 | 1713.9 | 1708.8 | 1719.1 | 1719.1 | 1724.3 | 1716.5 |
| 17.5° | 1690.7 | 1683.0 | 1683.0 | 1677.9 | 1675.3 | 1688.2 | 1693.3 | 1695.9 | 1698.5 | 1688.2 |
| 20° | 1649.5 | 1647.0 | 1654.6 | 1647.0 | 1649.5 | 1652.1 | 1652.1 | 1647.0 | 1670.1 | 1641.8 |
| 22.5° | 1605.6 | 1613.4 | 1603.1 | 1598.0 | 1603.1 | 1608.3 | 1608.3 | 1610.8 | 1605.6 | 1600.5 |
| 25° | 1561.9 | 1567.0 | 1569.6 | 1554.1 | 1561.9 | 1554.1 | 1572.2 | 1574.7 | 1564.4 | 1569.6 |
| 27.5° | 1523.2 | 1515.5 | 1512.9 | 1502.6 | 1507.7 | 1505.2 | 1507.7 | 1507.7 | 1523.2 | 1502.6 |
| 30° | 1463.9 | 1456.2 | 1458.7 | 1451.1 | 1453.6 | 1451.1 | 1453.6 | 1453.6 | 1463.9 | 1461.4 |
| 32.5° | 1407.2 | 1399.5 | 1402.1 | 1394.4 | 1394.4 | 1396.9 | 1391.7 | 1391.7 | 1399.5 | 1394.4 |
| 35° | 1353.1 | 1335.1 | 1337.6 | 1335.1 | 1337.6 | 1327.3 | 1327.3 | 1324.8 | 1329.9 | 1317.0 |
| 37.5° | 1275.8 | 1268.1 | 1265.5 | 1262.9 | 1265.5 | 1260.3 | 1265.5 | 1257.8 | 1265.5 | 1255.1 |
| 40° | 1206.1 | 1201.0 | 1203.6 | 1188.2 | 1188.2 | 1190.7 | 1185.5 | 1183.0 | 1185.5 | 1195.8 |
| 42.5° | 1136.6 | 1126.3 | 1121.2 | 1116.0 | 1118.6 | 1110.9 | 1108.2 | 1103.1 | 1108.2 | 1097.9 |
| 45° | 1054.1 | 1054.1 | 1051.6 | 1038.6 | 1041.3 | 1041.3 | 1031.0 | 1020.6 | 1023.2 | 1023.2 |
| 47.5° | 979.4 | 974.3 | 971.6 | 958.8 | 956.2 | 953.7 | 943.3 | 935.6 | 935.6 | 927.8 |
| 50° | 896.9 | 891.7 | 884.1 | 871.1 | 866.0 | 850.5 | 842.8 | 832.5 | 822.2 | 822.2 |
| 52.5° | 819.6 | 801.5 | 791.2 | 770.6 | 762.9 | 755.1 | 734.5 | 726.8 | 719.1 | 711.4 |
| 55° | 726.8 | 711.4 | 690.8 | 667.5 | 657.2 | 644.3 | 623.7 | 608.2 | 597.9 | 600.5 |
| 57.5° | 636.6 | 610.9 | 590.2 | 559.3 | 546.4 | 538.6 | 518.0 | 497.4 | 487.1 | 487.1 |
| 60° | 525.8 | 505.2 | 479.4 | 451.0 | 440.7 | 427.9 | 402.0 | 389.2 | 381.4 | 373.7 |
| 62.5° | 420.1 | 404.6 | 381.4 | 345.3 | 337.7 | 324.7 | 306.7 | 291.3 | 283.5 | 283.5 |
| 65° | 314.4 | 299.0 | 278.3 | 252.6 | 242.3 | 232.0 | 216.5 | 201.1 | 193.3 | 190.8 |
| 67.5° | 221.7 | 203.6 | 185.6 | 165.0 | 157.2 | 152.1 | 136.6 | 126.3 | 121.1 | 118.5 |
| 70° | 134.0 | 123.7 | 110.8 | 95.4 | 87.6 | 82.4 | 72.1 | 64.5 | 61.8 | 59.3 |
| 72.5° | 69.6 | 61.8 | 51.5 | 41.2 | 36.1 | 30.9 | 25.8 | 20.6 | 18.1 | 18.1 |
| 75° | 25.8 | 20.6 | 12.9 | 7.8 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| 77.5° | 5.2 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| 80° | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



Report Generated By 670246072 / DESKTOP-50001EG





— 0°-180° - - 45°-225° - - - - 90°-270°









(END OF REPORT)