

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: METALUX

Report Number: P178718

Luminaire Tested: **24ALNG-LD4-36-UNV-EL14W-L830-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P178718
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P34286)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24ALNG-LD4-36-UNV-EL14W-L830-CD1-U
Description: METALUX ARCLINE 2X4 TROFFER

Light Source: EATON LED 3000K
Ballast/Driver: OSRAM ELECTRONIC DRIVER

Summary

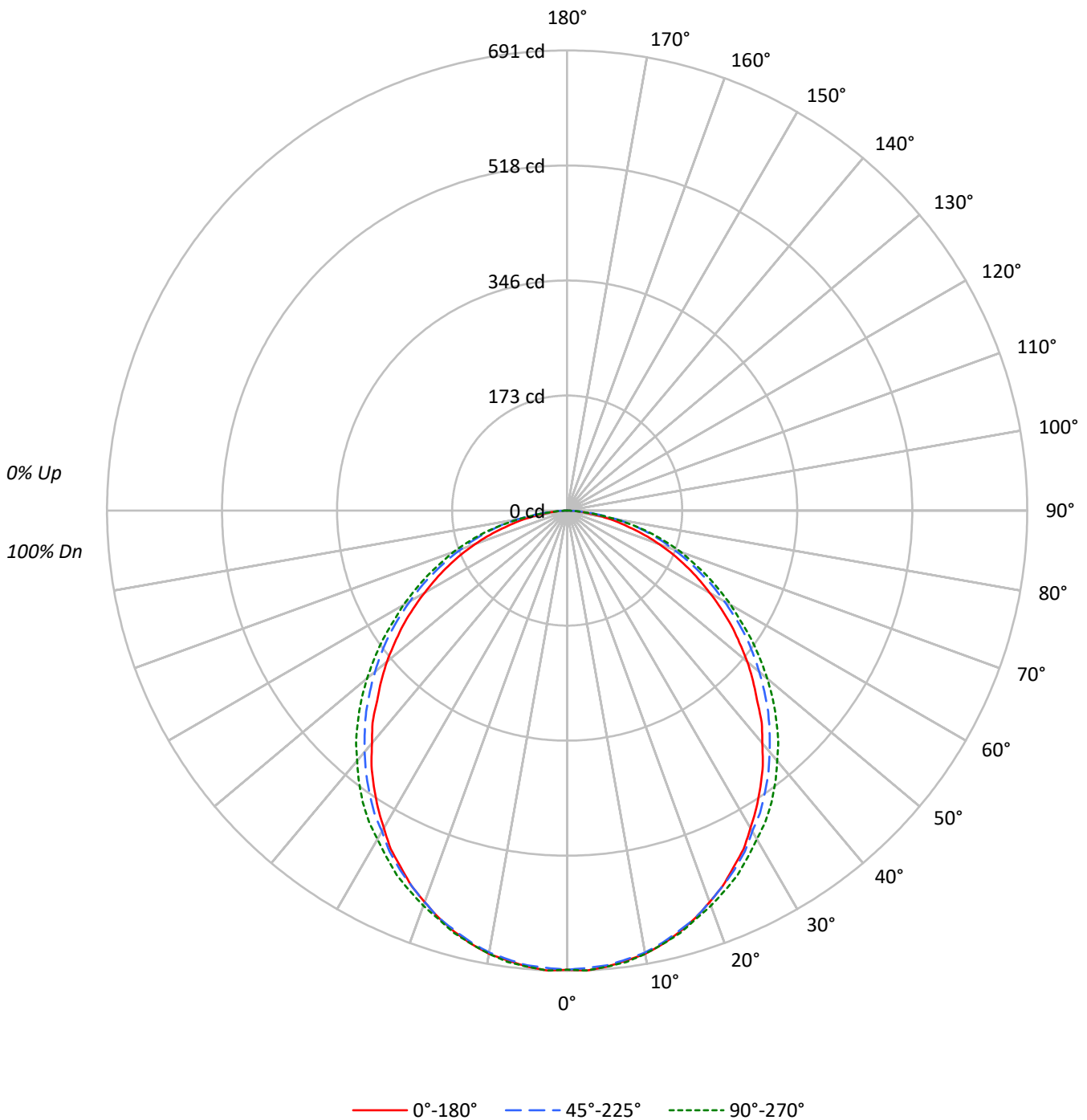
Lumens per Lamp: N/A
Luminaire Lumens: 1835.0 lumens
Efficiency: N/A
Efficacy: 143.4 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 4' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 12.8
Input Voltage (V): NR
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

TEST NUMBER: P178718

CATALOG NUMBER: 24ALNG-LD4-36-UNV-EL14W-L830-CD1-U

Luminous Intensity Polar Plot





TEST NUMBER: P178718

CATALOG NUMBER: 24ALNG-LD4-36-UNV-EL14W-L830-CD1-U

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 | 109 | 104 | 100 | 96 | 106 | 102 | 98 | 95 | 98 | 95 | 92 | 94 | 91 | 89 | 90 | 88 | 86 | 84 |
| 2 | 99 | 91 | 84 | 79 | 97 | 89 | 83 | 78 | 86 | 80 | 76 | 82 | 78 | 74 | 79 | 76 | 72 | 70 |
| 3 | 90 | 80 | 72 | 65 | 88 | 78 | 71 | 65 | 75 | 69 | 64 | 73 | 67 | 63 | 70 | 66 | 62 | 59 |
| 4 | 83 | 71 | 62 | 56 | 81 | 70 | 62 | 55 | 67 | 60 | 54 | 65 | 59 | 54 | 63 | 57 | 53 | 51 |
| 5 | 76 | 64 | 55 | 48 | 74 | 62 | 54 | 48 | 60 | 53 | 47 | 58 | 52 | 47 | 56 | 51 | 46 | 44 |
| 6 | 71 | 57 | 48 | 42 | 69 | 56 | 48 | 42 | 55 | 47 | 41 | 53 | 46 | 41 | 51 | 45 | 41 | 39 |
| 7 | 65 | 52 | 43 | 37 | 64 | 51 | 43 | 37 | 50 | 42 | 37 | 48 | 41 | 36 | 47 | 41 | 36 | 34 |
| 8 | 61 | 47 | 39 | 33 | 59 | 47 | 39 | 33 | 45 | 38 | 33 | 44 | 38 | 33 | 43 | 37 | 32 | 31 |
| 9 | 57 | 44 | 35 | 30 | 56 | 43 | 35 | 30 | 42 | 35 | 30 | 41 | 34 | 30 | 40 | 34 | 29 | 28 |
| 10 | 53 | 40 | 32 | 27 | 52 | 40 | 32 | 27 | 39 | 32 | 27 | 38 | 31 | 27 | 37 | 31 | 27 | 25 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-----|-----|-----|
| 0° | 927 | 927 | 927 |
| 5° | 928 | 926 | 928 |
| 10° | 923 | 921 | 923 |
| 15° | 912 | 909 | 914 |
| 20° | 896 | 896 | 904 |
| 25° | 877 | 883 | 897 |
| 30° | 855 | 864 | 885 |
| 35° | 831 | 850 | 879 |
| 40° | 800 | 831 | 862 |
| 45° | 768 | 812 | 845 |
| 50° | 740 | 788 | 821 |
| 55° | 707 | 765 | 793 |
| 60° | 665 | 733 | 764 |
| 65° | 627 | 701 | 738 |
| 70° | 578 | 668 | 714 |
| 75° | 502 | 643 | 673 |
| 80° | 419 | 583 | 553 |
| 85° | 327 | 387 | 298 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 65.2 | 3.6 |
| 10°-20° | 184.5 | 10.1 |
| 20°-30° | 274.6 | 15.0 |
| 30°-40° | 324.4 | 17.7 |
| 40°-50° | 328.4 | 17.9 |
| 50°-60° | 288.2 | 15.7 |
| 60°-70° | 215.3 | 11.7 |
| 70°-80° | 125.0 | 6.8 |
| 80°-90° | 29.5 | 1.6 |
| 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° | 524.2 | 28.6 |
| 0°-40° | 848.7 | 46.2 |
| 0°-60° | 1465.2 | 79.8 |
| 0°-90° | 1835.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1835.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 689 | 689 | 689 | 689 | 689 | |
| 5° | 687 | 687 | 686 | 687 | 687 | 65 |
| 15° | 655 | 655 | 653 | 655 | 656 | 184 |
| 25° | 591 | 593 | 595 | 600 | 604 | 272 |
| 35° | 506 | 508 | 518 | 531 | 535 | 316 |
| 45° | 404 | 411 | 427 | 440 | 444 | 312 |
| 55° | 301 | 309 | 326 | 336 | 338 | 269 |
| 65° | 197 | 205 | 220 | 228 | 232 | 195 |
| 75° | 96 | 110 | 124 | 129 | 129 | 104 |
| 85° | 21 | 27 | 25 | 21 | 19 | 25 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P178718

CATALOG NUMBER: 24ALNG-LD4-36-UNV-EL14W-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 10° | 15° | 20° | 22.5° | 25° | 30° | 35° | 40° | 45° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 |
| 2.5° | 691.3 | 691.3 | 691.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 687.4 | 687.4 |
| 5° | 687.4 | 687.4 | 687.4 | 687.4 | 687.4 | 687.4 | 687.4 | 685.5 | 685.5 | 685.5 | 685.5 |
| 7.5° | 681.6 | 681.6 | 683.6 | 683.6 | 681.6 | 681.6 | 681.6 | 681.6 | 681.6 | 679.7 | 679.7 |
| 10° | 675.8 | 675.8 | 675.8 | 675.8 | 675.8 | 675.8 | 675.8 | 673.9 | 673.9 | 673.9 | 673.9 |
| 12.5° | 666.2 | 666.2 | 666.2 | 666.2 | 666.2 | 666.2 | 666.2 | 664.2 | 664.2 | 664.2 | 664.2 |
| 15° | 654.6 | 654.6 | 654.6 | 654.6 | 654.6 | 654.6 | 654.6 | 652.7 | 652.7 | 652.7 | 652.7 |
| 17.5° | 641.1 | 641.1 | 641.1 | 641.1 | 641.1 | 641.1 | 641.1 | 639.1 | 641.1 | 639.1 | 641.1 |
| 20° | 625.6 | 625.6 | 625.6 | 625.6 | 625.6 | 625.6 | 625.6 | 625.6 | 625.6 | 625.6 | 625.6 |
| 22.5° | 610.2 | 610.2 | 610.2 | 610.2 | 610.2 | 610.2 | 610.2 | 610.2 | 610.2 | 610.2 | 610.2 |
| 25° | 590.9 | 592.8 | 592.8 | 592.8 | 590.9 | 592.8 | 592.8 | 592.8 | 592.8 | 592.8 | 594.7 |
| 27.5° | 573.5 | 571.6 | 571.6 | 571.6 | 571.6 | 573.5 | 573.5 | 573.5 | 575.4 | 575.4 | 577.4 |
| 30° | 550.3 | 550.3 | 550.3 | 550.3 | 550.3 | 552.2 | 552.2 | 554.2 | 554.2 | 556.1 | 556.1 |
| 32.5° | 529.1 | 529.1 | 529.1 | 531.0 | 531.0 | 531.0 | 531.0 | 532.9 | 534.9 | 536.8 | 538.7 |
| 35° | 505.9 | 505.9 | 505.9 | 505.9 | 507.8 | 507.8 | 509.8 | 511.7 | 513.6 | 515.6 | 517.5 |
| 37.5° | 482.7 | 480.8 | 482.7 | 482.7 | 482.7 | 484.7 | 486.6 | 488.5 | 490.5 | 492.4 | 496.3 |
| 40° | 455.7 | 455.7 | 457.6 | 457.6 | 459.6 | 459.6 | 461.5 | 463.4 | 467.3 | 469.2 | 473.1 |
| 42.5° | 432.5 | 430.6 | 432.5 | 434.5 | 436.4 | 436.4 | 438.3 | 440.3 | 442.2 | 446.0 | 449.9 |
| 45° | 403.6 | 405.5 | 407.4 | 409.4 | 409.4 | 411.3 | 413.2 | 415.2 | 419.0 | 422.9 | 426.7 |
| 47.5° | 378.5 | 380.4 | 382.3 | 382.3 | 386.2 | 386.2 | 388.1 | 392.0 | 393.9 | 397.8 | 401.6 |
| 50° | 353.4 | 353.4 | 353.4 | 355.3 | 357.2 | 361.1 | 361.1 | 364.9 | 368.8 | 372.7 | 376.5 |
| 52.5° | 326.3 | 328.3 | 328.3 | 330.2 | 332.1 | 334.1 | 336.0 | 339.8 | 343.7 | 347.6 | 351.4 |
| 55° | 301.2 | 301.2 | 301.2 | 305.1 | 307.0 | 308.9 | 310.9 | 314.7 | 318.6 | 322.5 | 326.3 |
| 57.5° | 274.2 | 274.2 | 276.1 | 278.1 | 280.0 | 281.9 | 283.8 | 287.7 | 291.6 | 295.4 | 299.3 |
| 60° | 247.2 | 249.1 | 249.1 | 251.0 | 254.9 | 256.8 | 258.7 | 262.6 | 266.5 | 270.3 | 272.3 |
| 62.5° | 222.1 | 222.1 | 224.0 | 225.9 | 229.8 | 231.7 | 233.6 | 237.5 | 241.4 | 243.3 | 247.2 |
| 65° | 197.0 | 197.0 | 198.9 | 200.8 | 204.7 | 204.7 | 208.5 | 212.4 | 216.3 | 218.2 | 220.1 |
| 67.5° | 171.9 | 171.9 | 173.8 | 173.8 | 179.6 | 181.5 | 183.4 | 185.4 | 189.2 | 191.2 | 195.0 |
| 70° | 146.8 | 146.8 | 148.7 | 150.6 | 154.5 | 156.4 | 158.3 | 162.2 | 166.1 | 168.0 | 169.9 |
| 72.5° | 121.6 | 121.6 | 123.6 | 125.5 | 131.3 | 133.2 | 135.2 | 137.1 | 141.0 | 142.9 | 146.8 |
| 75° | 96.5 | 98.5 | 100.4 | 104.3 | 108.1 | 110.1 | 110.1 | 113.9 | 117.8 | 121.6 | 123.6 |
| 77.5° | 75.3 | 75.3 | 79.2 | 83.0 | 86.9 | 86.9 | 88.8 | 92.7 | 94.6 | 98.5 | 100.4 |
| 80° | 54.1 | 54.1 | 57.9 | 61.8 | 63.7 | 65.7 | 67.6 | 71.4 | 73.4 | 75.3 | 75.3 |
| 82.5° | 34.8 | 36.7 | 38.6 | 40.5 | 44.4 | 46.3 | 48.3 | 50.2 | 50.2 | 50.2 | 48.3 |
| 85° | 21.2 | 21.2 | 23.2 | 25.1 | 27.0 | 27.0 | 27.0 | 27.0 | 27.0 | 25.1 | 25.1 |
| 87.5° | 7.7 | 7.7 | 9.7 | 9.7 | 9.7 | 7.7 | 7.7 | 7.7 | 5.8 | 5.8 | 5.8 |
| 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: P178718

CATALOG NUMBER: 24ALNG-LD4-36-UNV-EL14W-L830-CD1-U

CANDELA DISTRIBUTION (continued):

| | 50° | 55° | 60° | 65° | 67.5° | 70° | 75° | 80° | 85° | 90° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 |
| 2.5° | 687.4 | 687.4 | 689.3 | 689.3 | 689.3 | 689.3 | 689.3 | 691.3 | 691.3 | 691.3 |
| 5° | 683.6 | 685.5 | 685.5 | 685.5 | 687.4 | 687.4 | 687.4 | 687.4 | 687.4 | 687.4 |
| 7.5° | 679.7 | 679.7 | 681.6 | 681.6 | 681.6 | 681.6 | 681.6 | 681.6 | 681.6 | 683.6 |
| 10° | 673.9 | 673.9 | 675.8 | 675.8 | 675.8 | 675.8 | 675.8 | 675.8 | 675.8 | 675.8 |
| 12.5° | 664.2 | 664.2 | 664.2 | 666.2 | 666.2 | 666.2 | 666.2 | 666.2 | 666.2 | 666.2 |
| 15° | 652.7 | 652.7 | 654.6 | 654.6 | 654.6 | 656.5 | 656.5 | 656.5 | 654.6 | 656.5 |
| 17.5° | 641.1 | 641.1 | 643.0 | 643.0 | 643.0 | 643.0 | 643.0 | 643.0 | 644.9 | 643.0 |
| 20° | 625.6 | 627.6 | 627.6 | 629.5 | 629.5 | 629.5 | 629.5 | 629.5 | 631.4 | 631.4 |
| 22.5° | 612.1 | 614.0 | 616.0 | 616.0 | 616.0 | 616.0 | 617.9 | 617.9 | 617.9 | 617.9 |
| 25° | 596.7 | 596.7 | 598.6 | 600.5 | 600.5 | 602.5 | 602.5 | 602.5 | 602.5 | 604.4 |
| 27.5° | 579.3 | 581.2 | 583.1 | 585.1 | 585.1 | 585.1 | 587.0 | 587.0 | 587.0 | 587.0 |
| 30° | 560.0 | 561.9 | 563.8 | 565.8 | 567.7 | 567.7 | 569.6 | 569.6 | 569.6 | 569.6 |
| 32.5° | 540.7 | 544.5 | 546.5 | 548.4 | 548.4 | 550.3 | 552.2 | 552.2 | 554.2 | 554.2 |
| 35° | 521.4 | 523.3 | 527.1 | 529.1 | 531.0 | 531.0 | 532.9 | 532.9 | 532.9 | 534.9 |
| 37.5° | 498.2 | 502.0 | 505.9 | 507.8 | 509.8 | 509.8 | 509.8 | 511.7 | 513.6 | 513.6 |
| 40° | 476.9 | 480.8 | 482.7 | 486.6 | 486.6 | 488.5 | 490.5 | 490.5 | 490.5 | 490.5 |
| 42.5° | 453.8 | 457.6 | 461.5 | 463.4 | 465.4 | 465.4 | 467.3 | 467.3 | 469.2 | 469.2 |
| 45° | 430.6 | 434.5 | 438.3 | 440.3 | 440.3 | 442.2 | 442.2 | 444.1 | 444.1 | 444.1 |
| 47.5° | 405.5 | 411.3 | 411.3 | 415.2 | 415.2 | 415.2 | 417.1 | 419.0 | 420.9 | 419.0 |
| 50° | 380.4 | 384.3 | 386.2 | 390.0 | 390.0 | 390.0 | 392.0 | 392.0 | 393.9 | 392.0 |
| 52.5° | 355.3 | 357.2 | 361.1 | 361.1 | 363.0 | 363.0 | 364.9 | 364.9 | 364.9 | 364.9 |
| 55° | 330.2 | 332.1 | 334.1 | 336.0 | 336.0 | 336.0 | 337.9 | 336.0 | 337.9 | 337.9 |
| 57.5° | 303.2 | 305.1 | 307.0 | 308.9 | 308.9 | 308.9 | 308.9 | 310.9 | 310.9 | 308.9 |
| 60° | 276.1 | 278.1 | 280.0 | 280.0 | 281.9 | 281.9 | 281.9 | 281.9 | 283.8 | 283.8 |
| 62.5° | 249.1 | 251.0 | 253.0 | 253.0 | 254.9 | 254.9 | 256.8 | 256.8 | 256.8 | 256.8 |
| 65° | 222.1 | 224.0 | 227.9 | 227.9 | 227.9 | 229.8 | 229.8 | 229.8 | 231.7 | 231.7 |
| 67.5° | 197.0 | 198.9 | 200.8 | 200.8 | 202.7 | 202.7 | 204.7 | 204.7 | 204.7 | 204.7 |
| 70° | 173.8 | 173.8 | 175.7 | 177.6 | 177.6 | 177.6 | 179.6 | 179.6 | 179.6 | 181.5 |
| 72.5° | 148.7 | 150.6 | 152.5 | 154.5 | 154.5 | 154.5 | 154.5 | 154.5 | 154.5 | 154.5 |
| 75° | 125.5 | 127.4 | 127.4 | 129.4 | 129.4 | 129.4 | 129.4 | 129.4 | 129.4 | 129.4 |
| 77.5° | 102.3 | 102.3 | 104.3 | 102.3 | 102.3 | 102.3 | 100.4 | 100.4 | 100.4 | 100.4 |
| 80° | 75.3 | 73.4 | 73.4 | 73.4 | 71.4 | 71.4 | 71.4 | 71.4 | 69.5 | 71.4 |
| 82.5° | 48.3 | 48.3 | 46.3 | 44.4 | 44.4 | 44.4 | 44.4 | 44.4 | 44.4 | 44.4 |
| 85° | 23.2 | 23.2 | 21.2 | 21.2 | 21.2 | 19.3 | 19.3 | 19.3 | 19.3 | 19.3 |
| 87.5° | 5.8 | 3.9 | 3.9 | 3.9 | 3.9 | 3.9 | 3.9 | 3.9 | 3.9 | 3.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)