

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: P199513

Luminaire Tested: **S124-DIW-ULO-LO-30-0048-1D-UDD-1-5-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P199513  
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-DIW-ULO-LO-30-0048-1D-UDD-1-5-W  
Description: DEFINE 4-INCH DIRECT/INDIRECT WALL LED LUMINAIRE  
UPLIGHT LLO-3000K, SATIN WHITE DIFFUSER  
DOWNLIGHT LLO-3000K, SATIN WHITE DIFFUSER  
Light Source: -  
757G  
Ballast/Driver: ELECTRONIC DRIVERS

**Summary**

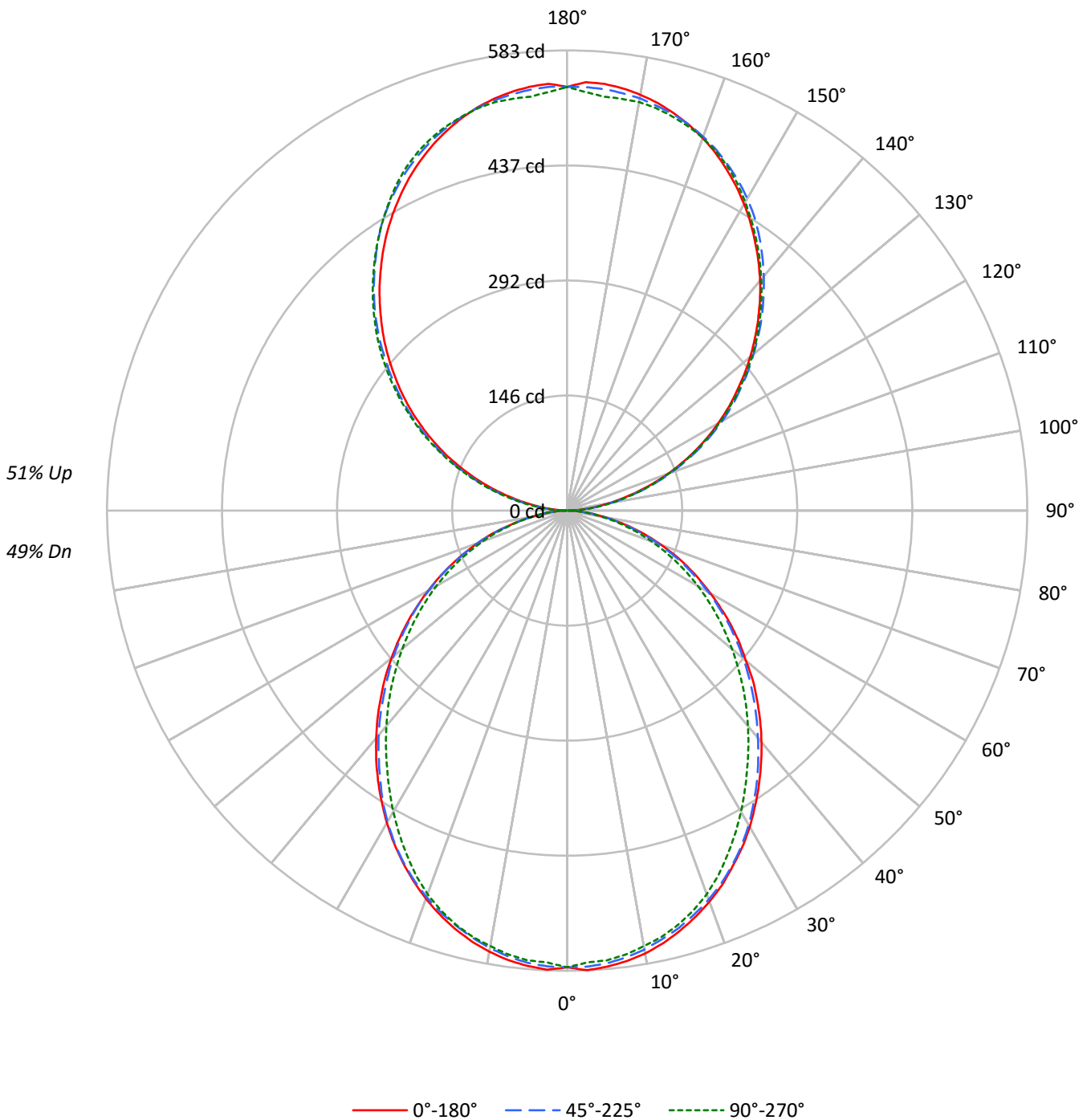
Lumens per Lamp: N/A  
Luminaire Lumens: 2915.7 lumens  
Efficiency: N/A  
Efficacy: 108.4 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.14 / 1.28  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4.08' x H: 0.38')  
CIE Type: General Diffuse

Input Watts (W): 26.9  
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: P199513

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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 | 0  |   |
| RCR |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |
| 0   | 107 | 107 | 107 | 107 | 99 | 99 | 99 | 99 | 83 | 83 | 83 | 69 | 69 | 69 | 55 | 55 | 55 | 49 |    |    |    |   |
| 1   | 98  | 93  | 90  | 86  | 90 | 86 | 83 | 80 | 73 | 70 | 68 | 60 | 59 | 57 | 49 | 48 | 47 | 42 |    |    |    |   |
| 2   | 89  | 82  | 76  | 70  | 82 | 75 | 70 | 66 | 64 | 60 | 57 | 53 | 50 | 48 | 43 | 41 | 40 | 35 |    |    |    |   |
| 3   | 81  | 72  | 65  | 59  | 75 | 66 | 60 | 55 | 56 | 52 | 48 | 47 | 44 | 41 | 38 | 36 | 34 | 30 |    |    |    |   |
| 4   | 74  | 64  | 56  | 50  | 68 | 59 | 52 | 47 | 50 | 45 | 41 | 42 | 38 | 35 | 34 | 32 | 29 | 26 |    |    |    |   |
| 5   | 68  | 57  | 49  | 43  | 63 | 53 | 45 | 40 | 45 | 39 | 35 | 38 | 34 | 30 | 31 | 28 | 26 | 22 |    |    |    |   |
| 6   | 63  | 51  | 43  | 37  | 58 | 47 | 40 | 35 | 40 | 35 | 31 | 34 | 30 | 27 | 28 | 25 | 23 | 20 |    |    |    |   |
| 7   | 58  | 46  | 38  | 32  | 54 | 43 | 36 | 31 | 37 | 31 | 27 | 31 | 27 | 24 | 26 | 23 | 20 | 17 |    |    |    |   |
| 8   | 54  | 42  | 34  | 29  | 50 | 39 | 32 | 27 | 34 | 28 | 24 | 28 | 24 | 21 | 24 | 20 | 18 | 16 |    |    |    |   |
| 9   | 50  | 38  | 31  | 26  | 46 | 36 | 29 | 24 | 31 | 25 | 22 | 26 | 22 | 19 | 22 | 19 | 16 | 14 |    |    |    |   |
| 10  | 47  | 35  | 28  | 23  | 43 | 33 | 26 | 22 | 28 | 23 | 19 | 24 | 20 | 17 | 20 | 17 | 15 | 13 |    |    |    |   |

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

|     | 0°   | 90°  | 180° |
|-----|------|------|------|
| 0°  | 4576 | 4576 | 4576 |
| 5°  | 4568 | 4134 | 4560 |
| 10° | 4504 | 3755 | 4484 |
| 15° | 4406 | 3418 | 4384 |
| 20° | 4293 | 3088 | 4262 |
| 25° | 4157 | 2753 | 4118 |
| 30° | 4013 | 2439 | 3962 |
| 35° | 3843 | 2148 | 3789 |
| 40° | 3672 | 1891 | 3608 |
| 45° | 3487 | 1655 | 3418 |
| 50° | 3278 | 1432 | 3220 |
| 55° | 3091 | 1225 | 3011 |
| 60° | 2860 | 1027 | 2778 |
| 65° | 2631 | 832  | 2526 |
| 70° | 2337 | 640  | 2229 |
| 75° | 1966 | 450  | 1823 |
| 80° | 1476 | 274  | 1383 |
| 85° | 868  | 121  | 819  |



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CATALOG NUMBER: S124-DIW-ULO-LO-30-0048-1D-UDD-1-5-W

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 54.5   | 1.9       |
| 10°-20°   | 153.6  | 5.3       |
| 20°-30°   | 225.0  | 7.7       |
| 30°-40°   | 257.9  | 8.8       |
| 40°-50°   | 254.2  | 8.7       |
| 50°-60°   | 219.1  | 7.5       |
| 60°-70°   | 159.8  | 5.5       |
| 70°-80°   | 87.1   | 3.0       |
| 80°-90°   | 22.8   | 0.8       |
| 90°-100°  | 27.6   | 0.9       |
| 100°-110° | 100.1  | 3.4       |
| 110°-120° | 177.1  | 6.1       |
| 120°-130° | 235.5  | 8.1       |
| 130°-140° | 264.8  | 9.1       |
| 140°-150° | 260.4  | 8.9       |
| 150°-160° | 219.7  | 7.5       |
| 160°-170° | 145.8  | 5.0       |
| 170°-180° | 50.8   | 1.7       |
| 0°-30°    | 433.1  | 14.9      |
| 0°-40°    | 690.9  | 23.7      |
| 0°-60°    | 1164.3 | 39.9      |
| 0°-90°    | 1434.0 | 49.2      |
| 90°-120°  | 304.8  | 10.5      |
| 90°-150°  | 1065.4 | 36.5      |
| 90°-180°  | 1482.0 | 50.8      |
| 0°-180°   | 2915.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°  | 45° | 90° | 135° | 180° | Flux |
|------|-----|-----|-----|------|------|------|
| 0°   | 579 | 579 | 579 | 579  | 579  |      |
| 5°   | 580 | 576 | 572 | 575  | 579  | 55   |
| 15°  | 551 | 547 | 543 | 544  | 549  | 155  |
| 25°  | 497 | 495 | 481 | 491  | 492  | 229  |
| 35°  | 424 | 419 | 398 | 413  | 418  | 265  |
| 45°  | 340 | 333 | 314 | 328  | 334  | 263  |
| 55°  | 254 | 249 | 232 | 244  | 247  | 226  |
| 65°  | 168 | 164 | 152 | 160  | 162  | 166  |
| 75°  | 86  | 83  | 77  | 80   | 80   | 92   |
| 85°  | 20  | 20  | 18  | 19   | 18   | 22   |
| 90°  | 1   | 1   | 1   | 1    | 1    | 3    |
| 95°  | 23  | 26  | 25  | 23   | 18   | 25   |
| 105° | 93  | 97  | 96  | 94   | 86   | 98   |
| 115° | 179 | 183 | 180 | 178  | 171  | 177  |
| 125° | 262 | 268 | 265 | 261  | 254  | 234  |
| 135° | 342 | 349 | 346 | 342  | 332  | 264  |
| 145° | 415 | 424 | 418 | 418  | 406  | 260  |
| 155° | 478 | 483 | 481 | 478  | 469  | 220  |
| 165° | 521 | 520 | 517 | 516  | 515  | 147  |
| 175° | 543 | 536 | 526 | 535  | 539  | 52   |
| 180° | 537 | 537 | 537 | 537  | 537  |      |



TEST NUMBER: P199513

CATALOG NUMBER: S124-DIW-ULO-LO-30-0048-1D-UDD-1-5-W

**CANDELA DISTRIBUTION (FULL):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   | 112.5° | 135°  | 157.5° | 180°  |
|--------|-------|-------|-------|-------|-------|--------|-------|--------|-------|
| 0°     | 578.6 | 578.6 | 578.6 | 578.6 | 578.6 | 578.6  | 578.6 | 578.6  | 578.6 |
| 2.5°   | 582.8 | 576.2 | 578.3 | 576.9 | 573.0 | 576.9  | 577.9 | 575.8  | 582.1 |
| 5°     | 580.0 | 573.7 | 575.8 | 573.7 | 572.0 | 573.4  | 575.1 | 572.7  | 579.0 |
| 7.5°   | 575.8 | 569.2 | 570.9 | 569.2 | 567.4 | 568.8  | 569.9 | 567.8  | 574.4 |
| 10°    | 569.9 | 562.9 | 564.6 | 562.5 | 560.4 | 561.8  | 562.9 | 560.8  | 567.4 |
| 12.5°  | 561.5 | 554.9 | 556.2 | 554.9 | 553.1 | 553.5  | 554.2 | 552.1  | 559.0 |
| 15°    | 551.4 | 544.7 | 547.2 | 545.8 | 543.3 | 544.7  | 544.4 | 541.9  | 548.6 |
| 17.5°  | 539.8 | 533.5 | 536.3 | 534.9 | 531.4 | 533.5  | 533.5 | 529.7  | 536.7 |
| 20°    | 527.2 | 520.6 | 524.4 | 520.9 | 517.1 | 519.2  | 520.9 | 516.4  | 523.4 |
| 22.5°  | 513.2 | 506.2 | 510.8 | 504.5 | 500.3 | 502.7  | 506.9 | 502.0  | 508.3 |
| 25°    | 496.8 | 491.2 | 495.4 | 486.6 | 481.0 | 484.5  | 491.2 | 486.3  | 492.2 |
| 27.5°  | 480.7 | 475.1 | 478.6 | 468.8 | 461.1 | 465.6  | 474.0 | 469.8  | 475.1 |
| 30°    | 462.8 | 458.3 | 460.0 | 448.5 | 440.5 | 445.3  | 455.1 | 452.7  | 456.9 |
| 32.5°  | 443.3 | 439.8 | 439.8 | 427.5 | 419.1 | 424.7  | 435.2 | 434.5  | 437.3 |
| 35°    | 423.7 | 421.6 | 419.1 | 405.8 | 397.8 | 403.0  | 413.2 | 416.0  | 417.7 |
| 37.5°  | 403.7 | 402.3 | 397.8 | 384.8 | 377.1 | 382.7  | 392.2 | 396.4  | 397.4 |
| 40°    | 383.1 | 382.4 | 376.1 | 363.8 | 356.1 | 361.7  | 371.5 | 376.8  | 376.4 |
| 42.5°  | 362.1 | 362.8 | 355.1 | 343.2 | 335.5 | 341.1  | 350.2 | 357.2  | 355.4 |
| 45°    | 340.4 | 342.5 | 333.4 | 322.6 | 314.5 | 320.5  | 327.8 | 336.5  | 333.7 |
| 47.5°  | 319.4 | 321.9 | 312.4 | 301.2 | 293.5 | 299.8  | 307.2 | 316.6  | 312.4 |
| 50°    | 295.6 | 300.5 | 291.4 | 280.2 | 272.5 | 278.5  | 287.2 | 295.3  | 290.4 |
| 52.5°  | 275.0 | 278.5 | 270.4 | 259.6 | 252.2 | 257.1  | 265.9 | 273.9  | 268.7 |
| 55°    | 253.6 | 257.5 | 249.4 | 238.6 | 231.6 | 236.5  | 244.2 | 252.2  | 247.0 |
| 57.5°  | 231.2 | 235.1 | 227.7 | 218.0 | 211.3 | 216.6  | 224.6 | 230.2  | 225.3 |
| 60°    | 209.6 | 214.5 | 206.4 | 197.0 | 191.4 | 195.6  | 201.9 | 208.5  | 203.6 |
| 62.5°  | 188.6 | 193.1 | 185.4 | 176.7 | 171.4 | 175.3  | 181.9 | 187.2  | 182.6 |
| 65°    | 168.3 | 171.1 | 164.4 | 156.4 | 151.8 | 154.3  | 160.2 | 166.2  | 161.6 |
| 67.5°  | 147.6 | 150.4 | 143.8 | 136.8 | 132.2 | 134.7  | 139.6 | 145.2  | 141.0 |
| 70°    | 126.6 | 129.1 | 123.5 | 117.2 | 113.3 | 115.8  | 120.3 | 124.5  | 120.7 |
| 72.5°  | 106.7 | 108.5 | 103.2 | 98.3  | 95.5  | 97.3   | 100.4 | 104.3  | 102.5 |
| 75°    | 86.4  | 88.5  | 83.3  | 79.1  | 76.6  | 77.3   | 79.8  | 82.9   | 80.1  |
| 77.5°  | 67.2  | 69.3  | 65.1  | 61.9  | 60.5  | 60.9   | 62.6  | 65.1   | 61.6  |
| 80°    | 49.3  | 51.1  | 48.6  | 45.8  | 44.4  | 45.1   | 46.2  | 47.6   | 46.2  |
| 82.5°  | 33.2  | 35.0  | 33.2  | 31.5  | 30.4  | 31.1   | 31.5  | 32.2   | 31.1  |
| 85°    | 19.6  | 21.0  | 19.9  | 18.9  | 18.5  | 18.5   | 18.9  | 19.6   | 18.5  |
| 87.5°  | 8.7   | 9.8   | 9.1   | 8.4   | 7.3   | 7.7    | 8.0   | 8.7    | 8.0   |
| 90°    | 0.7   | 1.7   | 1.4   | 1.0   | 1.0   | 1.0    | 1.4   | 1.7    | 0.7   |
| 92.5°  | 10.5  | 11.9  | 12.2  | 11.2  | 11.2  | 10.8   | 10.1  | 9.8    | 6.3   |
| 95°    | 23.1  | 25.2  | 25.5  | 25.5  | 24.8  | 24.1   | 23.4  | 21.7   | 17.8  |
| 97.5°  | 37.4  | 39.9  | 40.6  | 39.9  | 40.2  | 39.5   | 37.8  | 36.0   | 32.2  |
| 100°   | 53.9  | 57.0  | 57.7  | 57.0  | 57.4  | 55.6   | 54.9  | 53.2   | 48.6  |
| 102.5° | 72.1  | 75.9  | 76.3  | 75.6  | 75.6  | 74.2   | 73.5  | 71.4   | 66.8  |
| 105°   | 92.7  | 96.9  | 97.3  | 95.9  | 95.9  | 94.5   | 93.8  | 91.7   | 86.4  |
| 107.5° | 113.7 | 117.9 | 117.9 | 116.5 | 116.5 | 115.4  | 114.0 | 112.6  | 107.4 |
| 110°   | 135.4 | 138.9 | 139.6 | 137.8 | 137.5 | 136.4  | 135.0 | 132.9  | 128.4 |



TEST NUMBER: P199513

CATALOG NUMBER: S124-DIW-ULO-LO-30-0048-1D-UDD-1-5-W

**CANDELA DISTRIBUTION (continued):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   | 112.5° | 135°  | 157.5° | 180°  |
|--------|-------|-------|-------|-------|-------|--------|-------|--------|-------|
| 112.5° | 157.1 | 160.6 | 161.3 | 159.2 | 158.8 | 156.7  | 156.4 | 153.9  | 149.4 |
| 115°   | 178.8 | 182.3 | 183.3 | 180.9 | 180.2 | 177.7  | 177.7 | 175.3  | 171.1 |
| 117.5° | 199.8 | 204.0 | 205.0 | 202.2 | 201.9 | 199.8  | 198.4 | 196.3  | 191.7 |
| 120°   | 220.8 | 226.0 | 226.7 | 223.5 | 223.2 | 220.8  | 220.1 | 217.3  | 212.7 |
| 122.5° | 241.7 | 247.0 | 248.0 | 245.2 | 244.2 | 241.0  | 240.7 | 238.2  | 233.3 |
| 125°   | 261.7 | 267.6 | 267.6 | 266.2 | 265.2 | 262.7  | 261.3 | 258.5  | 253.6 |
| 127.5° | 282.3 | 288.6 | 288.3 | 287.2 | 286.2 | 282.7  | 281.6 | 278.8  | 273.6 |
| 130°   | 302.6 | 308.2 | 308.2 | 307.5 | 306.8 | 303.7  | 301.9 | 299.1  | 293.2 |
| 132.5° | 322.6 | 328.2 | 328.9 | 327.1 | 326.4 | 322.2  | 322.6 | 319.1  | 313.1 |
| 135°   | 342.1 | 347.0 | 348.8 | 346.0 | 345.6 | 341.1  | 342.5 | 337.9  | 332.0 |
| 137.5° | 361.4 | 365.2 | 368.4 | 364.9 | 364.5 | 360.0  | 362.1 | 356.1  | 350.9 |
| 140°   | 380.3 | 383.4 | 387.6 | 383.4 | 382.7 | 378.5  | 380.6 | 374.3  | 369.8 |
| 142.5° | 398.1 | 400.9 | 406.2 | 401.6 | 400.6 | 396.7  | 399.2 | 391.8  | 387.6 |
| 145°   | 415.3 | 417.4 | 424.4 | 419.5 | 418.1 | 414.6  | 417.7 | 408.6  | 405.5 |
| 147.5° | 432.4 | 433.5 | 441.5 | 437.0 | 434.9 | 432.1  | 435.2 | 425.1  | 422.6 |
| 150°   | 448.5 | 448.5 | 456.5 | 453.0 | 451.3 | 448.1  | 450.2 | 440.5  | 438.7 |
| 152.5° | 463.5 | 462.8 | 470.2 | 468.1 | 467.0 | 463.5  | 464.2 | 455.1  | 454.1 |
| 155°   | 477.5 | 476.1 | 482.8 | 481.7 | 481.0 | 477.5  | 477.5 | 468.4  | 468.8 |
| 157.5° | 490.8 | 488.0 | 494.3 | 494.0 | 492.6 | 489.8  | 489.1 | 481.0  | 482.1 |
| 160°   | 502.4 | 499.9 | 504.1 | 503.4 | 502.4 | 499.6  | 499.6 | 492.6  | 494.3 |
| 162.5° | 512.5 | 509.4 | 512.9 | 510.8 | 510.4 | 507.3  | 508.7 | 502.7  | 505.2 |
| 165°   | 521.3 | 518.1 | 519.9 | 517.1 | 516.7 | 513.9  | 516.4 | 512.2  | 515.0 |
| 167.5° | 529.0 | 525.5 | 525.1 | 522.7 | 522.0 | 519.9  | 522.7 | 520.2  | 523.4 |
| 170°   | 534.9 | 531.4 | 530.4 | 526.2 | 525.5 | 523.7  | 527.9 | 527.2  | 530.0 |
| 172.5° | 539.5 | 536.0 | 533.5 | 528.6 | 526.2 | 526.5  | 532.1 | 532.1  | 535.3 |
| 175°   | 542.6 | 538.8 | 536.0 | 531.1 | 526.5 | 529.3  | 535.3 | 535.6  | 539.1 |
| 177.5° | 543.3 | 539.5 | 537.0 | 532.5 | 530.7 | 531.1  | 537.4 | 537.4  | 541.2 |
| 180°   | 536.7 | 536.7 | 536.7 | 536.7 | 536.7 | 536.7  | 536.7 | 536.7  | 536.7 |

(END OF REPORT)