

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: FAIL-SAFE

Report Number: P646055

Luminaire Tested: **FLDSQ4C40D010 FEU4C409030 F4LC-CSSQ-MMS-D2W**

Issue Date: 12/13/2022

Test Information

Test Method: LM-79-08
Report Number: P646055
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P209253)
Test Lab: INNOVATION CENTER
Issue Date: 12/13/2022
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FLDSQ4C40D010 FEU4C409030 F4LC-CSSQ-MMS-D2W
Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH, DIM TO WARM
Light Source: -
Ballast/Driver: -

Summary

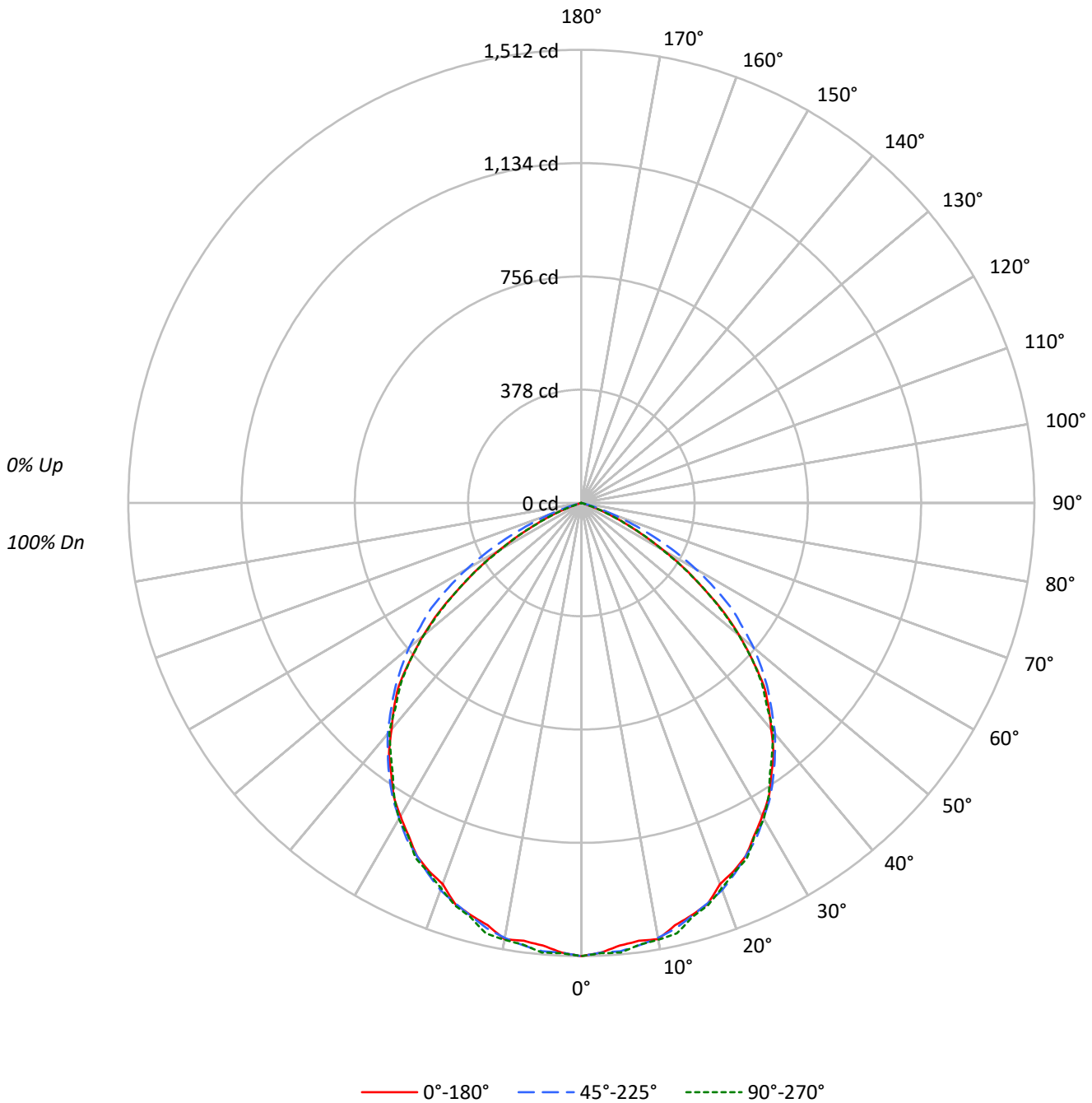
Lumens per Lamp: N/A
Luminaire Lumens: 3230.0 lumens
Efficiency: N/A
Efficacy: 68.7 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 47
Input Voltage (V):
Input Current (Ain): 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



TEST NUMBER: P646055
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Luminous Intensity Polar Plot





TEST NUMBER: P646055

CATALOG NUMBER: FLDSQ4C40D010 FEU4C409030 F4LC-CSSQ-MMS-D2W

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 | 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° | 145901 | 145901 | 145901 |
| 5° | 143543 | 145412 | 145829 |
| 10° | 144781 | 144360 | 144987 |
| 15° | 142247 | 142457 | 142886 |
| 20° | 138938 | 141146 | 140489 |
| 25° | 138339 | 138339 | 139255 |
| 30° | 134479 | 135437 | 135682 |
| 35° | 130289 | 131561 | 129276 |
| 40° | 124169 | 126600 | 125516 |
| 45° | 117516 | 120163 | 116342 |
| 50° | 103501 | 112523 | 102855 |
| 55° | 83826 | 102969 | 84196 |
| 60° | 61328 | 85373 | 60093 |
| 65° | 37283 | 60800 | 36302 |
| 70° | 14529 | 32725 | 13936 |
| 75° | 1603 | 8835 | 1603 |
| 80° | 1222 | 1222 | 1222 |
| 85° | 0 | 0 | 0 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 142.7 | 4.4 |
| 10°-20° | 403.9 | 12.5 |
| 20°-30° | 599.3 | 18.6 |
| 30°-40° | 694.4 | 21.5 |
| 40°-50° | 665.7 | 20.6 |
| 50°-60° | 489.5 | 15.2 |
| 60°-70° | 211.4 | 6.5 |
| 70°-80° | 22.8 | 0.7 |
| 80°-90° | 0.3 | 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° | 1145.9 | 35.5 |
| 0°-40° | 1840.2 | 57.0 |
| 0°-60° | 2995.4 | 92.7 |
| 0°-90° | 3230.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3230.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1512 | 1512 | 1512 | 1512 | 1512 | |
| 5° | 1482 | 1497 | 1501 | 1504 | 1506 | 141 |
| 15° | 1424 | 1433 | 1426 | 1428 | 1430 | 401 |
| 25° | 1299 | 1297 | 1299 | 1302 | 1308 | 595 |
| 35° | 1106 | 1113 | 1117 | 1115 | 1098 | 692 |
| 45° | 861 | 863 | 881 | 868 | 853 | 655 |
| 55° | 498 | 550 | 612 | 548 | 500 | 448 |
| 65° | 163 | 204 | 266 | 202 | 159 | 168 |
| 75° | 4 | 6 | 24 | 4 | 4 | 13 |
| 85° | 0 | 0 | 0 | 0 | 0 | 0 |
| 90° | 0 | 0 | 0 | 0 | 0 | 0 |



TEST NUMBER: P646055
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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 10° | 15° | 20° | 22.5° | 25° | 30° | 35° | 40° | 45° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 |
| 2.5° | 1501.3 | 1518.5 | 1520.7 | 1509.9 | 1505.6 | 1499.2 | 1514.2 | 1503.5 | 1507.8 | 1503.5 | 1501.3 |
| 5° | 1482.0 | 1501.3 | 1503.5 | 1503.5 | 1499.2 | 1497.0 | 1503.5 | 1501.3 | 1499.2 | 1494.9 | 1501.3 |
| 7.5° | 1473.4 | 1484.1 | 1494.9 | 1482.0 | 1488.4 | 1486.3 | 1501.3 | 1494.9 | 1492.7 | 1492.7 | 1488.4 |
| 10° | 1477.7 | 1475.5 | 1484.1 | 1471.2 | 1475.5 | 1471.2 | 1484.1 | 1484.1 | 1479.8 | 1475.5 | 1473.4 |
| 12.5° | 1443.3 | 1460.5 | 1460.5 | 1458.3 | 1454.1 | 1447.6 | 1460.5 | 1469.1 | 1456.2 | 1456.2 | 1454.1 |
| 15° | 1424.0 | 1428.3 | 1430.4 | 1430.4 | 1428.3 | 1432.6 | 1439.0 | 1430.4 | 1432.6 | 1421.8 | 1426.1 |
| 17.5° | 1402.5 | 1393.9 | 1400.3 | 1396.0 | 1398.2 | 1402.5 | 1411.1 | 1411.1 | 1398.2 | 1396.0 | 1400.3 |
| 20° | 1353.1 | 1378.9 | 1381.1 | 1368.2 | 1370.3 | 1370.3 | 1385.3 | 1372.5 | 1381.1 | 1370.3 | 1374.6 |
| 22.5° | 1329.4 | 1346.6 | 1348.8 | 1331.6 | 1342.3 | 1329.4 | 1344.5 | 1325.1 | 1346.6 | 1331.6 | 1338.0 |
| 25° | 1299.4 | 1297.3 | 1303.7 | 1295.1 | 1297.3 | 1297.3 | 1308.0 | 1299.4 | 1305.9 | 1297.3 | 1299.4 |
| 27.5° | 1250.0 | 1267.2 | 1265.0 | 1256.4 | 1260.7 | 1258.6 | 1280.1 | 1256.4 | 1269.3 | 1258.6 | 1262.9 |
| 30° | 1207.0 | 1222.1 | 1217.8 | 1209.2 | 1209.2 | 1202.7 | 1226.4 | 1219.9 | 1217.8 | 1217.8 | 1215.6 |
| 32.5° | 1164.1 | 1166.3 | 1162.0 | 1164.1 | 1166.3 | 1157.7 | 1177.0 | 1168.4 | 1166.3 | 1168.4 | 1170.6 |
| 35° | 1106.1 | 1106.1 | 1110.4 | 1104.0 | 1112.6 | 1112.6 | 1129.7 | 1119.0 | 1116.9 | 1110.4 | 1116.9 |
| 37.5° | 1054.5 | 1048.1 | 1050.3 | 1050.3 | 1054.5 | 1058.8 | 1067.4 | 1063.1 | 1063.1 | 1056.7 | 1061.0 |
| 40° | 985.8 | 981.5 | 987.9 | 987.9 | 994.4 | 994.4 | 1003.0 | 998.7 | 1005.1 | 1005.1 | 1005.1 |
| 42.5° | 925.7 | 925.7 | 921.4 | 927.8 | 930.0 | 927.8 | 942.9 | 940.7 | 942.9 | 938.6 | 940.7 |
| 45° | 861.2 | 861.2 | 856.9 | 854.8 | 865.5 | 863.4 | 880.6 | 874.1 | 882.7 | 878.4 | 880.6 |
| 47.5° | 773.2 | 783.9 | 777.5 | 783.9 | 796.8 | 799.0 | 809.7 | 805.4 | 814.0 | 807.6 | 816.2 |
| 50° | 689.5 | 689.5 | 695.9 | 704.5 | 717.3 | 719.5 | 732.4 | 741.0 | 745.3 | 747.4 | 749.6 |
| 52.5° | 601.4 | 599.2 | 605.7 | 616.4 | 627.2 | 635.8 | 648.6 | 661.5 | 670.1 | 683.0 | 676.5 |
| 55° | 498.3 | 502.6 | 509.0 | 521.9 | 539.1 | 549.8 | 560.6 | 577.7 | 592.8 | 599.2 | 612.1 |
| 57.5° | 410.2 | 405.9 | 410.2 | 427.4 | 446.7 | 455.3 | 470.4 | 487.6 | 509.0 | 521.9 | 526.2 |
| 60° | 317.8 | 320.0 | 324.3 | 339.4 | 354.4 | 367.3 | 373.7 | 401.6 | 421.0 | 433.9 | 442.4 |
| 62.5° | 234.1 | 238.4 | 242.7 | 255.6 | 270.6 | 281.4 | 292.1 | 315.7 | 332.9 | 345.8 | 354.4 |
| 65° | 163.3 | 165.4 | 171.8 | 178.2 | 193.3 | 204.0 | 212.6 | 232.0 | 249.1 | 259.9 | 266.3 |
| 67.5° | 101.0 | 103.1 | 107.3 | 116.0 | 126.7 | 135.3 | 143.9 | 156.8 | 171.8 | 182.5 | 184.7 |
| 70° | 51.5 | 53.7 | 55.8 | 62.3 | 70.9 | 75.2 | 81.6 | 92.4 | 103.1 | 111.6 | 116.0 |
| 72.5° | 17.2 | 17.2 | 19.4 | 23.7 | 28.0 | 32.2 | 34.4 | 45.1 | 53.7 | 58.0 | 60.1 |
| 75° | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 6.5 | 6.5 | 12.9 | 17.2 | 21.5 | 23.7 |
| 77.5° | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 4.3 | 4.3 |
| 80° | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| 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 |



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CANDELA DISTRIBUTION (continued):

| | 50° | 55° | 60° | 65° | 67.5° | 70° | 75° | 80° | 85° | 90° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 | 1512.1 |
| 2.5° | 1512.1 | 1507.8 | 1505.6 | 1507.8 | 1507.8 | 1505.6 | 1512.1 | 1520.7 | 1531.3 | 1503.5 |
| 5° | 1509.9 | 1505.6 | 1509.9 | 1497.0 | 1503.5 | 1499.2 | 1507.8 | 1505.6 | 1514.2 | 1505.6 |
| 7.5° | 1503.5 | 1494.9 | 1497.0 | 1490.6 | 1499.2 | 1488.4 | 1494.9 | 1507.8 | 1499.2 | 1486.3 |
| 10° | 1482.0 | 1477.7 | 1492.7 | 1471.2 | 1466.9 | 1475.5 | 1492.7 | 1479.8 | 1475.5 | 1479.8 |
| 12.5° | 1460.5 | 1460.5 | 1466.9 | 1449.8 | 1451.9 | 1456.2 | 1464.7 | 1456.2 | 1460.5 | 1471.2 |
| 15° | 1436.9 | 1432.6 | 1443.3 | 1430.4 | 1428.3 | 1424.0 | 1432.6 | 1432.6 | 1436.9 | 1430.4 |
| 17.5° | 1408.9 | 1402.5 | 1402.5 | 1398.2 | 1396.0 | 1406.8 | 1411.1 | 1413.2 | 1415.4 | 1406.8 |
| 20° | 1374.6 | 1372.5 | 1378.9 | 1372.5 | 1374.6 | 1376.8 | 1376.8 | 1372.5 | 1391.7 | 1368.2 |
| 22.5° | 1338.0 | 1344.5 | 1335.9 | 1331.6 | 1335.9 | 1340.2 | 1340.2 | 1342.3 | 1338.0 | 1333.7 |
| 25° | 1301.6 | 1305.9 | 1308.0 | 1295.1 | 1301.6 | 1295.1 | 1310.2 | 1312.3 | 1303.7 | 1308.0 |
| 27.5° | 1269.3 | 1262.9 | 1260.7 | 1252.2 | 1256.4 | 1254.3 | 1256.4 | 1256.4 | 1269.3 | 1252.2 |
| 30° | 1219.9 | 1213.5 | 1215.6 | 1209.2 | 1211.3 | 1209.2 | 1211.3 | 1211.3 | 1219.9 | 1217.8 |
| 32.5° | 1172.7 | 1166.3 | 1168.4 | 1162.0 | 1162.0 | 1164.1 | 1159.8 | 1159.8 | 1166.3 | 1162.0 |
| 35° | 1127.5 | 1112.6 | 1114.7 | 1112.6 | 1114.7 | 1106.1 | 1106.1 | 1104.0 | 1108.3 | 1097.5 |
| 37.5° | 1063.1 | 1056.7 | 1054.5 | 1052.4 | 1054.5 | 1050.3 | 1054.5 | 1048.1 | 1054.5 | 1046.0 |
| 40° | 1005.1 | 1000.8 | 1003.0 | 990.1 | 990.1 | 992.2 | 987.9 | 985.8 | 987.9 | 996.5 |
| 42.5° | 947.2 | 938.6 | 934.3 | 930.0 | 932.1 | 925.7 | 923.5 | 919.2 | 923.5 | 914.9 |
| 45° | 878.4 | 878.4 | 876.3 | 865.5 | 867.7 | 867.7 | 859.1 | 850.5 | 852.6 | 852.6 |
| 47.5° | 816.2 | 811.9 | 809.7 | 799.0 | 796.8 | 794.7 | 786.0 | 779.6 | 779.6 | 773.2 |
| 50° | 747.4 | 743.1 | 736.7 | 725.9 | 721.6 | 708.8 | 702.4 | 693.8 | 685.2 | 685.2 |
| 52.5° | 683.0 | 667.9 | 659.3 | 642.2 | 635.8 | 629.3 | 612.1 | 605.7 | 599.2 | 592.8 |
| 55° | 605.7 | 592.8 | 575.6 | 556.3 | 547.7 | 536.9 | 519.7 | 506.9 | 498.3 | 500.5 |
| 57.5° | 530.5 | 509.0 | 491.9 | 466.1 | 455.3 | 448.8 | 431.7 | 414.5 | 405.9 | 405.9 |
| 60° | 438.2 | 421.0 | 399.5 | 375.8 | 367.3 | 356.6 | 335.0 | 324.3 | 317.8 | 311.4 |
| 62.5° | 350.1 | 337.2 | 317.8 | 287.8 | 281.4 | 270.6 | 255.6 | 242.7 | 236.3 | 236.3 |
| 65° | 262.0 | 249.1 | 232.0 | 210.5 | 201.9 | 193.3 | 180.4 | 167.5 | 161.1 | 159.0 |
| 67.5° | 184.7 | 169.7 | 154.7 | 137.5 | 131.0 | 126.7 | 113.8 | 105.2 | 101.0 | 98.8 |
| 70° | 111.6 | 103.1 | 92.4 | 79.5 | 73.0 | 68.7 | 60.1 | 53.7 | 51.5 | 49.4 |
| 72.5° | 58.0 | 51.5 | 42.9 | 34.4 | 30.1 | 25.8 | 21.5 | 17.2 | 15.1 | 15.1 |
| 75° | 21.5 | 17.2 | 10.8 | 6.5 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 |
| 77.5° | 4.3 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| 80° | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| 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 |

(END OF REPORT)