

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: P645948

Luminaire Tested: **FLDSQ4C30D010 FEU4C309030 F4LC-CSSQ-MW-D2W**

Issue Date: 12/13/2022

Test Information

Test Method: LM-79-08
Report Number: P645948
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: FLDSQ4C30D010 FEU4C309030 F4LC-CSSQ-MW-D2W
Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH, DIM TO WARM
Light Source: -
Ballast/Driver: -

Summary

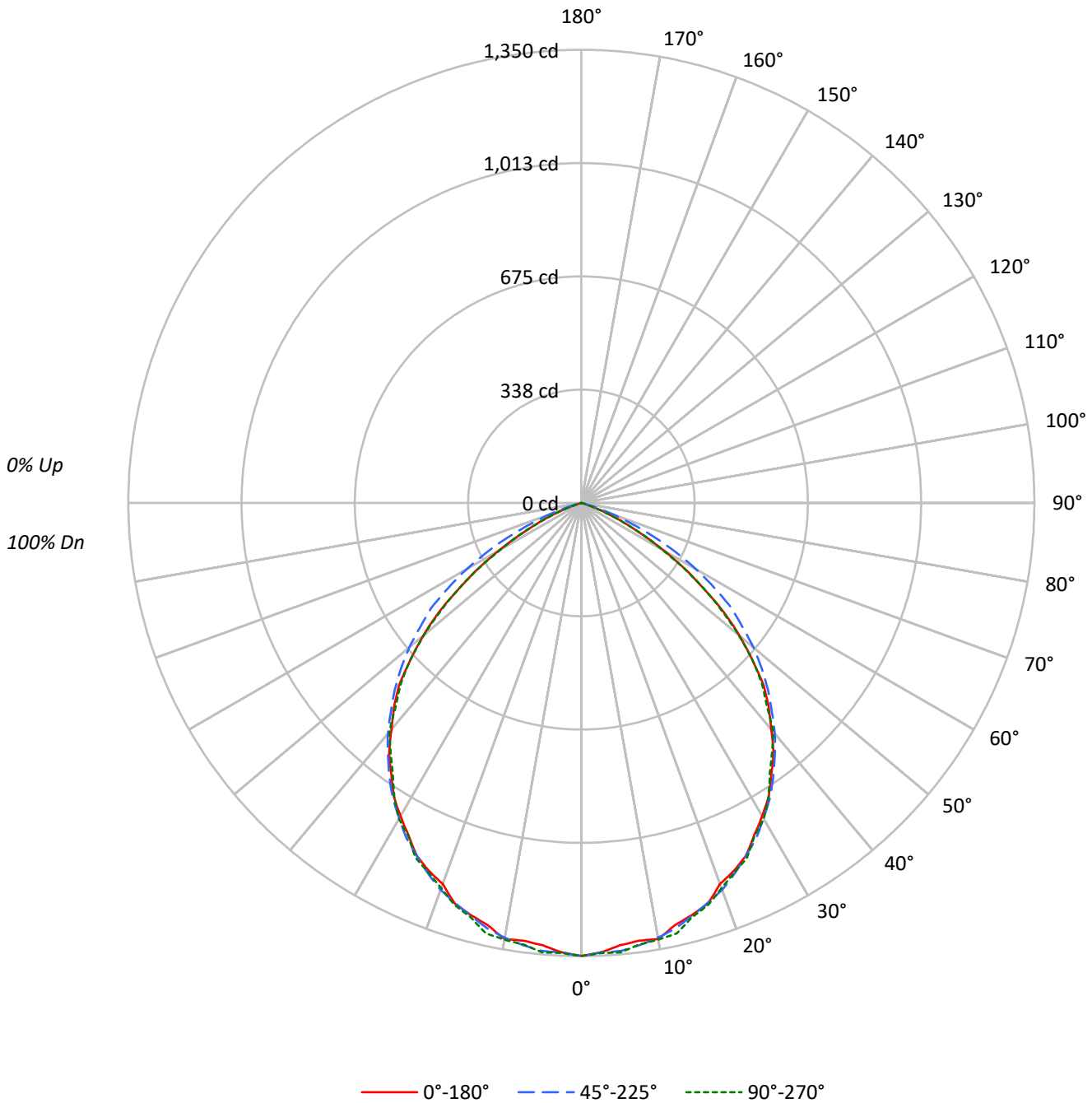
Lumens per Lamp: N/A
Luminaire Lumens: 2883.0 lumens
Efficiency: N/A
Efficacy: 91.2 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 31.6
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: P645948
CATALOG NUMBER: FLDSQ4C30D010 FEU4C309030 F4LC-CSSQ-MW-D2W

Luminous Intensity Polar Plot





TEST NUMBER: P645948

CATALOG NUMBER: FLDSQ4C30D010 FEU4C309030 F4LC-CSSQ-MW-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° | 130221 | 130221 | 130221 |
| 5° | 128123 | 129789 | 130157 |
| 10° | 129232 | 128850 | 129409 |
| 15° | 126964 | 127153 | 127533 |
| 20° | 124008 | 125980 | 125394 |
| 25° | 123477 | 123477 | 124296 |
| 30° | 120039 | 120886 | 121109 |
| 35° | 116283 | 117426 | 115388 |
| 40° | 110830 | 112996 | 112039 |
| 45° | 104894 | 107254 | 103843 |
| 50° | 92378 | 100439 | 91807 |
| 55° | 74809 | 91900 | 75145 |
| 60° | 54748 | 76207 | 53648 |
| 65° | 33265 | 54270 | 32397 |
| 70° | 12977 | 29227 | 12441 |
| 75° | 1417 | 7866 | 1417 |
| 80° | 1111 | 1111 | 1111 |
| 85° | 0 | 0 | 0 |



TEST NUMBER: P645948

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 127.4 | 4.4 |
| 10°-20° | 360.5 | 12.5 |
| 20°-30° | 534.9 | 18.6 |
| 30°-40° | 619.8 | 21.5 |
| 40°-50° | 594.2 | 20.6 |
| 50°-60° | 436.9 | 15.2 |
| 60°-70° | 188.7 | 6.5 |
| 70°-80° | 20.4 | 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 |
| <hr/> | | |
| 0°-30° | 1022.8 | 35.5 |
| 0°-40° | 1642.5 | 57.0 |
| 0°-60° | 2673.7 | 92.7 |
| 0°-90° | 2883.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2883.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1350 | 1350 | 1350 | 1350 | 1350 | |
| 5° | 1323 | 1336 | 1340 | 1342 | 1344 | 126 |
| 15° | 1271 | 1279 | 1273 | 1275 | 1277 | 358 |
| 25° | 1160 | 1158 | 1160 | 1162 | 1168 | 531 |
| 35° | 987 | 993 | 997 | 995 | 980 | 617 |
| 45° | 769 | 771 | 786 | 774 | 761 | 584 |
| 55° | 445 | 491 | 546 | 489 | 447 | 400 |
| 65° | 146 | 182 | 238 | 180 | 142 | 150 |
| 75° | 4 | 6 | 21 | 4 | 4 | 12 |
| 85° | 0 | 0 | 0 | 0 | 0 | 0 |
| 90° | 0 | 0 | 0 | 0 | 0 | 0 |



TEST NUMBER: P645948
 CATALOG NUMBER: FLDSQ4C30D010 FEU4C309030 F4LC-CSSQ-MW-D2W

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 10° | 15° | 20° | 22.5° | 25° | 30° | 35° | 40° | 45° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 |
| 2.5° | 1340.0 | 1355.3 | 1357.3 | 1347.7 | 1343.8 | 1338.1 | 1351.5 | 1342.0 | 1345.8 | 1342.0 | 1340.0 |
| 5° | 1322.8 | 1340.0 | 1342.0 | 1342.0 | 1338.1 | 1336.2 | 1342.0 | 1340.0 | 1338.1 | 1334.3 | 1340.0 |
| 7.5° | 1315.1 | 1324.7 | 1334.3 | 1322.8 | 1328.5 | 1326.6 | 1340.0 | 1334.3 | 1332.3 | 1332.3 | 1328.5 |
| 10° | 1319.0 | 1317.0 | 1324.7 | 1313.2 | 1317.0 | 1313.2 | 1324.7 | 1324.7 | 1320.8 | 1317.0 | 1315.1 |
| 12.5° | 1288.2 | 1303.6 | 1303.6 | 1301.7 | 1297.8 | 1292.1 | 1303.6 | 1311.3 | 1299.7 | 1299.7 | 1297.8 |
| 15° | 1271.0 | 1274.8 | 1276.7 | 1276.7 | 1274.8 | 1278.7 | 1284.4 | 1276.7 | 1278.7 | 1269.1 | 1272.9 |
| 17.5° | 1251.9 | 1244.2 | 1249.9 | 1246.1 | 1248.0 | 1251.9 | 1259.5 | 1259.5 | 1248.0 | 1246.1 | 1249.9 |
| 20° | 1207.7 | 1230.7 | 1232.7 | 1221.2 | 1223.1 | 1223.1 | 1236.5 | 1225.0 | 1232.7 | 1223.1 | 1226.9 |
| 22.5° | 1186.6 | 1202.0 | 1203.9 | 1188.6 | 1198.1 | 1186.6 | 1200.1 | 1182.8 | 1202.0 | 1188.6 | 1194.3 |
| 25° | 1159.8 | 1157.9 | 1163.6 | 1156.0 | 1157.9 | 1157.9 | 1167.5 | 1159.8 | 1165.6 | 1157.9 | 1159.8 |
| 27.5° | 1115.8 | 1131.1 | 1129.1 | 1121.5 | 1125.3 | 1123.4 | 1142.6 | 1121.5 | 1133.0 | 1123.4 | 1127.3 |
| 30° | 1077.4 | 1090.8 | 1087.0 | 1079.3 | 1079.3 | 1073.5 | 1094.6 | 1088.9 | 1087.0 | 1087.0 | 1085.0 |
| 32.5° | 1039.0 | 1041.0 | 1037.1 | 1039.0 | 1041.0 | 1033.3 | 1050.5 | 1042.9 | 1041.0 | 1042.9 | 1044.8 |
| 35° | 987.2 | 987.2 | 991.1 | 985.4 | 993.0 | 993.0 | 1008.4 | 998.7 | 996.9 | 991.1 | 996.9 |
| 37.5° | 941.3 | 935.5 | 937.4 | 937.4 | 941.3 | 945.1 | 952.8 | 948.9 | 948.9 | 943.2 | 947.0 |
| 40° | 879.9 | 876.1 | 881.8 | 881.8 | 887.6 | 887.6 | 895.3 | 891.4 | 897.1 | 897.1 | 897.1 |
| 42.5° | 826.3 | 826.3 | 822.4 | 828.2 | 830.1 | 828.2 | 841.6 | 839.7 | 841.6 | 837.8 | 839.7 |
| 45° | 768.7 | 768.7 | 764.9 | 763.0 | 772.5 | 770.7 | 786.0 | 780.2 | 787.9 | 784.0 | 786.0 |
| 47.5° | 690.1 | 699.7 | 693.9 | 699.7 | 711.2 | 713.2 | 722.7 | 718.9 | 726.6 | 720.8 | 728.5 |
| 50° | 615.4 | 615.4 | 621.1 | 628.8 | 640.3 | 642.2 | 653.7 | 661.4 | 665.2 | 667.1 | 669.1 |
| 52.5° | 536.8 | 534.8 | 540.6 | 550.2 | 559.8 | 567.5 | 579.0 | 590.5 | 598.1 | 609.6 | 603.8 |
| 55° | 444.7 | 448.6 | 454.4 | 465.9 | 481.2 | 490.7 | 500.3 | 515.7 | 529.1 | 534.8 | 546.3 |
| 57.5° | 366.1 | 362.3 | 366.1 | 381.5 | 398.7 | 406.4 | 419.9 | 435.2 | 454.4 | 465.9 | 469.7 |
| 60° | 283.7 | 285.6 | 289.5 | 302.9 | 316.3 | 327.8 | 333.6 | 358.5 | 375.8 | 387.2 | 394.9 |
| 62.5° | 209.0 | 212.8 | 216.7 | 228.2 | 241.5 | 251.2 | 260.7 | 281.8 | 297.1 | 308.6 | 316.3 |
| 65° | 145.7 | 147.6 | 153.4 | 159.1 | 172.5 | 182.1 | 189.8 | 207.0 | 222.4 | 232.0 | 237.7 |
| 67.5° | 90.1 | 92.0 | 95.8 | 103.6 | 113.1 | 120.8 | 128.4 | 139.9 | 153.4 | 162.9 | 164.9 |
| 70° | 46.0 | 47.9 | 49.8 | 55.6 | 63.3 | 67.1 | 72.8 | 82.4 | 92.0 | 99.6 | 103.6 |
| 72.5° | 15.3 | 15.3 | 17.3 | 21.1 | 24.9 | 28.8 | 30.7 | 40.3 | 47.9 | 51.8 | 53.7 |
| 75° | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 | 5.8 | 5.8 | 11.5 | 15.3 | 19.2 | 21.1 |
| 77.5° | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 3.8 | 3.8 |
| 80° | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 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° | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 | 1349.6 |
| 2.5° | 1349.6 | 1345.8 | 1343.8 | 1345.8 | 1345.8 | 1343.8 | 1349.6 | 1357.3 | 1366.8 | 1342.0 |
| 5° | 1347.7 | 1343.8 | 1347.7 | 1336.2 | 1342.0 | 1338.1 | 1345.8 | 1343.8 | 1351.5 | 1343.8 |
| 7.5° | 1342.0 | 1334.3 | 1336.2 | 1330.5 | 1338.1 | 1328.5 | 1334.3 | 1345.8 | 1338.1 | 1326.6 |
| 10° | 1322.8 | 1319.0 | 1332.3 | 1313.2 | 1309.3 | 1317.0 | 1332.3 | 1320.8 | 1317.0 | 1320.8 |
| 12.5° | 1303.6 | 1303.6 | 1309.3 | 1294.0 | 1295.9 | 1299.7 | 1307.4 | 1299.7 | 1303.6 | 1313.2 |
| 15° | 1282.5 | 1278.7 | 1288.2 | 1276.7 | 1274.8 | 1271.0 | 1278.7 | 1278.7 | 1282.5 | 1276.7 |
| 17.5° | 1257.6 | 1251.9 | 1251.9 | 1248.0 | 1246.1 | 1255.7 | 1259.5 | 1261.4 | 1263.3 | 1255.7 |
| 20° | 1226.9 | 1225.0 | 1230.7 | 1225.0 | 1226.9 | 1228.9 | 1228.9 | 1225.0 | 1242.2 | 1221.2 |
| 22.5° | 1194.3 | 1200.1 | 1192.4 | 1188.6 | 1192.4 | 1196.2 | 1196.2 | 1198.1 | 1194.3 | 1190.5 |
| 25° | 1161.7 | 1165.6 | 1167.5 | 1156.0 | 1161.7 | 1156.0 | 1169.4 | 1171.3 | 1163.6 | 1167.5 |
| 27.5° | 1133.0 | 1127.3 | 1125.3 | 1117.6 | 1121.5 | 1119.6 | 1121.5 | 1121.5 | 1133.0 | 1117.6 |
| 30° | 1088.9 | 1083.1 | 1085.0 | 1079.3 | 1081.2 | 1079.3 | 1081.2 | 1081.2 | 1088.9 | 1087.0 |
| 32.5° | 1046.7 | 1041.0 | 1042.9 | 1037.1 | 1037.1 | 1039.0 | 1035.2 | 1035.2 | 1041.0 | 1037.1 |
| 35° | 1006.4 | 993.0 | 994.9 | 993.0 | 994.9 | 987.2 | 987.2 | 985.4 | 989.2 | 979.6 |
| 37.5° | 948.9 | 943.2 | 941.3 | 939.4 | 941.3 | 937.4 | 941.3 | 935.5 | 941.3 | 933.6 |
| 40° | 897.1 | 893.3 | 895.3 | 883.8 | 883.8 | 885.6 | 881.8 | 879.9 | 881.8 | 889.5 |
| 42.5° | 845.4 | 837.8 | 833.9 | 830.1 | 832.0 | 826.3 | 824.3 | 820.5 | 824.3 | 816.7 |
| 45° | 784.0 | 784.0 | 782.2 | 772.5 | 774.5 | 774.5 | 766.8 | 759.2 | 761.0 | 761.0 |
| 47.5° | 728.5 | 724.7 | 722.7 | 713.2 | 711.2 | 709.3 | 701.6 | 695.9 | 695.9 | 690.1 |
| 50° | 667.1 | 663.3 | 657.6 | 647.9 | 644.1 | 632.6 | 626.9 | 619.2 | 611.6 | 611.6 |
| 52.5° | 609.6 | 596.2 | 588.5 | 573.2 | 567.5 | 561.7 | 546.3 | 540.6 | 534.8 | 529.1 |
| 55° | 540.6 | 529.1 | 513.8 | 496.5 | 488.9 | 479.2 | 463.9 | 452.4 | 444.7 | 446.7 |
| 57.5° | 473.5 | 454.4 | 439.0 | 416.0 | 406.4 | 400.6 | 385.3 | 370.0 | 362.3 | 362.3 |
| 60° | 391.1 | 375.8 | 356.6 | 335.5 | 327.8 | 318.3 | 299.0 | 289.5 | 283.7 | 278.0 |
| 62.5° | 312.5 | 301.0 | 283.7 | 256.9 | 251.2 | 241.5 | 228.2 | 216.7 | 210.9 | 210.9 |
| 65° | 233.9 | 222.4 | 207.0 | 187.9 | 180.2 | 172.5 | 161.0 | 149.5 | 143.8 | 141.9 |
| 67.5° | 164.9 | 151.4 | 138.1 | 122.7 | 116.9 | 113.1 | 101.6 | 93.9 | 90.1 | 88.2 |
| 70° | 99.6 | 92.0 | 82.4 | 70.9 | 65.2 | 61.3 | 53.7 | 47.9 | 46.0 | 44.1 |
| 72.5° | 51.8 | 46.0 | 38.3 | 30.7 | 26.8 | 23.0 | 19.2 | 15.3 | 13.5 | 13.5 |
| 75° | 19.2 | 15.3 | 9.6 | 5.8 | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 |
| 77.5° | 3.8 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 80° | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 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)