

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: P913860

Luminaire Tested: DFN2DIP-PN3F0-030D030US927-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P913860  
REPORT IS A COMBINATION OF REPORTS P899511 AND P896399  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-030D030US927-FLLFLL  
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

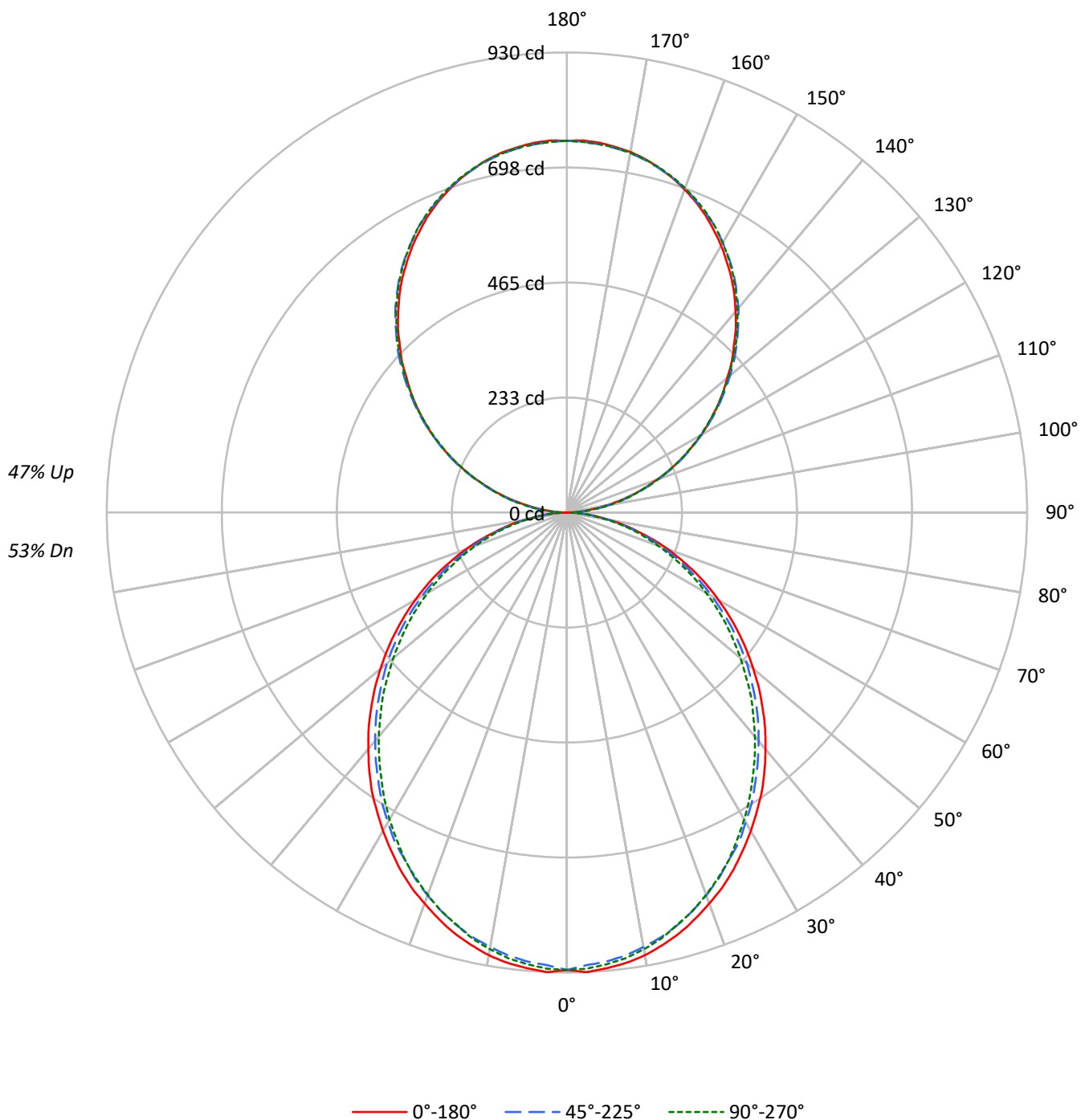
Lumens per Lamp: N/A  
Luminaire Lumens: 4456.0 lumens  
Efficiency: N/A  
Efficacy: 94.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 47.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.099  
Total Harmonic Distortion (THDi): 0.979  
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



TEST NUMBER: P913860

CATALOG NUMBER: DFN2DIP-PN3F0-030D030US927-FLLFLL

**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   | 108 | 108 | 108 | 108 | 100 | 100 | 100 | 100 | 85 | 85 | 85 |  | 71 | 71 | 71 |  | 59 | 59 | 59 | 53 |
| 1   | 98  | 94  | 90  | 87  | 91  | 87  | 84  | 81  | 74 | 72 | 70 |  | 63 | 61 | 59 |  | 52 | 51 | 50 | 45 |
| 2   | 90  | 82  | 76  | 71  | 83  | 76  | 71  | 66  | 65 | 61 | 58 |  | 55 | 52 | 50 |  | 46 | 44 | 42 | 37 |
| 3   | 82  | 72  | 65  | 59  | 75  | 67  | 61  | 55  | 58 | 53 | 49 |  | 49 | 45 | 42 |  | 41 | 38 | 36 | 32 |
| 4   | 75  | 64  | 56  | 50  | 69  | 60  | 52  | 47  | 51 | 46 | 41 |  | 43 | 39 | 36 |  | 36 | 33 | 31 | 27 |
| 5   | 69  | 57  | 49  | 43  | 63  | 53  | 46  | 40  | 46 | 40 | 36 |  | 39 | 35 | 31 |  | 33 | 29 | 27 | 24 |
| 6   | 63  | 51  | 43  | 37  | 58  | 48  | 40  | 35  | 41 | 36 | 31 |  | 35 | 31 | 27 |  | 30 | 26 | 24 | 21 |
| 7   | 59  | 46  | 38  | 33  | 54  | 43  | 36  | 31  | 37 | 32 | 28 |  | 32 | 28 | 24 |  | 27 | 24 | 21 | 18 |
| 8   | 54  | 42  | 34  | 29  | 50  | 39  | 32  | 27  | 34 | 29 | 24 |  | 29 | 25 | 22 |  | 25 | 21 | 19 | 16 |
| 9   | 51  | 38  | 31  | 26  | 47  | 36  | 29  | 24  | 31 | 26 | 22 |  | 27 | 23 | 19 |  | 23 | 20 | 17 | 15 |
| 10  | 47  | 35  | 28  | 23  | 44  | 33  | 26  | 22  | 29 | 23 | 20 |  | 25 | 21 | 18 |  | 21 | 18 | 15 | 13 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1081 | 1081 | 1081 |
| 5°  | 1082 | 1065 | 1073 |
| 10° | 1073 | 1050 | 1058 |
| 15° | 1056 | 1032 | 1034 |
| 20° | 1034 | 1007 | 1011 |
| 25° | 1012 | 978  | 983  |
| 30° | 985  | 950  | 949  |
| 35° | 959  | 918  | 912  |
| 40° | 928  | 885  | 878  |
| 45° | 896  | 852  | 842  |
| 50° | 861  | 818  | 801  |
| 55° | 825  | 778  | 763  |
| 60° | 784  | 731  | 719  |
| 65° | 739  | 682  | 667  |
| 70° | 682  | 622  | 612  |
| 75° | 602  | 551  | 560  |
| 80° | 507  | 459  | 462  |
| 85° | 357  | 304  | 301  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 896 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 87.0   | 2.0       |
| 10°-20°   | 244.9  | 5.5       |
| 20°-30°   | 359.9  | 8.1       |
| 30°-40°   | 418.0  | 9.4       |
| 40°-50°   | 417.5  | 9.4       |
| 50°-60°   | 364.0  | 8.2       |
| 60°-70°   | 269.1  | 6.0       |
| 70°-80°   | 152.3  | 3.4       |
| 80°-90°   | 42.3   | 0.9       |
| 90°-100°  | 46.5   | 1.0       |
| 100°-110° | 147.8  | 3.3       |
| 110°-120° | 252.9  | 5.7       |
| 120°-130° | 332.6  | 7.5       |
| 130°-140° | 373.3  | 8.4       |
| 140°-150° | 366.1  | 8.2       |
| 150°-160° | 307.1  | 6.9       |
| 160°-170° | 203.7  | 4.6       |
| 170°-180° | 71.2   | 1.6       |
| 0°-30°    | 691.8  | 15.5      |
| 0°-40°    | 1109.8 | 24.9      |
| 0°-60°    | 1891.3 | 42.4      |
| 0°-90°    | 2354.9 | 52.8      |
| 90°-120°  | 447.2  | 10.0      |
| 90°-150°  | 1519.2 | 34.1      |
| 90°-180°  | 2101.0 | 47.1      |
| 0°-180°   | 4456.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-----|-------|-----|-------|-----|------|
| 0°   | 925 | 925   | 925 | 925   | 925 |      |
| 5°   | 925 | 921   | 911 | 918   | 917 | 88   |
| 15°  | 880 | 875   | 863 | 867   | 862 | 248  |
| 25°  | 797 | 790   | 774 | 776   | 774 | 367  |
| 35°  | 687 | 678   | 664 | 659   | 654 | 429  |
| 45°  | 559 | 553   | 540 | 530   | 526 | 432  |
| 55°  | 423 | 418   | 407 | 397   | 392 | 378  |
| 65°  | 286 | 280   | 271 | 263   | 259 | 282  |
| 75°  | 149 | 148   | 143 | 138   | 140 | 159  |
| 85°  | 36  | 36    | 35  | 32    | 31  | 41   |
| 90°  | 1   | 8     | 22  | 21    | 22  | 4    |
| 95°  | 33  | 40    | 41  | 41    | 40  | 37   |
| 105° | 136 | 138   | 140 | 141   | 141 | 144  |
| 115° | 254 | 257   | 256 | 256   | 254 | 251  |
| 125° | 369 | 375   | 373 | 371   | 370 | 330  |
| 135° | 477 | 484   | 486 | 485   | 483 | 369  |
| 145° | 580 | 584   | 588 | 588   | 586 | 362  |
| 155° | 663 | 665   | 667 | 670   | 668 | 305  |
| 165° | 721 | 720   | 720 | 725   | 722 | 203  |
| 175° | 750 | 748   | 747 | 752   | 748 | 71   |
| 180° | 752 | 752   | 752 | 752   | 752 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 0°     | 924.7 | 924.7 | 924.7 | 924.7 | 924.7 |
| 2.5°   | 930.1 | 925.7 | 915.8 | 924.7 | 923.0 |
| 5°     | 924.7 | 921.2 | 911.4 | 918.5 | 916.8 |
| 7.5°   | 918.5 | 913.2 | 903.4 | 910.6 | 908.8 |
| 10°    | 908.8 | 902.5 | 891.9 | 899.0 | 896.4 |
| 12.5°  | 895.4 | 890.1 | 879.5 | 883.8 | 882.1 |
| 15°    | 880.3 | 875.0 | 863.4 | 867.0 | 862.5 |
| 17.5°  | 861.6 | 856.3 | 844.7 | 849.1 | 844.7 |
| 20°    | 841.1 | 835.8 | 823.4 | 826.0 | 822.5 |
| 22.5°  | 820.8 | 812.8 | 801.1 | 801.1 | 799.3 |
| 25°    | 796.7 | 789.6 | 774.5 | 776.3 | 774.5 |
| 27.5°  | 770.0 | 763.7 | 752.3 | 749.6 | 745.2 |
| 30°    | 743.4 | 736.3 | 722.9 | 720.3 | 716.7 |
| 32.5°  | 714.9 | 709.6 | 695.4 | 690.0 | 686.4 |
| 35°    | 687.4 | 678.5 | 664.2 | 658.9 | 654.4 |
| 37.5°  | 656.2 | 648.2 | 634.0 | 627.7 | 623.3 |
| 40°    | 624.2 | 617.1 | 602.8 | 594.9 | 591.4 |
| 42.5°  | 593.1 | 586.0 | 571.8 | 562.8 | 557.5 |
| 45°    | 559.4 | 553.1 | 539.7 | 530.0 | 526.4 |
| 47.5°  | 526.4 | 520.2 | 506.0 | 496.1 | 490.8 |
| 50°    | 491.7 | 487.3 | 474.8 | 462.4 | 458.0 |
| 52.5°  | 458.0 | 451.7 | 440.2 | 430.4 | 424.1 |
| 55°    | 423.3 | 418.0 | 407.3 | 396.6 | 392.2 |
| 57.5°  | 388.6 | 384.1 | 372.6 | 361.9 | 358.3 |
| 60°    | 353.9 | 350.4 | 337.9 | 328.1 | 325.5 |
| 62.5°  | 320.1 | 313.9 | 305.0 | 296.1 | 292.6 |
| 65°    | 285.5 | 280.1 | 271.2 | 263.2 | 258.8 |
| 67.5°  | 249.9 | 245.4 | 237.4 | 231.2 | 227.7 |
| 70°    | 217.0 | 213.4 | 205.4 | 199.2 | 195.7 |
| 72.5°  | 183.2 | 179.6 | 175.2 | 169.0 | 166.4 |
| 75°    | 149.3 | 147.7 | 143.1 | 137.8 | 139.7 |
| 77.5°  | 119.1 | 115.6 | 113.8 | 111.1 | 108.5 |
| 80°    | 89.0  | 88.0  | 86.2  | 83.6  | 81.8  |
| 82.5°  | 60.4  | 60.4  | 59.7  | 56.0  | 56.0  |
| 85°    | 36.4  | 35.6  | 34.7  | 32.0  | 31.1  |
| 87.5°  | 16.0  | 14.3  | 12.4  | 9.8   | 8.9   |
| 90°    | 0.7   | 8.2   | 22.2  | 20.8  | 21.5  |
| 92.5°  | 14.0  | 19.0  | 19.7  | 20.4  | 20.4  |
| 95°    | 33.1  | 39.5  | 40.6  | 40.6  | 39.5  |
| 97.5°  | 55.1  | 60.9  | 63.5  | 63.5  | 63.5  |
| 100°   | 80.4  | 85.6  | 87.5  | 87.5  | 86.8  |
| 102.5° | 107.2 | 111.1 | 113.5 | 114.2 | 113.5 |
| 105°   | 136.4 | 138.2 | 139.6 | 140.7 | 140.7 |
| 107.5° | 165.4 | 168.1 | 168.1 | 168.6 | 165.4 |
| 110°   | 193.5 | 197.2 | 197.2 | 197.2 | 195.4 |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 112.5° | 223.9 | 227.8 | 227.0 | 225.2 | 223.9 |
| 115°   | 253.8 | 257.4 | 256.3 | 255.6 | 253.8 |
| 117.5° | 283.4 | 288.4 | 285.3 | 283.4 | 281.6 |
| 120°   | 313.4 | 318.4 | 313.4 | 313.4 | 311.3 |
| 122.5° | 340.6 | 346.9 | 343.7 | 341.9 | 340.6 |
| 125°   | 369.2 | 374.8 | 373.0 | 370.9 | 370.3 |
| 127.5° | 397.0 | 404.0 | 401.6 | 398.8 | 397.0 |
| 130°   | 423.0 | 431.2 | 430.1 | 428.7 | 426.2 |
| 132.5° | 452.3 | 458.6 | 459.1 | 455.9 | 454.1 |
| 135°   | 477.4 | 484.4 | 485.8 | 485.1 | 483.3 |
| 137.5° | 505.5 | 511.2 | 512.3 | 511.9 | 509.1 |
| 140°   | 530.2 | 535.9 | 539.1 | 539.1 | 536.5 |
| 142.5° | 555.6 | 561.3 | 563.1 | 563.8 | 561.3 |
| 145°   | 579.6 | 584.2 | 587.8 | 588.4 | 586.0 |
| 147.5° | 601.2 | 606.8 | 609.5 | 610.7 | 608.2 |
| 150°   | 623.4 | 627.2 | 629.7 | 631.8 | 629.7 |
| 152.5° | 643.1 | 646.9 | 650.1 | 652.6 | 650.1 |
| 155°   | 662.8 | 664.6 | 666.6 | 669.8 | 667.8 |
| 157.5° | 679.8 | 681.1 | 682.3 | 686.8 | 683.7 |
| 160°   | 695.0 | 696.3 | 697.0 | 700.8 | 698.1 |
| 162.5° | 709.0 | 709.0 | 709.7 | 714.0 | 710.8 |
| 165°   | 721.0 | 720.3 | 720.3 | 724.8 | 721.7 |
| 167.5° | 731.9 | 729.8 | 729.8 | 734.4 | 731.2 |
| 170°   | 740.1 | 738.2 | 737.6 | 742.1 | 738.2 |
| 172.5° | 745.7 | 743.9 | 743.2 | 747.7 | 743.9 |
| 175°   | 750.3 | 748.5 | 747.1 | 751.6 | 747.7 |
| 177.5° | 752.7 | 750.9 | 749.6 | 753.4 | 749.6 |
| 180°   | 751.6 | 751.6 | 751.6 | 751.6 | 751.6 |

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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 | 7.76             | 8.65  | 8.69  | 9.60  | 10.83 | 7.32           | 8.21  | 8.25  | 9.16  | 10.39 |
|                 | 3H   | 9.42             | 10.21 | 10.36 | 11.17 | 12.43 | 8.94           | 9.73  | 9.88  | 10.69 | 11.94 |
|                 | 4H   | 10.00            | 10.76 | 10.96 | 11.72 | 12.98 | 9.52           | 10.27 | 10.48 | 11.24 | 12.50 |
|                 | 6H   | 10.40            | 11.09 | 11.37 | 12.06 | 13.34 | 9.91           | 10.60 | 10.88 | 11.57 | 12.85 |
|                 | 8H   | 10.50            | 11.16 | 11.48 | 12.15 | 13.42 | 10.01          | 10.67 | 10.99 | 11.66 | 12.93 |
|                 | 12H  | 10.55            | 11.18 | 11.53 | 12.16 | 13.46 | 10.05          | 10.68 | 11.03 | 11.66 | 12.96 |
| 4H              | 2H   | 8.22             | 8.98  | 9.19  | 9.94  | 11.20 | 7.87           | 8.63  | 8.84  | 9.59  | 10.85 |
|                 | 3H   | 10.08            | 10.71 | 11.06 | 11.71 | 12.98 | 9.68           | 10.31 | 10.66 | 11.30 | 12.58 |
|                 | 4H   | 10.79            | 11.37 | 11.78 | 12.36 | 13.66 | 10.38          | 10.95 | 11.36 | 11.94 | 13.24 |
|                 | 6H   | 11.31            | 11.80 | 12.30 | 12.81 | 14.11 | 10.88          | 11.38 | 11.88 | 12.39 | 13.69 |
|                 | 8H   | 11.45            | 11.91 | 12.45 | 12.92 | 14.23 | 11.03          | 11.49 | 12.02 | 12.49 | 13.81 |
|                 | 12H  | 11.52            | 11.94 | 12.54 | 12.96 | 14.28 | 11.09          | 11.50 | 12.10 | 12.52 | 13.84 |
| 8H              | 4H   | 10.99            | 11.45 | 11.99 | 12.46 | 13.77 | 10.62          | 11.08 | 11.62 | 12.09 | 13.40 |
|                 | 6H   | 11.61            | 12.00 | 12.63 | 13.04 | 14.35 | 11.24          | 11.62 | 12.26 | 12.67 | 13.98 |
|                 | 8H   | 11.83            | 12.17 | 12.86 | 13.20 | 14.53 | 11.45          | 11.79 | 12.48 | 12.82 | 14.15 |
|                 | 12H  | 11.96            | 12.26 | 12.99 | 13.28 | 14.66 | 11.56          | 11.86 | 12.59 | 12.88 | 14.26 |
| 12H             | 4H   | 10.98            | 11.39 | 11.99 | 12.41 | 13.73 | 10.61          | 11.03 | 11.63 | 12.05 | 13.37 |
|                 | 6H   | 11.64            | 11.98 | 12.67 | 13.01 | 14.34 | 11.28          | 11.62 | 12.31 | 12.65 | 13.98 |
|                 | 8H   | 11.88            | 12.18 | 12.91 | 13.20 | 14.58 | 11.51          | 11.81 | 12.54 | 12.83 | 14.21 |