

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P919283

Luminaire Tested: DFN2DIP-PN2F0-050D030US935-RLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P919283  
REPORT IS A COMBINATION OF REPORTS P900998 AND P897905  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN2F0-050D030US935-RLLONL  
Description: 2 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

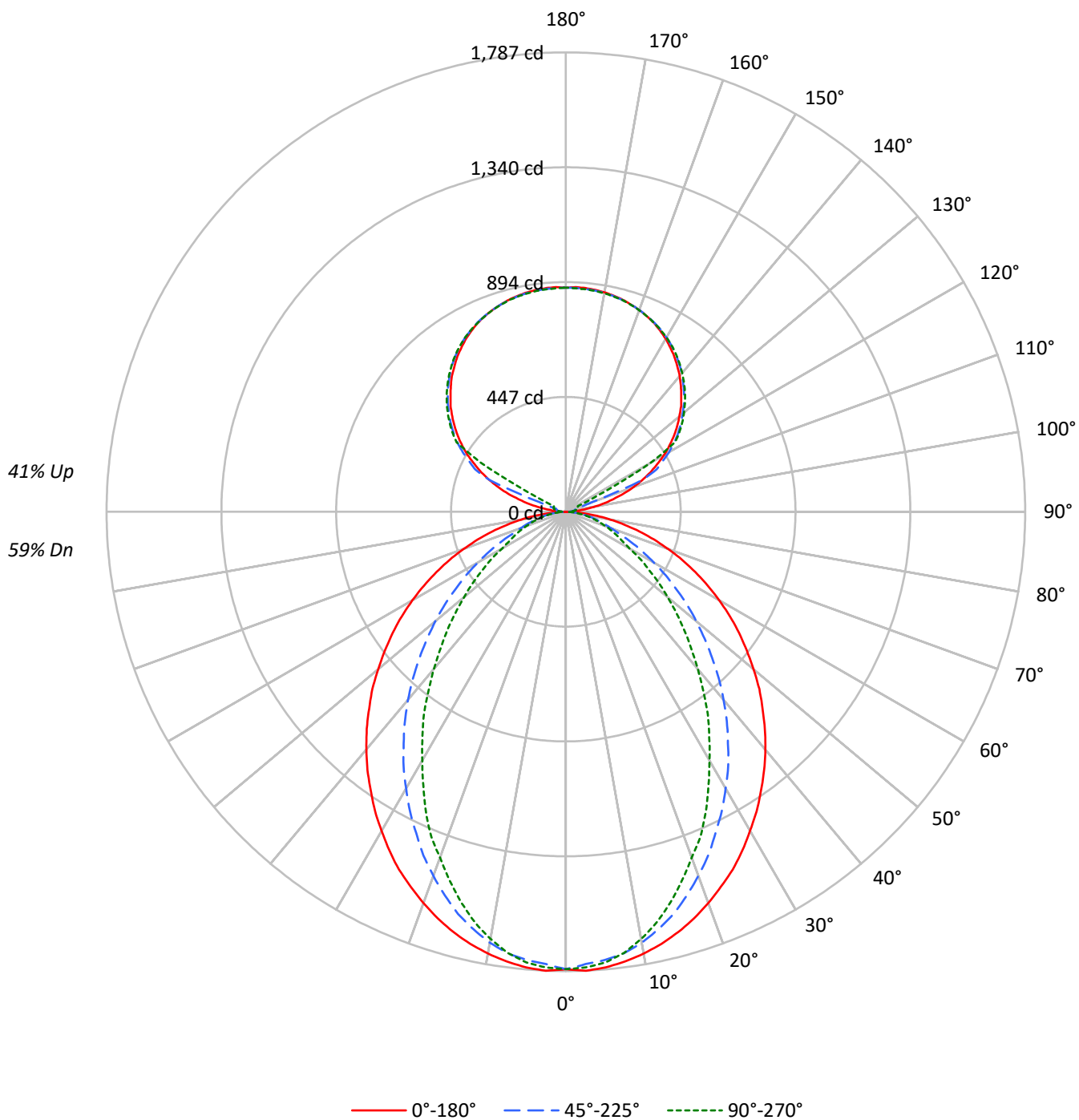
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6216.5 lumens  
Efficiency: N/A  
Efficacy: 88.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.17' x L: 2.29' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 69.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9821  
Total Harmonic Distortion (THDi): 0.08  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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### Luminous Intensity Polar Plot



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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20 |    |    |    | 20 |    |    |    | 20 |
| RC  | 80  |     |     |     | 70  |     |     |     | 50 |    |    |    | 30 |    |    |    | 10 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 |
| RCR |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |
| 0   | 109 | 109 | 109 | 109 | 102 | 102 | 102 | 102 | 88 | 88 | 88 | 76 | 76 | 76 | 64 | 64 | 64 |
| 1   | 100 | 96  | 92  | 89  | 94  | 90  | 87  | 84  | 78 | 76 | 74 | 68 | 66 | 64 | 58 | 57 | 55 |
| 2   | 92  | 85  | 79  | 74  | 86  | 79  | 74  | 70  | 69 | 65 | 62 | 60 | 57 | 55 | 51 | 49 | 48 |
| 3   | 84  | 75  | 68  | 62  | 78  | 70  | 64  | 59  | 62 | 57 | 53 | 54 | 50 | 47 | 46 | 43 | 41 |
| 4   | 77  | 67  | 59  | 53  | 72  | 63  | 56  | 51  | 55 | 50 | 46 | 48 | 44 | 41 | 42 | 39 | 36 |
| 5   | 71  | 60  | 52  | 46  | 66  | 56  | 49  | 44  | 50 | 44 | 40 | 44 | 39 | 36 | 38 | 34 | 32 |
| 6   | 66  | 54  | 46  | 40  | 61  | 51  | 44  | 38  | 45 | 39 | 35 | 40 | 35 | 32 | 35 | 31 | 28 |
| 7   | 61  | 49  | 41  | 36  | 57  | 46  | 39  | 34  | 41 | 35 | 31 | 36 | 32 | 28 | 32 | 28 | 25 |
| 8   | 57  | 45  | 37  | 32  | 53  | 42  | 35  | 30  | 38 | 32 | 28 | 33 | 29 | 25 | 29 | 26 | 23 |
| 9   | 53  | 41  | 34  | 29  | 50  | 39  | 32  | 27  | 35 | 29 | 25 | 31 | 26 | 23 | 27 | 23 | 21 |
| 10  | 50  | 38  | 31  | 26  | 46  | 36  | 29  | 25  | 32 | 27 | 23 | 29 | 24 | 21 | 25 | 22 | 19 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3854 | 3854 | 3854 |
| 5°  | 3854 | 3784 | 3811 |
| 10° | 3809 | 3702 | 3681 |
| 15° | 3751 | 3572 | 3485 |
| 20° | 3675 | 3395 | 3245 |
| 25° | 3598 | 3199 | 3014 |
| 30° | 3496 | 2999 | 2722 |
| 35° | 3396 | 2784 | 2467 |
| 40° | 3293 | 2563 | 2174 |
| 45° | 3176 | 2319 | 1909 |
| 50° | 3053 | 2073 | 1651 |
| 55° | 2924 | 1811 | 1404 |
| 60° | 2775 | 1539 | 1150 |
| 65° | 2603 | 1264 | 1029 |
| 70° | 2394 | 1007 | 923  |
| 75° | 2132 | 871  | 829  |
| 80° | 1754 | 708  | 701  |
| 85° | 1146 | 441  | 498  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3176 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 166.8  | 2.7       |
| 10°-20°   | 457.8  | 7.4       |
| 20°-30°   | 642.7  | 10.3      |
| 30°-40°   | 700.6  | 11.3      |
| 40°-50°   | 643.9  | 10.4      |
| 50°-60°   | 505.7  | 8.1       |
| 60°-70°   | 329.2  | 5.3       |
| 70°-80°   | 169.5  | 2.7       |
| 80°-90°   | 44.8   | 0.7       |
| 90°-100°  | 28.7   | 0.5       |
| 100°-110° | 107.2  | 1.7       |
| 110°-120° | 284.2  | 4.6       |
| 120°-130° | 471.3  | 7.6       |
| 130°-140° | 500.7  | 8.1       |
| 140°-150° | 465.3  | 7.5       |
| 150°-160° | 374.1  | 6.0       |
| 160°-170° | 241.1  | 3.9       |
| 170°-180° | 83.0   | 1.3       |
| 0°-30°    | 1267.2 | 20.4      |
| 0°-40°    | 1967.8 | 31.7      |
| 0°-60°    | 3117.4 | 50.1      |
| 0°-90°    | 3660.8 | 58.9      |
| 90°-120°  | 420.1  | 6.8       |
| 90°-150°  | 1857.5 | 29.9      |
| 90°-180°  | 2556.0 | 41.1      |
| 0°-180°   | 6216.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1779 | 1779  | 1779 | 1779  | 1779 |      |
| 5°   | 1779 | 1771  | 1750 | 1765  | 1760 | 169  |
| 15°  | 1692 | 1675  | 1620 | 1589  | 1573 | 477  |
| 25°  | 1536 | 1484  | 1378 | 1312  | 1288 | 706  |
| 35°  | 1324 | 1242  | 1100 | 998   | 963  | 828  |
| 45°  | 1082 | 974   | 805  | 691   | 652  | 836  |
| 55°  | 823  | 697   | 523  | 427   | 396  | 735  |
| 65°  | 556  | 425   | 280  | 226   | 221  | 551  |
| 75°  | 296  | 184   | 129  | 118   | 116  | 313  |
| 85°  | 69   | 35    | 31   | 31    | 31   | 79   |
| 90°  | 1    | 8     | 13   | 16    | 17   | 6    |
| 95°  | 41   | 20    | 24   | 28    | 27   | 49   |
| 105° | 192  | 211   | 38   | 45    | 48   | 205  |
| 115° | 363  | 373   | 389  | 97    | 52   | 357  |
| 125° | 513  | 521   | 533  | 537   | 539  | 457  |
| 135° | 635  | 645   | 650  | 657   | 655  | 490  |
| 145° | 736  | 736   | 746  | 751   | 747  | 460  |
| 155° | 810  | 805   | 812  | 816   | 811  | 373  |
| 165° | 854  | 850   | 852  | 857   | 852  | 241  |
| 175° | 874  | 869   | 870  | 875   | 869  | 83   |
| 180° | 872  | 872   | 872  | 872   | 872  |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1779.3 | 1779.3 | 1779.3 | 1779.3 | 1779.3 |
| 2.5°   | 1787.3 | 1779.3 | 1761.5 | 1777.7 | 1774.4 |
| 5°     | 1779.3 | 1771.2 | 1750.2 | 1764.7 | 1760.0 |
| 7.5°   | 1764.7 | 1755.1 | 1732.6 | 1739.0 | 1730.9 |
| 10°    | 1745.4 | 1734.1 | 1702.0 | 1697.1 | 1687.5 |
| 12.5°  | 1721.3 | 1706.8 | 1663.3 | 1653.7 | 1635.9 |
| 15°    | 1692.3 | 1674.6 | 1619.9 | 1589.3 | 1573.2 |
| 17.5°  | 1658.5 | 1632.7 | 1565.0 | 1529.6 | 1503.8 |
| 20°    | 1619.9 | 1587.6 | 1507.1 | 1467.0 | 1431.4 |
| 22.5°  | 1578.0 | 1540.9 | 1447.5 | 1392.8 | 1368.7 |
| 25°    | 1536.1 | 1484.5 | 1378.3 | 1312.3 | 1288.1 |
| 27.5°  | 1486.3 | 1431.4 | 1313.9 | 1238.2 | 1201.2 |
| 30°    | 1433.1 | 1371.8 | 1243.0 | 1161.0 | 1117.4 |
| 32.5°  | 1381.6 | 1307.4 | 1175.5 | 1078.8 | 1038.5 |
| 35°    | 1323.6 | 1241.5 | 1099.8 | 998.3  | 962.9  |
| 37.5°  | 1267.2 | 1178.6 | 1029.0 | 917.7  | 877.6  |
| 40°    | 1207.6 | 1111.1 | 954.8  | 840.5  | 798.7  |
| 42.5°  | 1146.5 | 1043.4 | 880.8  | 761.6  | 721.4  |
| 45°    | 1082.1 | 974.1  | 805.1  | 690.7  | 652.0  |
| 47.5°  | 1020.9 | 906.6  | 732.7  | 618.3  | 582.9  |
| 50°    | 953.3  | 839.0  | 661.8  | 550.6  | 516.9  |
| 52.5°  | 887.2  | 766.4  | 594.2  | 487.9  | 457.4  |
| 55°    | 822.8  | 697.1  | 523.2  | 426.7  | 396.1  |
| 57.5°  | 756.8  | 628.0  | 460.5  | 370.4  | 344.6  |
| 60°    | 689.1  | 560.3  | 394.4  | 312.5  | 286.6  |
| 62.5°  | 623.2  | 494.4  | 338.1  | 260.9  | 248.1  |
| 65°    | 555.5  | 425.1  | 280.2  | 225.5  | 220.6  |
| 67.5°  | 491.1  | 360.7  | 225.5  | 198.0  | 193.2  |
| 70°    | 423.5  | 297.9  | 186.8  | 170.6  | 164.2  |
| 72.5°  | 359.1  | 239.9  | 156.2  | 143.4  | 140.1  |
| 75°    | 296.3  | 183.5  | 128.8  | 117.5  | 116.0  |
| 77.5°  | 233.5  | 130.4  | 101.5  | 95.0   | 91.7   |
| 80°    | 175.5  | 93.4   | 77.2   | 70.9   | 70.9   |
| 82.5°  | 122.3  | 62.9   | 53.1   | 49.9   | 49.9   |
| 85°    | 69.2   | 35.4   | 30.6   | 30.6   | 30.6   |
| 87.5°  | 25.8   | 12.8   | 12.8   | 11.3   | 11.3   |
| 90°    | 0.6    | 7.6    | 12.6   | 15.8   | 17.0   |
| 92.5°  | 15.8   | 13.3   | 15.2   | 16.4   | 17.0   |
| 95°    | 41.0   | 20.1   | 24.5   | 27.8   | 27.1   |
| 97.5°  | 73.8   | 22.1   | 32.1   | 34.1   | 34.7   |
| 100°   | 111.7  | 25.2   | 36.0   | 41.0   | 42.3   |
| 102.5° | 153.3  | 152.1  | 37.2   | 44.1   | 46.1   |
| 105°   | 191.7  | 210.7  | 38.5   | 45.4   | 48.0   |
| 107.5° | 236.5  | 252.3  | 39.8   | 46.7   | 49.2   |
| 110°   | 279.5  | 292.7  | 110.4  | 47.4   | 49.9   |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 112.5° | 319.9 | 331.1 | 320.5 | 48.6  | 50.5  |
| 115°   | 362.7 | 373.4 | 389.2 | 97.1  | 51.7  |
| 117.5° | 399.9 | 412.5 | 423.3 | 333.0 | 167.8 |
| 120°   | 441.5 | 451.0 | 462.4 | 469.9 | 384.8 |
| 122.5° | 476.8 | 487.0 | 499.6 | 503.3 | 504.0 |
| 125°   | 512.8 | 521.0 | 533.0 | 537.4 | 539.3 |
| 127.5° | 545.6 | 554.4 | 564.0 | 570.2 | 570.8 |
| 130°   | 576.5 | 586.7 | 593.6 | 600.5 | 599.9 |
| 132.5° | 608.0 | 616.3 | 623.2 | 628.9 | 628.3 |
| 135°   | 634.6 | 644.7 | 650.3 | 656.7 | 655.4 |
| 137.5° | 662.3 | 669.9 | 676.2 | 682.5 | 680.6 |
| 140°   | 689.4 | 694.5 | 701.4 | 707.1 | 704.0 |
| 142.5° | 712.2 | 716.6 | 724.8 | 729.8 | 726.7 |
| 145°   | 736.2 | 735.5 | 746.2 | 750.6 | 747.4 |
| 147.5° | 756.9 | 755.0 | 765.8 | 768.9 | 766.4 |
| 150°   | 777.1 | 772.7 | 782.8 | 786.5 | 783.4 |
| 152.5° | 794.1 | 789.1 | 798.6 | 802.4 | 798.0 |
| 155°   | 810.5 | 804.9 | 812.4 | 816.2 | 811.2 |
| 157.5° | 823.8 | 818.8 | 824.5 | 828.9 | 823.8 |
| 160°   | 835.2 | 831.4 | 835.2 | 839.0 | 834.5 |
| 162.5° | 845.2 | 841.5 | 844.6 | 849.0 | 843.3 |
| 165°   | 854.0 | 850.3 | 852.2 | 856.6 | 852.2 |
| 167.5° | 861.0 | 857.2 | 859.1 | 863.6 | 857.9 |
| 170°   | 866.7 | 862.9 | 864.2 | 868.6 | 862.9 |
| 172.5° | 870.5 | 866.7 | 868.0 | 872.4 | 866.7 |
| 175°   | 873.6 | 869.2 | 870.5 | 874.9 | 868.6 |
| 177.5° | 874.9 | 870.5 | 871.2 | 875.5 | 869.9 |
| 180°   | 871.8 | 871.8 | 871.8 | 871.8 | 871.8 |

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**CIE UGR TABLE:**

| Reflectances:   |      |                  |       |       |       |       |                |       |       |       |       |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling         |      | 0.7              | 0.7   | 0.5   | 0.5   | 0.3   | 0.7            | 0.7   | 0.5   | 0.5   | 0.3   |
| Wall            |      | 0.5              | 0.3   | 0.5   | 0.3   | 0.3   | 0.5            | 0.3   | 0.5   | 0.3   | 0.3   |
| Reference plane |      | 0.2              | 0.2   | 0.2   | 0.2   | 0.2   | 0.2            | 0.2   | 0.2   | 0.2   | 0.2   |
| Room dimensions |      | Viewed crosswise |       |       |       |       | Viewed endwise |       |       |       |       |
| X=2H            | Y=2H | 12.51            | 13.42 | 13.39 | 14.32 | 15.46 | 8.48           | 9.39  | 9.36  | 10.29 | 11.43 |
|                 | 3H   | 14.17            | 14.98 | 15.07 | 15.89 | 17.06 | 9.66           | 10.47 | 10.55 | 11.38 | 12.54 |
|                 | 4H   | 14.77            | 15.54 | 15.68 | 16.45 | 17.63 | 10.10          | 10.86 | 11.01 | 11.78 | 12.96 |
|                 | 6H   | 15.18            | 15.89 | 16.10 | 16.81 | 18.00 | 10.41          | 11.11 | 11.33 | 12.03 | 13.22 |
|                 | 8H   | 15.30            | 15.97 | 16.23 | 16.91 | 18.10 | 10.49          | 11.16 | 11.42 | 12.10 | 13.29 |
|                 | 12H  | 15.36            | 15.99 | 16.29 | 16.93 | 18.14 | 10.53          | 11.17 | 11.47 | 12.10 | 13.31 |
| 4H              | 2H   | 12.53            | 13.30 | 13.45 | 14.21 | 15.39 | 9.07           | 9.84  | 9.99  | 10.75 | 11.93 |
|                 | 3H   | 14.35            | 14.98 | 15.27 | 15.93 | 17.12 | 10.41          | 11.05 | 11.34 | 11.99 | 13.18 |
|                 | 4H   | 15.03            | 15.61 | 15.96 | 16.55 | 17.76 | 10.95          | 11.53 | 11.88 | 12.47 | 13.68 |
|                 | 6H   | 15.52            | 16.02 | 16.48 | 16.99 | 18.21 | 11.35          | 11.85 | 12.30 | 12.81 | 14.03 |
|                 | 8H   | 15.69            | 16.16 | 16.64 | 17.11 | 18.35 | 11.47          | 11.94 | 12.42 | 12.90 | 14.13 |
|                 | 12H  | 15.78            | 16.20 | 16.75 | 17.17 | 18.41 | 11.53          | 11.95 | 12.50 | 12.93 | 14.16 |
| 8H              | 4H   | 14.99            | 15.46 | 15.95 | 16.42 | 17.65 | 11.22          | 11.69 | 12.17 | 12.64 | 13.87 |
|                 | 6H   | 15.54            | 15.93 | 16.52 | 16.93 | 18.16 | 11.72          | 12.10 | 12.70 | 13.10 | 14.33 |
|                 | 8H   | 15.74            | 16.08 | 16.73 | 17.07 | 18.32 | 11.90          | 12.24 | 12.88 | 13.22 | 14.47 |
|                 | 12H  | 15.87            | 16.17 | 16.86 | 17.15 | 18.45 | 12.00          | 12.30 | 12.99 | 13.29 | 14.58 |
| 12H             | 4H   | 14.95            | 15.37 | 15.92 | 16.34 | 17.58 | 11.22          | 11.64 | 12.20 | 12.62 | 13.86 |
|                 | 6H   | 15.51            | 15.86 | 16.50 | 16.84 | 18.09 | 11.76          | 12.10 | 12.75 | 13.09 | 14.34 |
|                 | 8H   | 15.72            | 16.02 | 16.71 | 17.01 | 18.30 | 11.96          | 12.26 | 12.95 | 13.24 | 14.54 |