

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: P925318

Luminaire Tested: DFN2DIP-SQ2F0-040D030US950-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P925318  
REPORT IS A COMBINATION OF REPORTS P899774 AND P896659  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-040D030US950-RLLFLL  
Description: 2 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

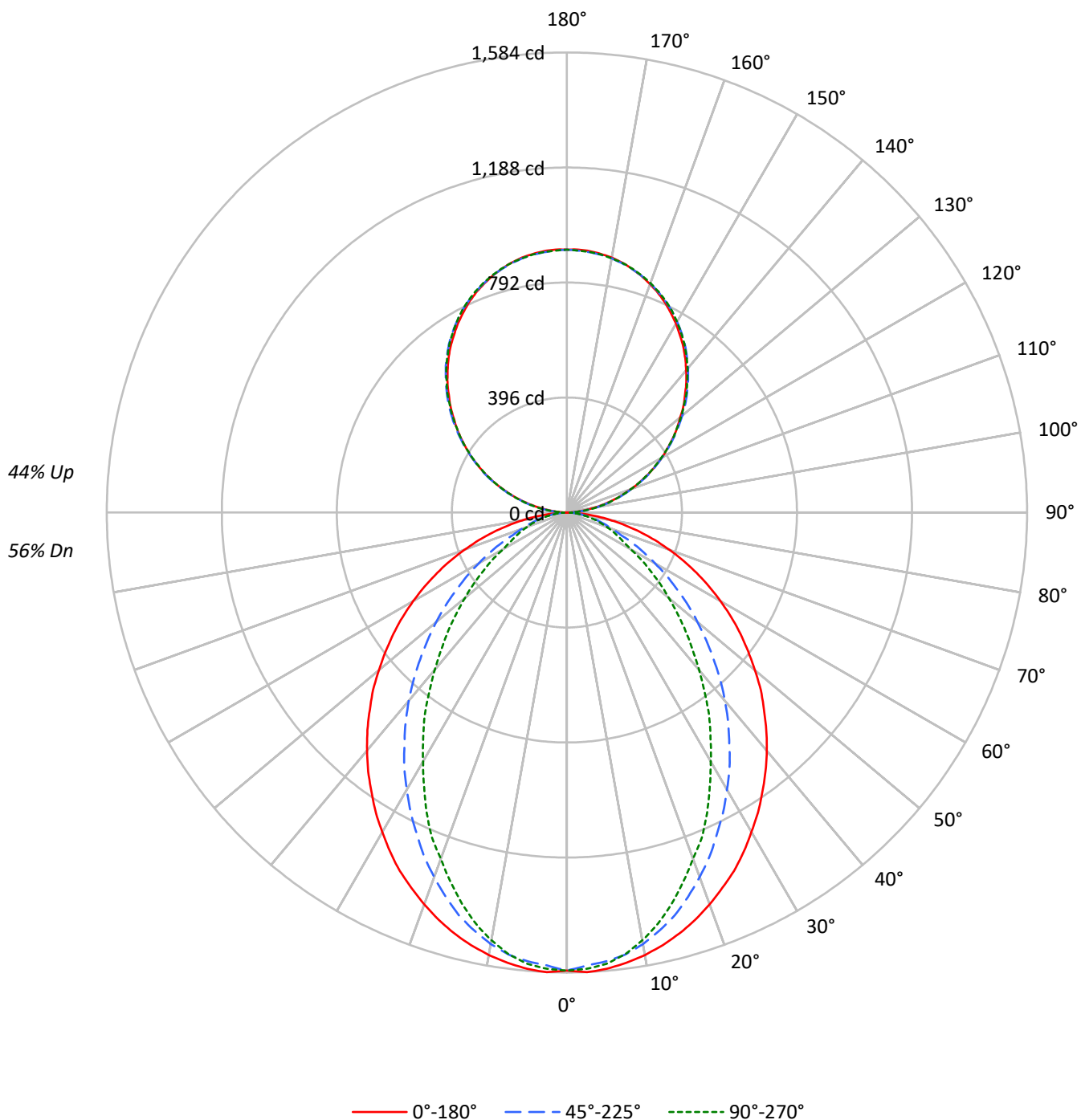
Lumens per Lamp: N/A  
Luminaire Lumens: 5776.4 lumens  
Efficiency: N/A  
Efficacy: 102.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 56.5  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P925318

CATALOG NUMBER: DFN2DIP-SQ2F0-040D030US950-RLFL

### Luminous Intensity Polar Plot



TEST NUMBER: P925318

CATALOG NUMBER: DFN2DIP-SQ2F0-040D030US950-RLLFLL

**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 |  | 101 | 101 | 101 | 101 |  | 87 | 87 | 87 |  | 74 | 74 | 74 |  | 62 | 62 | 62 |
| 1   | 100 | 96  | 92  | 88  |  | 93  | 89  | 86  | 83  |  | 77 | 75 | 72 |  | 66 | 64 | 63 |  | 55 | 54 | 53 |
| 2   | 91  | 84  | 78  | 73  |  | 85  | 79  | 73  | 69  |  | 68 | 64 | 61 |  | 58 | 56 | 53 |  | 49 | 47 | 46 |
| 3   | 84  | 74  | 67  | 62  |  | 78  | 70  | 63  | 58  |  | 61 | 56 | 52 |  | 52 | 49 | 46 |  | 44 | 42 | 40 |
| 4   | 77  | 66  | 59  | 53  |  | 71  | 62  | 55  | 50  |  | 54 | 49 | 45 |  | 47 | 43 | 40 |  | 40 | 37 | 35 |
| 5   | 71  | 59  | 51  | 46  |  | 66  | 56  | 49  | 43  |  | 49 | 43 | 39 |  | 42 | 38 | 35 |  | 36 | 33 | 30 |
| 6   | 65  | 53  | 46  | 40  |  | 61  | 50  | 43  | 38  |  | 44 | 38 | 34 |  | 38 | 34 | 31 |  | 33 | 30 | 27 |
| 7   | 61  | 48  | 41  | 35  |  | 56  | 46  | 39  | 34  |  | 40 | 35 | 30 |  | 35 | 31 | 27 |  | 30 | 27 | 24 |
| 8   | 56  | 44  | 37  | 31  |  | 52  | 42  | 35  | 30  |  | 37 | 31 | 27 |  | 32 | 28 | 25 |  | 28 | 25 | 22 |
| 9   | 53  | 41  | 33  | 28  |  | 49  | 38  | 32  | 27  |  | 34 | 28 | 25 |  | 30 | 25 | 22 |  | 26 | 23 | 20 |
| 10  | 49  | 37  | 30  | 25  |  | 46  | 35  | 29  | 24  |  | 31 | 26 | 22 |  | 28 | 23 | 20 |  | 24 | 21 | 18 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3468 | 3468 | 3468 |
| 5°  | 3468 | 3405 | 3430 |
| 10° | 3427 | 3331 | 3314 |
| 15° | 3374 | 3214 | 3137 |
| 20° | 3306 | 3055 | 2921 |
| 25° | 3235 | 2878 | 2713 |
| 30° | 3143 | 2698 | 2451 |
| 35° | 3053 | 2505 | 2221 |
| 40° | 2961 | 2306 | 1958 |
| 45° | 2854 | 2086 | 1720 |
| 50° | 2743 | 1865 | 1487 |
| 55° | 2626 | 1629 | 1265 |
| 60° | 2491 | 1384 | 1036 |
| 65° | 2336 | 1136 | 927  |
| 70° | 2147 | 905  | 832  |
| 75° | 1908 | 783  | 747  |
| 80° | 1567 | 636  | 634  |
| 85° | 1020 | 395  | 451  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2854 cd/sqm

TEST NUMBER: P925318

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 147.8  | 2.6       |
| 10°-20°   | 405.8  | 7.0       |
| 20°-30°   | 569.7  | 9.9       |
| 30°-40°   | 621.0  | 10.8      |
| 40°-50°   | 570.8  | 9.9       |
| 50°-60°   | 448.2  | 7.8       |
| 60°-70°   | 291.8  | 5.1       |
| 70°-80°   | 150.2  | 2.6       |
| 80°-90°   | 40.9   | 0.7       |
| 90°-100°  | 56.0   | 1.0       |
| 100°-110° | 178.0  | 3.1       |
| 110°-120° | 304.6  | 5.3       |
| 120°-130° | 400.5  | 6.9       |
| 130°-140° | 449.6  | 7.8       |
| 140°-150° | 440.9  | 7.6       |
| 150°-160° | 369.8  | 6.4       |
| 160°-170° | 245.3  | 4.2       |
| 170°-180° | 85.7   | 1.5       |
| 0°-30°    | 1123.3 | 19.4      |
| 0°-40°    | 1744.3 | 30.2      |
| 0°-60°    | 2763.3 | 47.8      |
| 0°-90°    | 3246.2 | 56.2      |
| 90°-120°  | 538.5  | 9.3       |
| 90°-150°  | 1829.5 | 31.7      |
| 90°-180°  | 2530.0 | 43.8      |
| 0°-180°   | 5776.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1577 | 1577  | 1577 | 1577  | 1577 |      |
| 5°   | 1577 | 1570  | 1551 | 1564  | 1560 | 150  |
| 15°  | 1500 | 1484  | 1436 | 1409  | 1395 | 423  |
| 25°  | 1362 | 1316  | 1222 | 1163  | 1142 | 626  |
| 35°  | 1173 | 1100  | 975  | 885   | 853  | 734  |
| 45°  | 959  | 864   | 714  | 612   | 578  | 741  |
| 55°  | 729  | 618   | 464  | 378   | 351  | 652  |
| 65°  | 492  | 377   | 248  | 200   | 196  | 488  |
| 75°  | 262  | 163   | 114  | 104   | 103  | 278  |
| 85°  | 61   | 31    | 27   | 27    | 27   | 70   |
| 90°  | 1    | 10    | 27   | 25    | 26   | 6    |
| 95°  | 40   | 48    | 49   | 49    | 48   | 44   |
| 105° | 164  | 166   | 168  | 169   | 169  | 173  |
| 115° | 306  | 310   | 309  | 308   | 306  | 302  |
| 125° | 445  | 451   | 449  | 447   | 446  | 397  |
| 135° | 575  | 583   | 585  | 584   | 582  | 444  |
| 145° | 698  | 704   | 708  | 709   | 706  | 436  |
| 155° | 798  | 800   | 803  | 807   | 804  | 367  |
| 165° | 868  | 868   | 868  | 873   | 869  | 245  |
| 175° | 904  | 901   | 900  | 905   | 900  | 86   |
| 180° | 905  | 905   | 905  | 905   | 905  |      |

TEST NUMBER: P925318

CATALOG NUMBER: DFN2DIP-SQ2F0-040D030US950-RLLFLL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1577.2 | 1577.2 | 1577.2 | 1577.2 | 1577.2 |
| 2.5°   | 1584.3 | 1577.2 | 1561.4 | 1575.8 | 1572.9 |
| 5°     | 1577.2 | 1570.0 | 1551.4 | 1564.3 | 1560.1 |
| 7.5°   | 1564.3 | 1555.8 | 1535.8 | 1541.4 | 1534.3 |
| 10°    | 1547.2 | 1537.2 | 1508.7 | 1504.3 | 1495.9 |
| 12.5°  | 1525.8 | 1512.9 | 1474.3 | 1465.8 | 1450.1 |
| 15°    | 1500.1 | 1484.3 | 1435.9 | 1408.8 | 1394.6 |
| 17.5°  | 1470.1 | 1447.2 | 1387.2 | 1355.9 | 1333.0 |
| 20°    | 1435.9 | 1407.2 | 1335.9 | 1300.3 | 1268.8 |
| 22.5°  | 1398.8 | 1365.9 | 1283.0 | 1234.6 | 1213.3 |
| 25°    | 1361.6 | 1315.9 | 1221.7 | 1163.3 | 1141.7 |
| 27.5°  | 1317.5 | 1268.8 | 1164.6 | 1097.6 | 1064.7 |
| 30°    | 1270.3 | 1216.0 | 1101.8 | 1029.1 | 990.5  |
| 32.5°  | 1224.6 | 1158.9 | 1042.0 | 956.3  | 920.5  |
| 35°    | 1173.3 | 1100.4 | 974.9  | 884.9  | 853.4  |
| 37.5°  | 1123.3 | 1044.7 | 912.0  | 813.5  | 777.9  |
| 40°    | 1070.5 | 984.9  | 846.4  | 745.1  | 708.0  |
| 42.5°  | 1016.2 | 924.9  | 780.8  | 675.1  | 639.5  |
| 45°    | 959.2  | 863.5  | 713.7  | 612.3  | 578.0  |
| 47.5°  | 905.0  | 803.6  | 649.5  | 548.1  | 516.7  |
| 50°    | 845.0  | 743.6  | 586.6  | 488.1  | 458.2  |
| 52.5°  | 786.4  | 679.3  | 526.7  | 432.4  | 405.4  |
| 55°    | 729.3  | 618.0  | 463.8  | 378.3  | 351.2  |
| 57.5°  | 670.9  | 556.7  | 408.2  | 328.3  | 305.5  |
| 60°    | 610.8  | 496.7  | 349.6  | 276.9  | 254.1  |
| 62.5°  | 552.5  | 438.3  | 299.7  | 231.2  | 219.9  |
| 65°    | 492.5  | 376.7  | 248.3  | 199.9  | 195.5  |
| 67.5°  | 435.4  | 319.7  | 199.9  | 175.5  | 171.2  |
| 70°    | 375.4  | 264.1  | 165.5  | 151.3  | 145.5  |
| 72.5°  | 318.3  | 212.6  | 138.4  | 127.1  | 124.2  |
| 75°    | 262.5  | 162.7  | 114.2  | 104.2  | 102.8  |
| 77.5°  | 207.0  | 115.5  | 90.0   | 84.2   | 81.3   |
| 80°    | 155.5  | 82.8   | 68.4   | 62.9   | 62.9   |
| 82.5°  | 108.5  | 55.7   | 47.1   | 44.2   | 44.2   |
| 85°    | 61.3   | 31.4   | 27.1   | 27.1   | 27.1   |
| 87.5°  | 22.9   | 11.4   | 11.4   | 10.0   | 10.0   |
| 90°    | 0.9    | 9.8    | 26.7   | 25.1   | 25.9   |
| 92.5°  | 16.9   | 22.9   | 23.8   | 24.5   | 24.5   |
| 95°    | 39.9   | 47.5   | 48.8   | 48.8   | 47.5   |
| 97.5°  | 66.3   | 73.4   | 76.4   | 76.4   | 76.4   |
| 100°   | 96.8   | 103.1  | 105.3  | 105.3  | 104.6  |
| 102.5° | 129.1  | 133.8  | 136.7  | 137.6  | 136.7  |
| 105°   | 164.3  | 166.5  | 168.1  | 169.4  | 169.4  |
| 107.5° | 199.2  | 202.4  | 202.4  | 203.0  | 199.2  |
| 110°   | 233.1  | 237.5  | 237.5  | 237.5  | 235.3  |

TEST NUMBER: P925318

CATALOG NUMBER: DFN2DIP-SQ2F0-040D030US950-RLLFLL

**CANDELA DISTRIBUTION (continued):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 112.5° | 269.6 | 274.3 | 273.4 | 271.2 | 269.6 |
| 115°   | 305.7 | 310.0 | 308.6 | 307.9 | 305.7 |
| 117.5° | 341.3 | 347.4 | 343.5 | 341.3 | 339.1 |
| 120°   | 377.4 | 383.4 | 377.4 | 377.4 | 374.9 |
| 122.5° | 410.1 | 417.8 | 413.9 | 411.7 | 410.1 |
| 125°   | 444.6 | 451.3 | 449.1 | 446.7 | 445.9 |
| 127.5° | 478.0 | 486.5 | 483.6 | 480.2 | 478.0 |
| 130°   | 509.4 | 519.3 | 517.9 | 516.3 | 513.3 |
| 132.5° | 544.6 | 552.3 | 552.8 | 549.0 | 546.8 |
| 135°   | 575.0 | 583.4 | 585.1 | 584.2 | 582.0 |
| 137.5° | 608.7 | 615.6 | 617.0 | 616.5 | 613.1 |
| 140°   | 638.5 | 645.4 | 649.2 | 649.2 | 646.1 |
| 142.5° | 669.1 | 675.9 | 678.1 | 679.0 | 675.9 |
| 145°   | 698.0 | 703.5 | 707.9 | 708.6 | 705.7 |
| 147.5° | 724.0 | 730.8 | 734.0 | 735.4 | 732.4 |
| 150°   | 750.7 | 755.4 | 758.3 | 760.8 | 758.3 |
| 152.5° | 774.5 | 779.0 | 782.9 | 785.9 | 782.9 |
| 155°   | 798.2 | 800.3 | 802.8 | 806.6 | 804.2 |
| 157.5° | 818.6 | 820.2 | 821.7 | 827.1 | 823.3 |
| 160°   | 836.9 | 838.6 | 839.4 | 844.0 | 840.8 |
| 162.5° | 853.8 | 853.8 | 854.7 | 859.8 | 856.0 |
| 165°   | 868.3 | 867.5 | 867.5 | 872.9 | 869.1 |
| 167.5° | 881.4 | 878.9 | 878.9 | 884.4 | 880.5 |
| 170°   | 891.2 | 889.0 | 888.3 | 893.7 | 889.0 |
| 172.5° | 898.0 | 895.9 | 895.0 | 900.5 | 895.9 |
| 175°   | 903.5 | 901.3 | 899.7 | 905.2 | 900.5 |
| 177.5° | 906.5 | 904.3 | 902.7 | 907.3 | 902.7 |
| 180°   | 905.2 | 905.2 | 905.2 | 905.2 | 905.2 |

TEST NUMBER: P925318

CATALOG NUMBER: DFN2DIP-SQ2F0-040D030US950-RLFL

**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 | 11.91            | 12.80 | 12.82 | 13.72 | 14.90 | 7.87           | 8.76  | 8.78  | 9.68  | 10.86 |
|                 | 3H   | 13.57            | 14.36 | 14.50 | 15.30 | 16.50 | 9.05           | 9.84  | 9.97  | 10.77 | 11.98 |
|                 | 4H   | 14.17            | 14.92 | 15.11 | 15.86 | 17.07 | 9.49           | 10.23 | 10.42 | 11.17 | 12.39 |
|                 | 6H   | 14.58            | 15.27 | 15.53 | 16.21 | 17.44 | 9.79           | 10.48 | 10.74 | 11.42 | 12.65 |
|                 | 8H   | 14.70            | 15.35 | 15.65 | 16.31 | 17.54 | 9.88           | 10.53 | 10.83 | 11.49 | 12.72 |
|                 | 12H  | 14.76            | 15.38 | 15.71 | 16.33 | 17.58 | 9.91           | 10.54 | 10.87 | 11.49 | 12.74 |
| 4H              | 2H   | 11.93            | 12.68 | 12.87 | 13.62 | 14.83 | 8.46           | 9.21  | 9.41  | 10.15 | 11.36 |
|                 | 3H   | 13.74            | 14.36 | 14.69 | 15.33 | 16.56 | 9.80           | 10.42 | 10.75 | 11.39 | 12.62 |
|                 | 4H   | 14.42            | 14.99 | 15.38 | 15.95 | 17.21 | 10.33          | 10.90 | 11.29 | 11.86 | 13.12 |
|                 | 6H   | 14.92            | 15.41 | 15.89 | 16.39 | 17.65 | 10.73          | 11.22 | 11.71 | 12.21 | 13.46 |
|                 | 8H   | 15.09            | 15.54 | 16.06 | 16.52 | 17.79 | 10.85          | 11.31 | 11.83 | 12.29 | 13.56 |
|                 | 12H  | 15.17            | 15.58 | 16.17 | 16.58 | 17.85 | 10.91          | 11.32 | 11.90 | 12.32 | 13.59 |
| 8H              | 4H   | 14.39            | 14.84 | 15.36 | 15.82 | 17.09 | 10.60          | 11.06 | 11.58 | 12.04 | 13.31 |
|                 | 6H   | 14.94            | 15.31 | 15.94 | 16.33 | 17.60 | 11.10          | 11.48 | 12.10 | 12.50 | 13.76 |
|                 | 8H   | 15.14            | 15.47 | 16.15 | 16.48 | 17.77 | 11.28          | 11.61 | 12.29 | 12.62 | 13.90 |
|                 | 12H  | 15.27            | 15.56 | 16.28 | 16.56 | 17.89 | 11.38          | 11.68 | 12.40 | 12.68 | 14.01 |
| 12H             | 4H   | 14.34            | 14.75 | 15.34 | 15.75 | 17.02 | 10.61          | 11.02 | 11.60 | 12.01 | 13.29 |
|                 | 6H   | 14.91            | 15.24 | 15.92 | 16.25 | 17.54 | 11.14          | 11.48 | 12.15 | 12.49 | 13.77 |
|                 | 8H   | 15.12            | 15.41 | 16.13 | 16.41 | 17.74 | 11.34          | 11.63 | 12.35 | 12.64 | 13.97 |