

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: P199497

Luminaire Tested: **S124-DIP-U2-LO-35-X-X0048-1D-UDD-1-5-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P199497  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (P28062 P28062)  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124-DIP-U2-LO-35-X-X0048-1D-UDD-1-5-W  
Description: DEFINE 4-INCH DIRECT/INDIRECT PENDANT LED LUMINAIRE  
UPLIGHT LL2-3500K, SATIN WHITE DIFFUSER  
DOWNLIGHT LLO-3500K, SATIN WHITE DIFFUSER  
Light Source: -  
757G  
Ballast/Driver: ELECTRONIC DRIVERS

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5698.1 lumens  
Efficiency: N/A  
Efficacy: 108.9 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.14 / 1.28  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4.08' x H: 0.38')  
CIE Type: Semi-Indirect

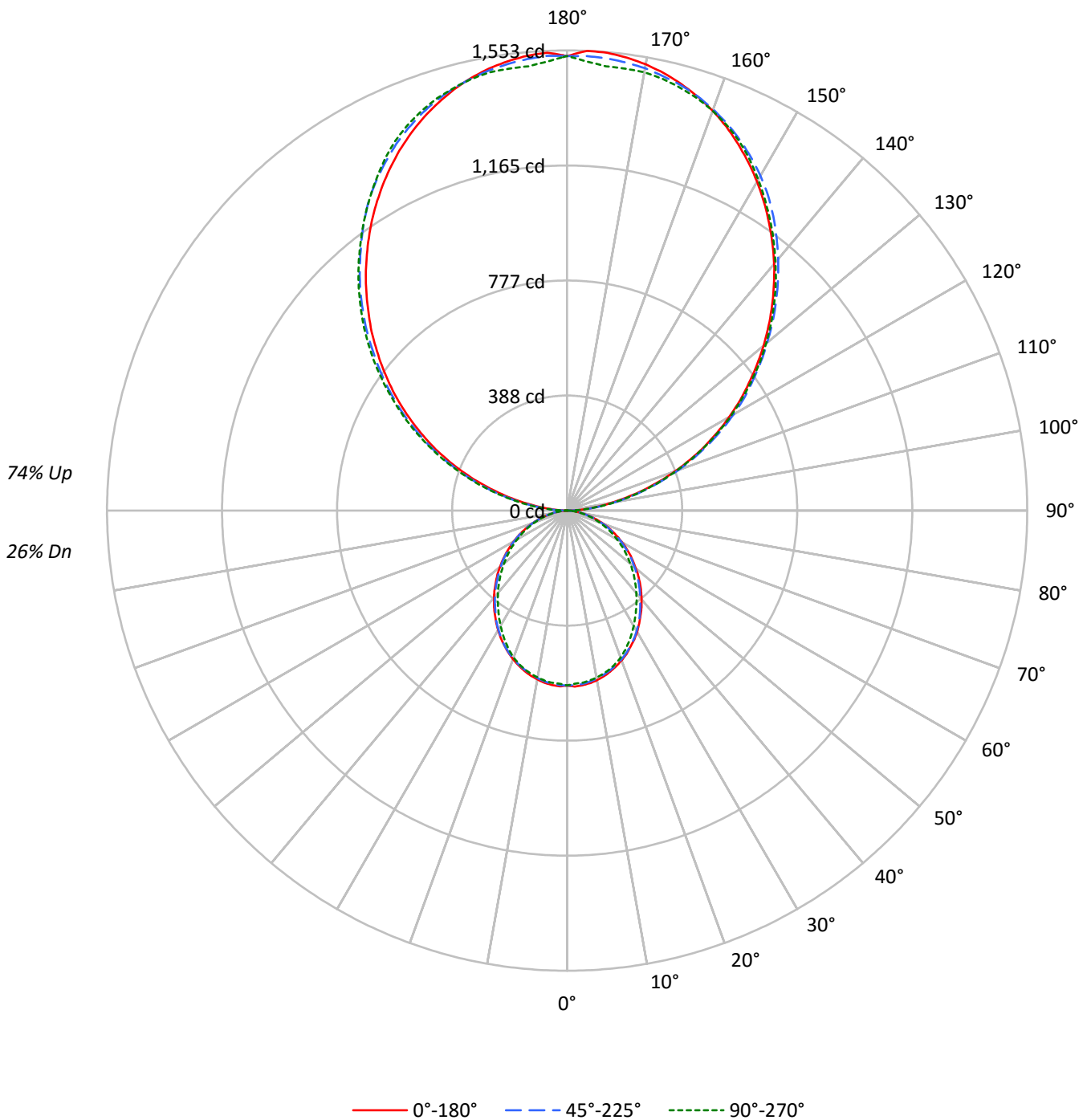
Input Watts (W): 52.3  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





TEST NUMBER: P199497

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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 | 0  |
| RCR |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 0   | 101 | 101 | 101 | 101 | 90 | 90 | 90 | 90 | 70 | 70 | 70 | 51 | 51 | 51 | 34 | 34 | 34 | 26 |
| 1   | 92  | 88  | 85  | 81  | 82 | 79 | 76 | 73 | 61 | 59 | 57 | 45 | 44 | 42 | 30 | 29 | 29 | 22 |
| 2   | 84  | 77  | 71  | 66  | 75 | 69 | 64 | 60 | 54 | 50 | 47 | 39 | 37 | 35 | 26 | 25 | 24 | 18 |
| 3   | 77  | 68  | 61  | 55  | 68 | 61 | 55 | 50 | 47 | 43 | 40 | 35 | 32 | 30 | 23 | 22 | 21 | 16 |
| 4   | 70  | 60  | 52  | 47  | 62 | 54 | 47 | 42 | 42 | 37 | 34 | 31 | 28 | 26 | 21 | 19 | 18 | 13 |
| 5   | 64  | 53  | 45  | 40  | 57 | 48 | 41 | 36 | 37 | 33 | 29 | 28 | 25 | 22 | 19 | 17 | 15 | 12 |
| 6   | 59  | 48  | 40  | 34  | 52 | 43 | 36 | 31 | 34 | 29 | 25 | 25 | 22 | 19 | 17 | 15 | 14 | 10 |
| 7   | 54  | 43  | 35  | 30  | 48 | 38 | 32 | 27 | 30 | 26 | 22 | 23 | 19 | 17 | 16 | 14 | 12 | 9  |
| 8   | 50  | 39  | 31  | 26  | 45 | 35 | 28 | 24 | 28 | 23 | 19 | 21 | 17 | 15 | 14 | 12 | 11 | 8  |
| 9   | 47  | 35  | 28  | 23  | 42 | 32 | 25 | 21 | 25 | 21 | 17 | 19 | 16 | 13 | 13 | 11 | 10 | 7  |
| 10  | 44  | 32  | 25  | 21  | 39 | 29 | 23 | 19 | 23 | 19 | 15 | 17 | 14 | 12 | 12 | 10 | 9  | 7  |

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

|     | 0°   | 90°  | 180° |
|-----|------|------|------|
| 0°  | 4668 | 4668 | 4668 |
| 5°  | 4660 | 4217 | 4652 |
| 10° | 4594 | 3832 | 4575 |
| 15° | 4495 | 3487 | 4472 |
| 20° | 4380 | 3150 | 4348 |
| 25° | 4241 | 2808 | 4202 |
| 30° | 4095 | 2487 | 4042 |
| 35° | 3920 | 2191 | 3865 |
| 40° | 3746 | 1929 | 3681 |
| 45° | 3557 | 1689 | 3488 |
| 50° | 3345 | 1461 | 3285 |
| 55° | 3155 | 1250 | 3072 |
| 60° | 2918 | 1047 | 2834 |
| 65° | 2684 | 849  | 2578 |
| 70° | 2385 | 653  | 2273 |
| 75° | 2007 | 460  | 1859 |
| 80° | 1506 | 280  | 1410 |
| 85° | 885  | 124  | 837  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 55.6   | 1.0       |
| 10°-20°   | 156.7  | 2.7       |
| 20°-30°   | 229.5  | 4.0       |
| 30°-40°   | 263.1  | 4.6       |
| 40°-50°   | 259.3  | 4.6       |
| 50°-60°   | 223.5  | 3.9       |
| 60°-70°   | 163.0  | 2.9       |
| 70°-80°   | 88.9   | 1.6       |
| 80°-90°   | 23.3   | 0.4       |
| 90°-100°  | 78.7   | 1.4       |
| 100°-110° | 286.0  | 5.0       |
| 110°-120° | 506.3  | 8.9       |
| 120°-130° | 673.1  | 11.8      |
| 130°-140° | 756.9  | 13.3      |
| 140°-150° | 744.2  | 13.1      |
| 150°-160° | 628.1  | 11.0      |
| 160°-170° | 416.6  | 7.3       |
| 170°-180° | 145.2  | 2.5       |
| 0°-30°    | 441.8  | 7.8       |
| 0°-40°    | 704.8  | 12.4      |
| 0°-60°    | 1187.7 | 20.8      |
| 0°-90°    | 1463.0 | 25.7      |
| 90°-120°  | 870.9  | 15.3      |
| 90°-150°  | 3045.2 | 53.4      |
| 90°-180°  | 4235.0 | 74.3      |
| 0°-180°   | 5698.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 45°  | 90°  | 135° | 180° | Flux |
|------|------|------|------|------|------|------|
| 0°   | 590  | 590  | 590  | 590  | 590  |      |
| 5°   | 592  | 588  | 584  | 587  | 591  | 56   |
| 15°  | 562  | 558  | 554  | 555  | 560  | 159  |
| 25°  | 507  | 505  | 491  | 501  | 502  | 234  |
| 35°  | 432  | 428  | 406  | 422  | 426  | 270  |
| 45°  | 347  | 340  | 321  | 334  | 340  | 268  |
| 55°  | 259  | 254  | 236  | 249  | 252  | 231  |
| 65°  | 172  | 168  | 155  | 164  | 165  | 170  |
| 75°  | 88   | 85   | 78   | 81   | 82   | 94   |
| 85°  | 20   | 20   | 19   | 19   | 19   | 23   |
| 90°  | 1    | 1    | 1    | 1    | 1    | 6    |
| 95°  | 66   | 73   | 71   | 67   | 51   | 72   |
| 105° | 265  | 278  | 274  | 268  | 247  | 281  |
| 115° | 511  | 524  | 515  | 508  | 489  | 505  |
| 125° | 748  | 765  | 758  | 747  | 725  | 670  |
| 135° | 978  | 997  | 988  | 979  | 949  | 754  |
| 145° | 1187 | 1213 | 1195 | 1194 | 1159 | 743  |
| 155° | 1365 | 1380 | 1375 | 1365 | 1340 | 629  |
| 165° | 1490 | 1486 | 1477 | 1476 | 1472 | 420  |
| 175° | 1551 | 1532 | 1505 | 1530 | 1541 | 147  |
| 180° | 1534 | 1534 | 1534 | 1534 | 1534 |      |



TEST NUMBER: P199497

CATALOG NUMBER: S124-DIP-U2-LO-35-X-X0048-1D-UDD-1-5-W

**CANDELA DISTRIBUTION (FULL):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   | 112.5° | 135°  | 157.5° | 180°  |
|--------|-------|-------|-------|-------|-------|--------|-------|--------|-------|
| 0°     | 590.3 | 590.3 | 590.3 | 590.3 | 590.3 | 590.3  | 590.3 | 590.3  | 590.3 |
| 2.5°   | 594.6 | 587.8 | 590.0 | 588.5 | 584.6 | 588.5  | 589.6 | 587.5  | 593.9 |
| 5°     | 591.7 | 585.3 | 587.5 | 585.3 | 583.5 | 585.0  | 586.7 | 584.2  | 590.7 |
| 7.5°   | 587.5 | 580.7 | 582.5 | 580.7 | 578.9 | 580.3  | 581.4 | 579.2  | 586.0 |
| 10°    | 581.4 | 574.3 | 576.0 | 573.9 | 571.8 | 573.2  | 574.3 | 572.1  | 578.9 |
| 12.5°  | 572.8 | 566.0 | 567.5 | 566.0 | 564.3 | 564.6  | 565.3 | 563.2  | 570.3 |
| 15°    | 562.5 | 555.7 | 558.2 | 556.8 | 554.3 | 555.7  | 555.3 | 552.8  | 559.6 |
| 17.5°  | 550.7 | 544.3 | 547.1 | 545.7 | 542.1 | 544.3  | 544.3 | 540.3  | 547.5 |
| 20°    | 537.8 | 531.1 | 535.0 | 531.4 | 527.5 | 529.6  | 531.4 | 526.8  | 533.9 |
| 22.5°  | 523.6 | 516.4 | 521.1 | 514.6 | 510.4 | 512.9  | 517.1 | 512.2  | 518.6 |
| 25°    | 506.8 | 501.1 | 505.4 | 496.4 | 490.7 | 494.3  | 501.1 | 496.1  | 502.2 |
| 27.5°  | 490.4 | 484.7 | 488.2 | 478.2 | 470.4 | 475.0  | 483.6 | 479.3  | 484.7 |
| 30°    | 472.2 | 467.5 | 469.3 | 457.5 | 449.3 | 454.3  | 464.3 | 461.8  | 466.1 |
| 32.5°  | 452.2 | 448.6 | 448.6 | 436.1 | 427.6 | 433.3  | 444.0 | 443.3  | 446.1 |
| 35°    | 432.2 | 430.1 | 427.6 | 414.0 | 405.8 | 411.1  | 421.5 | 424.4  | 426.1 |
| 37.5°  | 411.9 | 410.4 | 405.8 | 392.6 | 384.7 | 390.4  | 400.1 | 404.4  | 405.4 |
| 40°    | 390.8 | 390.1 | 383.7 | 371.2 | 363.3 | 369.0  | 379.0 | 384.4  | 384.0 |
| 42.5°  | 369.4 | 370.1 | 362.3 | 350.1 | 342.3 | 348.0  | 357.3 | 364.4  | 362.6 |
| 45°    | 347.3 | 349.4 | 340.1 | 329.1 | 320.9 | 326.9  | 334.4 | 343.3  | 340.5 |
| 47.5°  | 325.8 | 328.3 | 318.7 | 307.3 | 299.4 | 305.9  | 313.4 | 323.0  | 318.7 |
| 50°    | 301.6 | 306.6 | 297.3 | 285.9 | 278.0 | 284.1  | 293.0 | 301.2  | 296.2 |
| 52.5°  | 280.5 | 284.1 | 275.9 | 264.8 | 257.3 | 262.3  | 271.2 | 279.5  | 274.1 |
| 55°    | 258.8 | 262.7 | 254.5 | 243.4 | 236.3 | 241.3  | 249.1 | 257.3  | 252.0 |
| 57.5°  | 235.9 | 239.8 | 232.3 | 222.3 | 215.6 | 220.9  | 229.1 | 234.8  | 229.8 |
| 60°    | 213.8 | 218.8 | 210.6 | 200.9 | 195.2 | 199.5  | 205.9 | 212.7  | 207.7 |
| 62.5°  | 192.4 | 197.0 | 189.2 | 180.2 | 174.9 | 178.8  | 185.6 | 190.9  | 186.3 |
| 65°    | 171.7 | 174.5 | 167.7 | 159.5 | 154.9 | 157.4  | 163.5 | 169.5  | 164.9 |
| 67.5°  | 150.6 | 153.5 | 146.7 | 139.5 | 134.9 | 137.4  | 142.4 | 148.1  | 143.8 |
| 70°    | 129.2 | 131.7 | 126.0 | 119.6 | 115.6 | 118.1  | 122.8 | 127.1  | 123.1 |
| 72.5°  | 108.9 | 110.6 | 105.3 | 100.3 | 97.4  | 99.2   | 102.4 | 106.4  | 104.6 |
| 75°    | 88.2  | 90.3  | 84.9  | 80.7  | 78.2  | 78.9   | 81.4  | 84.6   | 81.7  |
| 77.5°  | 68.5  | 70.7  | 66.4  | 63.2  | 61.7  | 62.1   | 63.9  | 66.4   | 62.8  |
| 80°    | 50.3  | 52.1  | 49.6  | 46.8  | 45.3  | 46.0   | 47.1  | 48.5   | 47.1  |
| 82.5°  | 33.9  | 35.7  | 33.9  | 32.1  | 31.1  | 31.8   | 32.1  | 32.8   | 31.8  |
| 85°    | 20.0  | 21.4  | 20.3  | 19.3  | 18.9  | 18.9   | 19.3  | 20.0   | 18.9  |
| 87.5°  | 8.9   | 10.0  | 9.3   | 8.6   | 7.5   | 7.9    | 8.2   | 8.9    | 8.2   |
| 90°    | 0.7   | 1.8   | 1.4   | 1.1   | 1.1   | 1.1    | 1.4   | 1.8    | 0.7   |
| 92.5°  | 30.0  | 34.0  | 35.0  | 32.0  | 32.0  | 31.0   | 29.0  | 28.0   | 18.0  |
| 95°    | 66.0  | 72.0  | 73.0  | 73.0  | 71.0  | 69.0   | 67.0  | 62.0   | 51.0  |
| 97.5°  | 107.0 | 114.0 | 116.0 | 114.0 | 115.0 | 113.0  | 108.0 | 103.0  | 92.0  |
| 100°   | 154.0 | 163.0 | 165.0 | 163.0 | 164.0 | 159.0  | 157.0 | 152.0  | 139.0 |
| 102.5° | 206.0 | 217.0 | 218.0 | 216.0 | 216.0 | 212.0  | 210.0 | 204.0  | 191.0 |
| 105°   | 265.0 | 277.0 | 278.0 | 274.0 | 274.0 | 270.0  | 268.0 | 262.0  | 247.0 |
| 107.5° | 325.0 | 337.0 | 337.0 | 333.0 | 333.0 | 330.0  | 326.0 | 322.0  | 307.0 |
| 110°   | 387.0 | 397.0 | 399.0 | 394.0 | 393.0 | 390.0  | 386.0 | 380.0  | 367.0 |



TEST NUMBER: P199497

CATALOG NUMBER: S124-DIP-U2-LO-35-X-X0048-1D-UDD-1-5-W

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    | 112.5° | 135°   | 157.5° | 180°   |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 112.5° | 449.0  | 459.0  | 461.0  | 455.0  | 454.0  | 448.0  | 447.0  | 440.0  | 427.0  |
| 115°   | 511.0  | 521.0  | 524.0  | 517.0  | 515.0  | 508.0  | 508.0  | 501.0  | 489.0  |
| 117.5° | 571.0  | 583.0  | 586.0  | 578.0  | 577.0  | 571.0  | 567.0  | 561.0  | 548.0  |
| 120°   | 631.0  | 646.0  | 648.0  | 639.0  | 638.0  | 631.0  | 629.0  | 621.0  | 608.0  |
| 122.5° | 691.0  | 706.0  | 709.0  | 701.0  | 698.0  | 689.0  | 688.0  | 681.0  | 667.0  |
| 125°   | 748.0  | 765.0  | 765.0  | 761.0  | 758.0  | 751.0  | 747.0  | 739.0  | 725.0  |
| 127.5° | 807.0  | 825.0  | 824.0  | 821.0  | 818.0  | 808.0  | 805.0  | 797.0  | 782.0  |
| 130°   | 865.0  | 881.0  | 881.0  | 879.0  | 877.0  | 868.0  | 863.0  | 855.0  | 838.0  |
| 132.5° | 922.0  | 938.0  | 940.0  | 935.0  | 933.0  | 921.0  | 922.0  | 912.0  | 895.0  |
| 135°   | 978.0  | 992.0  | 997.0  | 989.0  | 988.0  | 975.0  | 979.0  | 966.0  | 949.0  |
| 137.5° | 1033.0 | 1044.0 | 1053.0 | 1043.0 | 1042.0 | 1029.0 | 1035.0 | 1018.0 | 1003.0 |
| 140°   | 1087.0 | 1096.0 | 1108.0 | 1096.0 | 1094.0 | 1082.0 | 1088.0 | 1070.0 | 1057.0 |
| 142.5° | 1138.0 | 1146.0 | 1161.0 | 1148.0 | 1145.0 | 1134.0 | 1141.0 | 1120.0 | 1108.0 |
| 145°   | 1187.0 | 1193.0 | 1213.0 | 1199.0 | 1195.0 | 1185.0 | 1194.0 | 1168.0 | 1159.0 |
| 147.5° | 1236.0 | 1239.0 | 1262.0 | 1249.0 | 1243.0 | 1235.0 | 1244.0 | 1215.0 | 1208.0 |
| 150°   | 1282.0 | 1282.0 | 1305.0 | 1295.0 | 1290.0 | 1281.0 | 1287.0 | 1259.0 | 1254.0 |
| 152.5° | 1325.0 | 1323.0 | 1344.0 | 1338.0 | 1335.0 | 1325.0 | 1327.0 | 1301.0 | 1298.0 |
| 155°   | 1365.0 | 1361.0 | 1380.0 | 1377.0 | 1375.0 | 1365.0 | 1365.0 | 1339.0 | 1340.0 |
| 157.5° | 1403.0 | 1395.0 | 1413.0 | 1412.0 | 1408.0 | 1400.0 | 1398.0 | 1375.0 | 1378.0 |
| 160°   | 1436.0 | 1429.0 | 1441.0 | 1439.0 | 1436.0 | 1428.0 | 1428.0 | 1408.0 | 1413.0 |
| 162.5° | 1465.0 | 1456.0 | 1466.0 | 1460.0 | 1459.0 | 1450.0 | 1454.0 | 1437.0 | 1444.0 |
| 165°   | 1490.0 | 1481.0 | 1486.0 | 1478.0 | 1477.0 | 1469.0 | 1476.0 | 1464.0 | 1472.0 |
| 167.5° | 1512.0 | 1502.0 | 1501.0 | 1494.0 | 1492.0 | 1486.0 | 1494.0 | 1487.0 | 1496.0 |
| 170°   | 1529.0 | 1519.0 | 1516.0 | 1504.0 | 1502.0 | 1497.0 | 1509.0 | 1507.0 | 1515.0 |
| 172.5° | 1542.0 | 1532.0 | 1525.0 | 1511.0 | 1504.0 | 1505.0 | 1521.0 | 1521.0 | 1530.0 |
| 175°   | 1551.0 | 1540.0 | 1532.0 | 1518.0 | 1505.0 | 1513.0 | 1530.0 | 1531.0 | 1541.0 |
| 177.5° | 1553.0 | 1542.0 | 1535.0 | 1522.0 | 1517.0 | 1518.0 | 1536.0 | 1536.0 | 1547.0 |
| 180°   | 1534.0 | 1534.0 | 1534.0 | 1534.0 | 1534.0 | 1534.0 | 1534.0 | 1534.0 | 1534.0 |

(END OF REPORT)