

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: NEO-RAY

Report Number: P243391

Luminaire Tested: **S123RDR-H560D830-X4F0-XX-UDD-F-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243391  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-64)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123RDR-H560D830-X4F0-XX-UDD-F-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

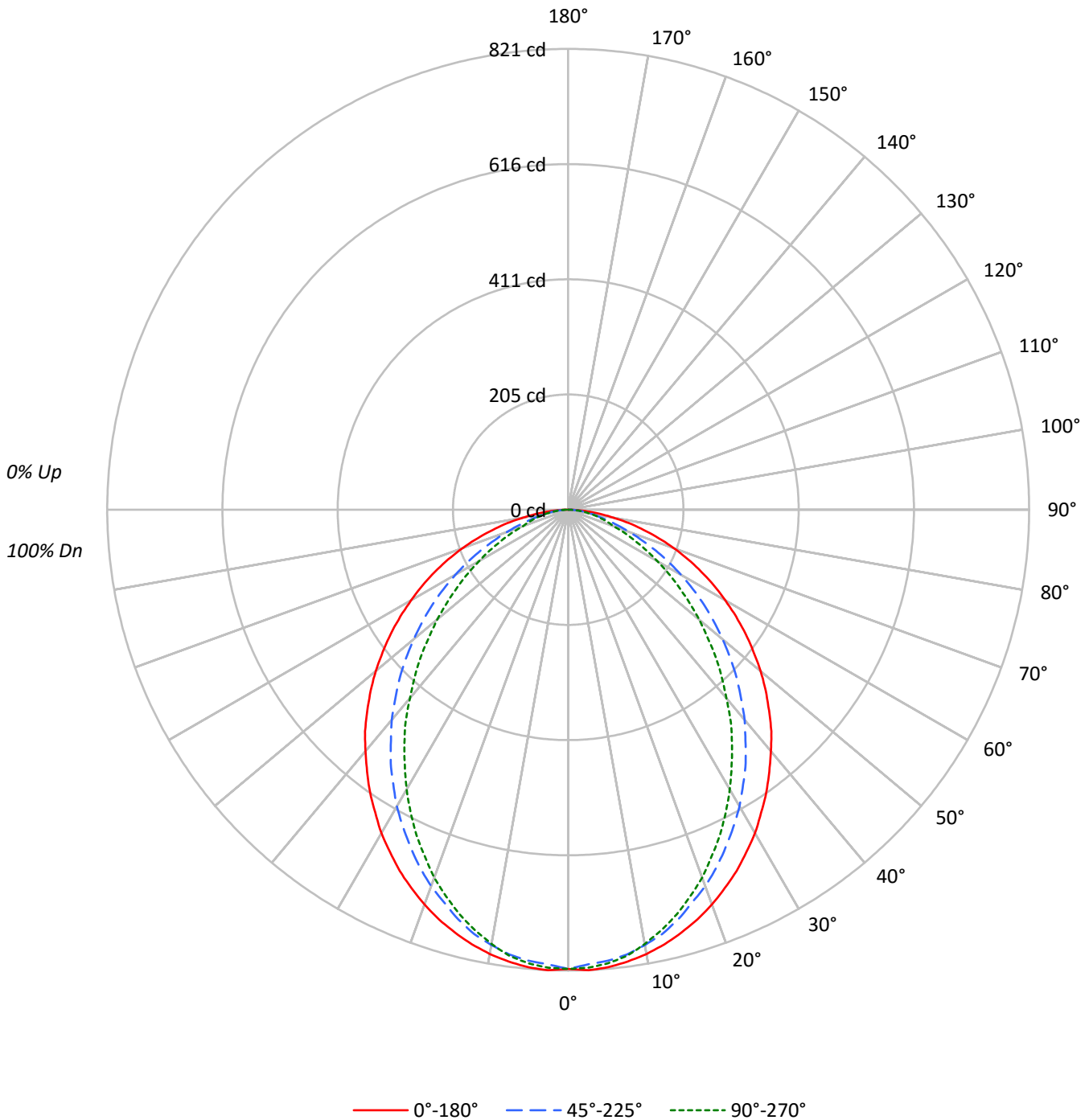
Lumens per Lamp: N/A  
Luminaire Lumens: 1847.2 lumens  
Efficiency: N/A  
Efficacy: 107.4 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22  
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 17.2  
Input Voltage (V): 120  
Input Current (Ain): 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



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### Luminous Intensity Polar Plot





TEST NUMBER: P243391

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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 | 50 | 30 | 10  | 0 |  |   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |     |   |  |   |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |    |    |    |    | 100 |   |  |   |
| 1   | 110 | 105 | 101 | 98  | 107 | 103 | 99  | 96  | 99  | 96  | 93  | 95  | 93  | 90  | 91  | 89  | 88  | 86  |    |    |    |    | 86  |   |  |   |
| 2   | 101 | 93  | 87  | 81  | 98  | 91  | 85  | 80  | 87  | 83  | 78  | 84  | 80  | 77  | 81  | 78  | 75  | 73  |    |    |    |    | 73  |   |  |   |
| 3   | 92  | 82  | 75  | 69  | 90  | 81  | 74  | 68  | 78  | 72  | 67  | 75  | 70  | 66  | 73  | 68  | 65  | 62  |    |    |    |    | 62  |   |  |   |
| 4   | 85  | 73  | 65  | 59  | 83  | 72  | 64  | 58  | 70  | 63  | 58  | 67  | 62  | 57  | 65  | 60  | 56  | 54  |    |    |    |    | 54  |   |  |   |
| 5   | 78  | 66  | 58  | 51  | 76  | 65  | 57  | 51  | 63  | 56  | 50  | 61  | 55  | 50  | 59  | 54  | 49  | 47  |    |    |    |    | 47  |   |  |   |
| 6   | 73  | 60  | 51  | 45  | 71  | 59  | 51  | 45  | 57  | 50  | 45  | 56  | 49  | 44  | 54  | 48  | 44  | 42  |    |    |    |    | 42  |   |  |   |
| 7   | 67  | 55  | 46  | 40  | 66  | 54  | 46  | 40  | 52  | 45  | 40  | 51  | 44  | 40  | 49  | 44  | 39  | 37  |    |    |    |    | 37  |   |  |   |
| 8   | 63  | 50  | 42  | 36  | 61  | 49  | 41  | 36  | 48  | 41  | 36  | 47  | 40  | 36  | 46  | 40  | 35  | 34  |    |    |    |    | 34  |   |  |   |
| 9   | 59  | 46  | 38  | 33  | 58  | 45  | 38  | 33  | 44  | 37  | 32  | 43  | 37  | 32  | 42  | 36  | 32  | 30  |    |    |    |    | 30  |   |  |   |
| 10  | 55  | 43  | 35  | 30  | 54  | 42  | 35  | 30  | 41  | 34  | 30  | 40  | 34  | 30  | 39  | 34  | 29  | 28  |    |    |    |    | 28  |   |  |   |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 9916 | 9916 | 9916 |
| 5°  | 9954 | 9817 | 9870 |
| 10° | 9892 | 9691 | 9668 |
| 15° | 9786 | 9486 | 9368 |
| 20° | 9654 | 9207 | 8997 |
| 25° | 9497 | 8875 | 8556 |
| 30° | 9313 | 8541 | 8056 |
| 35° | 9103 | 8155 | 7523 |
| 40° | 8889 | 7736 | 6931 |
| 45° | 8670 | 7272 | 6377 |
| 50° | 8437 | 6766 | 5734 |
| 55° | 8153 | 6240 | 5087 |
| 60° | 7830 | 5622 | 4434 |
| 65° | 7514 | 4919 | 3786 |
| 70° | 7081 | 4118 | 3030 |
| 75° | 6533 | 3264 | 2885 |
| 80° | 5703 | 2897 | 2632 |
| 85° | 4812 | 2531 | 2448 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 77.0   | 4.2       |
| 10°-20°   | 214.3  | 11.6      |
| 20°-30°   | 308.5  | 16.7      |
| 30°-40°   | 347.5  | 18.8      |
| 40°-50°   | 331.9  | 18.0      |
| 50°-60°   | 271.4  | 14.7      |
| 60°-70°   | 182.3  | 9.9       |
| 70°-80°   | 90.9   | 4.9       |
| 80°-90°   | 23.5   | 1.3       |
| 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°    | 599.7  | 32.5      |
| 0°-40°    | 947.2  | 51.3      |
| 0°-60°    | 1550.5 | 83.9      |
| 0°-90°    | 1847.2 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1847.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 818 | 818   | 818 | 818   | 818 |      |
| 5°  | 818 | 815   | 807 | 813   | 811 | 78   |
| 15° | 780 | 774   | 756 | 752   | 746 | 220  |
| 25° | 710 | 694   | 664 | 649   | 640 | 327  |
| 35° | 615 | 591   | 551 | 520   | 508 | 385  |
| 45° | 506 | 476   | 424 | 387   | 372 | 390  |
| 55° | 386 | 351   | 295 | 254   | 241 | 345  |
| 65° | 262 | 226   | 172 | 140   | 132 | 259  |
| 75° | 140 | 106   | 70  | 63    | 62  | 148  |
| 85° | 35  | 20    | 18  | 17    | 18  | 40   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



TEST NUMBER: P243391

CATALOG NUMBER: S123RDR-H560D830-X4F0-XX-UDD-F-W

**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 5°    | 10°   | 15°   | 20°   | 22.5° | 25°   | 30°   | 35°   | 40°   | 45°   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 |
| 2.5°  | 821.3 | 819.4 | 816.9 | 817.5 | 818.1 | 818.8 | 818.8 | 818.1 | 816.3 | 813.7 | 810.6 |
| 5°    | 818.1 | 816.3 | 813.7 | 813.7 | 815.0 | 815.0 | 815.0 | 814.4 | 812.5 | 810.0 | 806.8 |
| 7.5°  | 811.9 | 810.6 | 807.5 | 808.1 | 808.7 | 808.7 | 808.7 | 808.1 | 805.6 | 802.4 | 799.3 |
| 10°   | 803.7 | 801.8 | 799.3 | 799.3 | 799.9 | 799.9 | 799.9 | 798.7 | 795.5 | 791.8 | 787.4 |
| 12.5° | 793.0 | 791.1 | 788.6 | 788.6 | 788.6 | 788.6 | 788.6 | 786.7 | 781.7 | 777.9 | 774.2 |
| 15°   | 779.8 | 777.9 | 775.4 | 775.4 | 774.8 | 774.2 | 772.9 | 769.8 | 765.4 | 761.0 | 755.9 |
| 17.5° | 765.4 | 762.8 | 759.7 | 759.1 | 758.4 | 757.8 | 755.9 | 754.0 | 747.8 | 741.5 | 733.9 |
| 20°   | 748.4 | 745.9 | 742.7 | 742.1 | 740.2 | 738.3 | 737.1 | 733.3 | 726.4 | 718.9 | 713.8 |
| 22.5° | 729.5 | 727.0 | 723.9 | 722.6 | 718.9 | 717.6 | 715.7 | 710.1 | 702.5 | 695.6 | 690.0 |
| 25°   | 710.1 | 706.9 | 703.2 | 701.3 | 696.9 | 694.4 | 693.7 | 685.6 | 678.0 | 670.5 | 663.6 |
| 27.5° | 687.4 | 684.9 | 681.8 | 678.0 | 673.6 | 670.5 | 669.2 | 661.7 | 652.3 | 643.5 | 637.2 |
| 30°   | 665.4 | 661.7 | 658.5 | 654.1 | 647.9 | 644.7 | 642.2 | 634.7 | 626.5 | 615.8 | 610.2 |
| 32.5° | 639.7 | 637.2 | 633.4 | 629.0 | 622.7 | 620.2 | 616.4 | 607.0 | 596.3 | 588.8 | 580.0 |
| 35°   | 615.2 | 612.7 | 607.0 | 602.6 | 593.8 | 591.3 | 587.5 | 579.4 | 567.4 | 558.6 | 551.1 |
| 37.5° | 588.2 | 585.0 | 580.6 | 574.3 | 566.8 | 563.7 | 558.6 | 550.5 | 536.6 | 527.8 | 518.4 |
| 40°   | 561.8 | 557.4 | 552.3 | 545.4 | 537.9 | 534.7 | 530.3 | 518.4 | 507.1 | 497.0 | 488.9 |
| 42.5° | 535.4 | 530.3 | 524.1 | 517.8 | 509.6 | 505.2 | 500.2 | 488.9 | 476.3 | 466.9 | 455.6 |
| 45°   | 505.8 | 502.1 | 495.8 | 488.2 | 478.8 | 475.7 | 470.0 | 458.1 | 445.5 | 435.5 | 424.2 |
| 47.5° | 476.9 | 472.5 | 466.3 | 458.7 | 449.3 | 444.9 | 439.2 | 427.3 | 414.7 | 402.2 | 392.1 |
| 50°   | 447.4 | 443.0 | 435.5 | 427.9 | 419.1 | 413.5 | 408.4 | 396.5 | 382.7 | 371.4 | 358.8 |
| 52.5° | 416.0 | 412.2 | 405.9 | 398.4 | 387.1 | 382.7 | 377.7 | 364.5 | 351.3 | 338.1 | 326.8 |
| 55°   | 385.8 | 383.3 | 375.8 | 368.2 | 356.3 | 351.3 | 346.2 | 332.4 | 319.2 | 306.0 | 295.3 |
| 57.5° | 354.4 | 352.5 | 345.0 | 336.2 | 325.5 | 320.5 | 314.2 | 300.4 | 287.8 | 274.6 | 263.3 |
| 60°   | 323.0 | 321.1 | 313.6 | 304.8 | 294.7 | 288.4 | 281.5 | 270.8 | 256.4 | 244.4 | 231.9 |
| 62.5° | 292.8 | 290.3 | 284.0 | 274.6 | 263.3 | 257.0 | 250.7 | 238.2 | 225.0 | 212.4 | 201.1 |
| 65°   | 262.0 | 258.9 | 251.3 | 241.9 | 231.2 | 225.6 | 219.3 | 207.4 | 194.2 | 182.2 | 171.5 |
| 67.5° | 231.2 | 228.1 | 219.9 | 212.4 | 199.8 | 194.2 | 188.5 | 176.6 | 164.0 | 152.1 | 142.0 |
| 70°   | 199.8 | 196.7 | 190.4 | 180.3 | 169.7 | 164.0 | 158.4 | 145.8 | 134.5 | 125.7 | 116.2 |
| 72.5° | 169.0 | 166.5 | 160.2 | 150.8 | 140.8 | 135.1 | 128.8 | 118.1 | 108.1 | 98.7  | 91.7  |
| 75°   | 139.5 | 135.7 | 130.1 | 121.3 | 111.2 | 106.2 | 101.8 | 91.1  | 81.7  | 75.4  | 69.7  |
| 77.5° | 111.2 | 106.8 | 100.5 | 93.6  | 84.2  | 79.2  | 74.8  | 66.0  | 59.7  | 55.3  | 54.0  |
| 80°   | 81.7  | 81.1  | 74.8  | 67.2  | 59.1  | 55.3  | 50.9  | 45.2  | 43.4  | 42.7  | 41.5  |
| 82.5° | 57.2  | 54.7  | 49.6  | 42.7  | 36.4  | 33.9  | 32.7  | 31.4  | 30.2  | 30.2  | 28.9  |
| 85°   | 34.6  | 32.0  | 27.6  | 22.0  | 20.7  | 20.1  | 19.5  | 19.5  | 18.9  | 18.2  | 18.2  |
| 87.5° | 15.1  | 12.6  | 9.4   | 8.8   | 8.2   | 8.2   | 8.8   | 8.8   | 8.8   | 8.2   | 8.2   |
| 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°    | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 | 818.1 |
| 2.5°  | 811.9 | 815.0 | 816.9 | 817.5 | 817.5 | 817.5 | 818.1 | 818.1 | 817.5 | 816.9 |
| 5°    | 807.5 | 810.6 | 811.9 | 813.1 | 813.1 | 813.1 | 813.1 | 813.1 | 812.5 | 811.2 |
| 7.5°  | 800.5 | 802.4 | 804.3 | 803.7 | 803.7 | 803.1 | 802.4 | 803.1 | 801.8 | 801.8 |
| 10°   | 788.0 | 789.9 | 791.1 | 789.2 | 789.2 | 789.9 | 789.9 | 789.2 | 787.4 | 785.5 |
| 12.5° | 773.5 | 775.4 | 773.5 | 774.2 | 772.9 | 771.6 | 771.0 | 770.4 | 768.5 | 767.2 |
| 15°   | 754.7 | 754.7 | 753.4 | 753.4 | 751.5 | 749.0 | 748.4 | 749.0 | 746.5 | 746.5 |
| 17.5° | 733.9 | 732.7 | 730.8 | 729.5 | 728.9 | 728.9 | 726.4 | 726.4 | 723.3 | 722.6 |
| 20°   | 711.3 | 710.1 | 708.2 | 705.0 | 703.8 | 704.4 | 701.9 | 700.0 | 698.1 | 697.5 |
| 22.5° | 687.4 | 684.3 | 682.4 | 679.3 | 676.8 | 676.8 | 674.9 | 671.7 | 669.8 | 668.0 |
| 25°   | 660.4 | 657.3 | 653.5 | 651.0 | 649.1 | 646.0 | 644.7 | 642.2 | 640.3 | 639.7 |
| 27.5° | 632.8 | 627.7 | 622.7 | 620.2 | 618.9 | 615.2 | 613.3 | 612.0 | 608.3 | 607.6 |
| 30°   | 603.2 | 599.5 | 593.2 | 588.8 | 585.6 | 586.3 | 581.9 | 579.4 | 577.5 | 575.6 |
| 32.5° | 575.0 | 568.7 | 562.4 | 556.7 | 553.0 | 552.3 | 547.9 | 545.4 | 543.5 | 541.7 |
| 35°   | 542.9 | 536.6 | 529.1 | 524.1 | 520.3 | 518.4 | 514.0 | 512.8 | 509.6 | 508.4 |
| 37.5° | 510.9 | 504.0 | 496.4 | 490.1 | 487.6 | 483.2 | 481.3 | 478.2 | 475.7 | 475.7 |
| 40°   | 479.4 | 471.3 | 463.7 | 456.2 | 453.1 | 450.5 | 445.5 | 443.0 | 439.9 | 438.0 |
| 42.5° | 446.8 | 437.3 | 430.4 | 423.5 | 419.1 | 417.2 | 411.6 | 408.4 | 405.3 | 404.7 |
| 45°   | 414.1 | 404.7 | 395.9 | 389.0 | 387.1 | 383.3 | 377.7 | 373.3 | 372.6 | 372.0 |
| 47.5° | 380.8 | 371.4 | 363.2 | 355.7 | 353.1 | 348.7 | 345.0 | 341.8 | 338.1 | 336.2 |
| 50°   | 348.7 | 339.3 | 330.5 | 322.4 | 319.2 | 315.4 | 311.7 | 307.3 | 306.0 | 304.1 |
| 52.5° | 316.7 | 306.0 | 296.6 | 289.1 | 286.5 | 283.4 | 279.0 | 275.2 | 273.3 | 272.1 |
| 55°   | 284.0 | 273.3 | 265.2 | 257.6 | 254.5 | 252.6 | 247.6 | 244.4 | 241.9 | 240.7 |
| 57.5° | 252.0 | 241.3 | 233.8 | 228.1 | 223.7 | 221.8 | 216.8 | 213.6 | 212.4 | 211.8 |
| 60°   | 221.8 | 211.8 | 203.6 | 197.9 | 194.2 | 192.3 | 188.5 | 185.4 | 183.5 | 182.9 |
| 62.5° | 191.7 | 182.9 | 175.3 | 169.7 | 167.1 | 164.6 | 161.5 | 159.0 | 157.1 | 157.1 |
| 65°   | 162.7 | 154.0 | 147.0 | 142.6 | 140.1 | 138.9 | 135.1 | 133.8 | 132.0 | 132.0 |
| 67.5° | 134.5 | 128.2 | 123.2 | 117.5 | 115.6 | 115.6 | 111.9 | 110.6 | 109.3 | 109.3 |
| 70°   | 110.0 | 104.3 | 98.7  | 95.5  | 93.6  | 93.0  | 89.9  | 88.0  | 86.7  | 85.5  |
| 72.5° | 86.1  | 81.1  | 76.0  | 75.4  | 75.4  | 74.8  | 74.8  | 73.5  | 73.5  | 74.1  |
| 75°   | 66.0  | 64.7  | 63.5  | 63.5  | 62.8  | 62.2  | 62.2  | 61.6  | 61.6  | 61.6  |
| 77.5° | 52.8  | 52.2  | 51.5  | 50.9  | 50.9  | 50.3  | 49.6  | 49.6  | 49.6  | 49.6  |
| 80°   | 40.2  | 39.6  | 39.6  | 39.0  | 38.3  | 39.0  | 38.3  | 38.3  | 37.7  | 37.7  |
| 82.5° | 28.3  | 28.3  | 28.3  | 27.6  | 27.6  | 27.6  | 27.6  | 27.0  | 27.0  | 27.6  |
| 85°   | 17.6  | 17.6  | 17.6  | 17.6  | 17.0  | 17.6  | 17.0  | 17.0  | 17.0  | 17.6  |
| 87.5° | 7.5   | 8.2   | 7.5   | 8.2   | 8.2   | 7.5   | 7.5   | 7.5   | 7.5   | 7.5   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)