

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: P911700

Luminaire Tested: DFN2DIP-SQ2F0-050D030US850-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P911700  
REPORT IS A COMBINATION OF REPORTS P899775 AND P896659  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-050D030US850-FLLFLL  
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

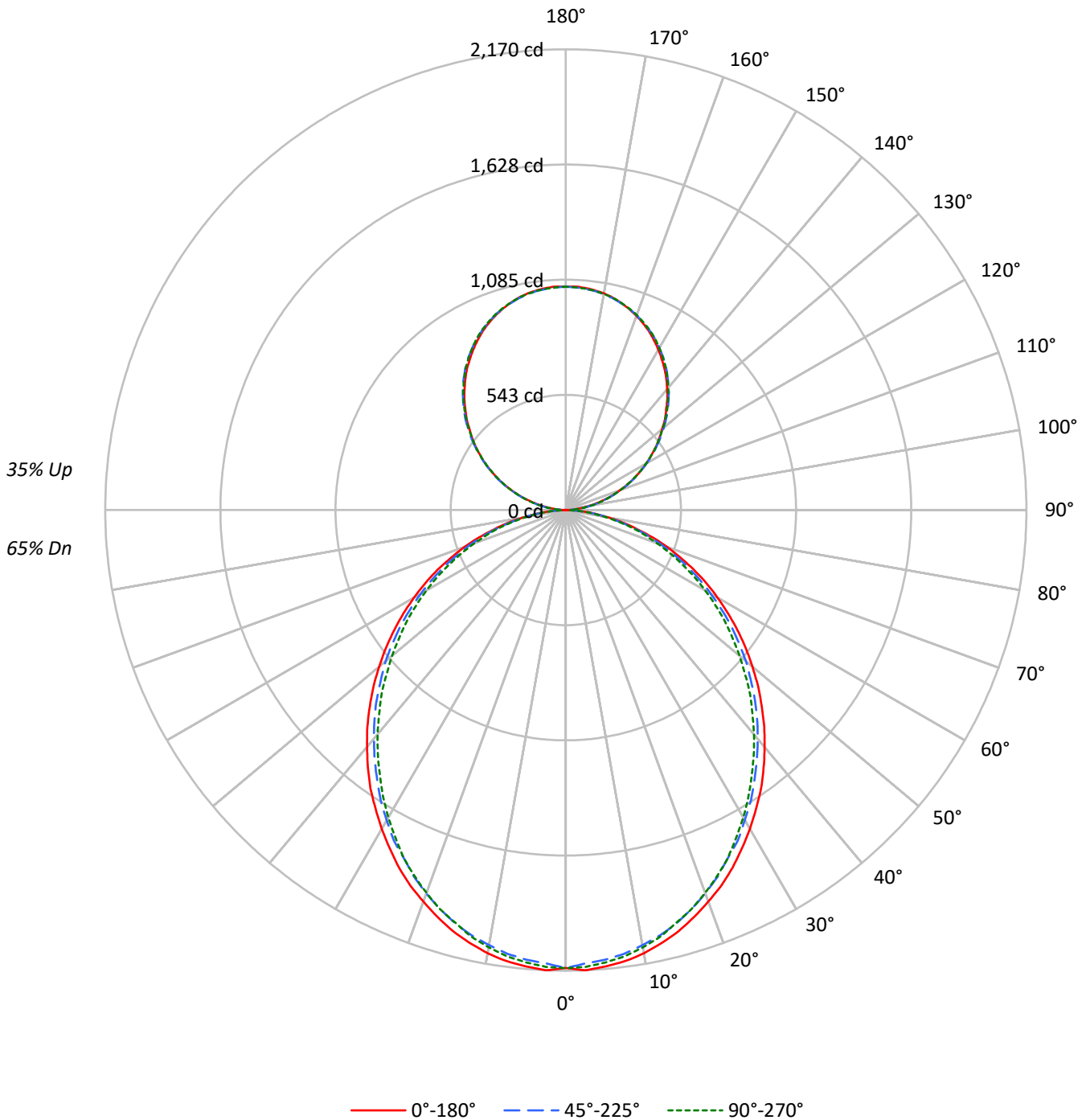
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8433.9 lumens  
Efficiency: N/A  
Efficacy: 125.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: Semi-Direct

Input Watts (W): 67  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.996  
Total Harmonic Distortion (THDi): 0.064  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P911700  
CATALOG NUMBER: DFN2DIP-SQ2F0-050D030US850-FLLFL

### Luminous Intensity Polar Plot





TEST NUMBER: P911700  
 CATALOG NUMBER: DFN2DIP-SQ2F0-050D030US850-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 | 50 | 30 | 10 | 0  |
| RCR |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 0   | 111 | 111 | 111 | 111 | 104 | 104 | 104 | 104 | 92 | 92 | 92 | 80 | 80 | 80 | 70 | 70 | 70 | 70 | 70 | 70 | 65 |
| 1   | 101 | 97  | 93  | 89  | 95  | 91  | 88  | 84  | 81 | 78 | 75 | 71 | 69 | 67 | 62 | 60 | 59 | 59 | 59 | 59 | 55 |
| 2   | 92  | 85  | 78  | 73  | 86  | 80  | 74  | 69  | 71 | 66 | 63 | 62 | 59 | 56 | 55 | 52 | 50 | 50 | 50 | 50 | 46 |
| 3   | 84  | 74  | 67  | 61  | 79  | 70  | 63  | 58  | 62 | 57 | 53 | 55 | 51 | 47 | 48 | 45 | 42 | 42 | 42 | 42 | 39 |
| 4   | 77  | 66  | 58  | 52  | 72  | 62  | 55  | 49  | 55 | 50 | 45 | 49 | 44 | 41 | 43 | 40 | 37 | 37 | 37 | 37 | 33 |
| 5   | 71  | 59  | 50  | 44  | 66  | 56  | 48  | 42  | 50 | 44 | 39 | 44 | 39 | 35 | 39 | 35 | 32 | 32 | 32 | 32 | 29 |
| 6   | 65  | 53  | 45  | 39  | 61  | 50  | 43  | 37  | 45 | 39 | 34 | 40 | 35 | 31 | 35 | 31 | 28 | 28 | 28 | 28 | 26 |
| 7   | 60  | 48  | 40  | 34  | 57  | 45  | 38  | 33  | 41 | 35 | 30 | 36 | 31 | 28 | 32 | 28 | 25 | 25 | 25 | 25 | 23 |
| 8   | 56  | 44  | 36  | 30  | 53  | 41  | 34  | 29  | 37 | 31 | 27 | 33 | 28 | 25 | 30 | 26 | 22 | 22 | 22 | 22 | 20 |
| 9   | 52  | 40  | 32  | 27  | 49  | 38  | 31  | 26  | 34 | 28 | 24 | 31 | 26 | 22 | 27 | 23 | 20 | 20 | 20 | 20 | 18 |
| 10  | 49  | 37  | 29  | 24  | 46  | 35  | 28  | 23  | 32 | 26 | 22 | 28 | 24 | 20 | 25 | 21 | 19 | 19 | 19 | 19 | 17 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4744 | 4744 | 4744 |
| 5°  | 4744 | 4668 | 4703 |
| 10° | 4697 | 4595 | 4633 |
| 15° | 4620 | 4509 | 4527 |
| 20° | 4518 | 4393 | 4418 |
| 25° | 4417 | 4258 | 4294 |
| 30° | 4292 | 4130 | 4138 |
| 35° | 4173 | 3982 | 3973 |
| 40° | 4028 | 3832 | 3816 |
| 45° | 3883 | 3681 | 3654 |
| 50° | 3724 | 3522 | 3468 |
| 55° | 3557 | 3338 | 3295 |
| 60° | 3368 | 3122 | 3097 |
| 65° | 3159 | 2896 | 2864 |
| 70° | 2896 | 2621 | 2611 |
| 75° | 2533 | 2290 | 2368 |
| 80° | 2092 | 1870 | 1924 |
| 85° | 1412 | 1181 | 1208 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3883 cd/sqm



TEST NUMBER: P911700

CATALOG NUMBER: DFN2DIP-SQ2F0-050D030US850-FLLFLL

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 203.1  | 2.4       |
| 10°-20°   | 571.4  | 6.8       |
| 20°-30°   | 839.7  | 10.0      |
| 30°-40°   | 975.2  | 11.6      |
| 40°-50°   | 974.0  | 11.5      |
| 50°-60°   | 849.3  | 10.1      |
| 60°-70°   | 627.9  | 7.4       |
| 70°-80°   | 355.2  | 4.2       |
| 80°-90°   | 96.8   | 1.1       |
| 90°-100°  | 65.1   | 0.8       |
| 100°-110° | 206.9  | 2.5       |
| 110°-120° | 354.0  | 4.2       |
| 120°-130° | 465.6  | 5.5       |
| 130°-140° | 522.6  | 6.2       |
| 140°-150° | 512.5  | 6.1       |
| 150°-160° | 429.9  | 5.1       |
| 160°-170° | 285.1  | 3.4       |
| 170°-180° | 99.7   | 1.2       |
| 0°-30°    | 1614.1 | 19.1      |
| 0°-40°    | 2589.4 | 30.7      |
| 0°-60°    | 4412.7 | 52.3      |
| 0°-90°    | 5492.6 | 65.1      |
| 90°-120°  | 626.0  | 7.4       |
| 90°-150°  | 2126.7 | 25.2      |
| 90°-180°  | 2941.0 | 34.9      |
| 0°-180°   | 8433.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2158 | 2158  | 2158 | 2158  | 2158 |      |
| 5°   | 2158 | 2150  | 2126 | 2143  | 2139 | 205  |
| 15°  | 2054 | 2042  | 2014 | 2023  | 2012 | 578  |
| 25°  | 1859 | 1842  | 1807 | 1811  | 1807 | 855  |
| 35°  | 1604 | 1583  | 1550 | 1537  | 1527 | 1001 |
| 45°  | 1305 | 1290  | 1259 | 1237  | 1228 | 1007 |
| 55°  | 988  | 975   | 950  | 925   | 915  | 883  |
| 65°  | 666  | 654   | 633  | 614   | 604  | 659  |
| 75°  | 348  | 344   | 334  | 322   | 326  | 372  |
| 85°  | 85   | 83    | 81   | 75    | 73   | 95   |
| 90°  | 1    | 11    | 31   | 29    | 30   | 8    |
| 95°  | 46   | 55    | 57   | 57    | 55   | 52   |
| 105° | 191  | 194   | 195  | 197   | 197  | 202  |
| 115° | 355  | 360   | 359  | 358   | 355  | 351  |
| 125° | 517  | 525   | 522  | 519   | 518  | 462  |
| 135° | 668  | 678   | 680  | 679   | 677  | 517  |
| 145° | 812  | 818   | 823  | 824   | 820  | 507  |
| 155° | 928  | 930   | 933  | 938   | 935  | 427  |
| 165° | 1009 | 1008  | 1008 | 1015  | 1010 | 285  |
| 175° | 1050 | 1048  | 1046 | 1052  | 1047 | 100  |
| 180° | 1052 | 1052  | 1052 | 1052  | 1052 |      |



TEST NUMBER: P911700

CATALOG NUMBER: DFN2DIP-SQ2F0-050D030US850-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2157.6 | 2157.6 | 2157.6 | 2157.6 | 2157.6 |
| 2.5°   | 2170.1 | 2159.8 | 2136.9 | 2157.6 | 2153.7 |
| 5°     | 2157.6 | 2149.5 | 2126.5 | 2143.0 | 2139.2 |
| 7.5°   | 2143.0 | 2130.7 | 2107.9 | 2124.6 | 2120.4 |
| 10°    | 2120.4 | 2105.9 | 2081.0 | 2097.5 | 2091.4 |
| 12.5°  | 2089.1 | 2076.8 | 2052.0 | 2062.3 | 2058.1 |
| 15°    | 2053.9 | 2041.6 | 2014.5 | 2022.9 | 2012.5 |
| 17.5°  | 2010.3 | 1998.0 | 1970.9 | 1981.2 | 1970.9 |
| 20°    | 1962.6 | 1950.3 | 1921.2 | 1927.3 | 1919.2 |
| 22.5°  | 1915.0 | 1896.3 | 1869.2 | 1869.2 | 1865.0 |
| 25°    | 1858.9 | 1842.4 | 1807.1 | 1811.1 | 1807.1 |
| 27.5°  | 1796.6 | 1782.1 | 1755.2 | 1749.0 | 1738.7 |
| 30°    | 1734.5 | 1717.8 | 1686.8 | 1680.6 | 1672.3 |
| 32.5°  | 1668.0 | 1655.7 | 1622.5 | 1609.9 | 1601.6 |
| 35°    | 1603.7 | 1583.1 | 1549.8 | 1537.3 | 1527.0 |
| 37.5°  | 1531.1 | 1512.5 | 1479.2 | 1464.7 | 1454.3 |
| 40°    | 1456.6 | 1439.8 | 1406.5 | 1388.0 | 1379.7 |
| 42.5°  | 1383.9 | 1367.2 | 1334.1 | 1313.2 | 1300.9 |
| 45°    | 1305.1 | 1290.5 | 1259.3 | 1236.6 | 1228.2 |
| 47.5°  | 1228.2 | 1213.7 | 1180.5 | 1157.6 | 1145.3 |
| 50°    | 1147.3 | 1136.9 | 1107.9 | 1078.8 | 1068.4 |
| 52.5°  | 1068.4 | 1053.9 | 1027.0 | 1004.2 | 989.7  |
| 55°    | 987.7  | 975.1  | 950.2  | 925.3  | 915.0  |
| 57.5°  | 906.6  | 896.3  | 869.2  | 844.4  | 836.0  |
| 60°    | 825.7  | 817.6  | 788.5  | 765.5  | 759.4  |
| 62.5°  | 746.9  | 732.4  | 711.6  | 690.9  | 682.6  |
| 65°    | 666.1  | 653.5  | 632.8  | 614.2  | 603.7  |
| 67.5°  | 583.1  | 572.6  | 554.1  | 539.5  | 531.1  |
| 70°    | 506.3  | 497.9  | 479.2  | 464.7  | 456.6  |
| 72.5°  | 427.5  | 419.1  | 408.8  | 394.2  | 388.0  |
| 75°    | 348.4  | 344.5  | 333.9  | 321.6  | 325.8  |
| 77.5°  | 278.0  | 269.6  | 265.5  | 259.3  | 253.2  |
| 80°    | 207.6  | 205.4  | 201.2  | 195.1  | 190.9  |
| 82.5°  | 141.1  | 141.1  | 139.1  | 130.8  | 130.8  |
| 85°    | 84.9   | 83.0   | 81.0   | 74.6   | 72.6   |
| 87.5°  | 37.4   | 33.3   | 29.1   | 22.8   | 20.7   |
| 90°    | 1.0    | 11.4   | 31.1   | 29.2   | 30.2   |
| 92.5°  | 19.6   | 26.6   | 27.6   | 28.5   | 28.5   |
| 95°    | 46.4   | 55.2   | 56.8   | 56.8   | 55.2   |
| 97.5°  | 77.1   | 85.3   | 88.8   | 88.8   | 88.8   |
| 100°   | 112.6  | 119.9  | 122.4  | 122.4  | 121.5  |
| 102.5° | 150.0  | 155.5  | 158.9  | 159.9  | 158.9  |
| 105°   | 191.0  | 193.5  | 195.4  | 197.0  | 197.0  |
| 107.5° | 231.6  | 235.3  | 235.3  | 236.0  | 231.6  |
| 110°   | 270.9  | 276.0  | 276.0  | 276.0  | 273.5  |



TEST NUMBER: P911700

CATALOG NUMBER: DFN2DIP-SQ2F0-050D030US850-FLLFLL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 313.4  | 318.8  | 317.8  | 315.3  | 313.4  |
| 115°   | 355.3  | 360.3  | 358.8  | 357.9  | 355.3  |
| 117.5° | 396.8  | 403.8  | 399.4  | 396.8  | 394.2  |
| 120°   | 438.7  | 445.7  | 438.7  | 438.7  | 435.8  |
| 122.5° | 476.8  | 485.6  | 481.2  | 478.6  | 476.8  |
| 125°   | 516.8  | 524.7  | 522.1  | 519.2  | 518.3  |
| 127.5° | 555.7  | 565.6  | 562.2  | 558.3  | 555.7  |
| 130°   | 592.2  | 603.6  | 602.1  | 600.2  | 596.6  |
| 132.5° | 633.1  | 642.0  | 642.7  | 638.2  | 635.7  |
| 135°   | 668.4  | 678.2  | 680.1  | 679.2  | 676.6  |
| 137.5° | 707.7  | 715.6  | 717.2  | 716.6  | 712.8  |
| 140°   | 742.3  | 750.2  | 754.7  | 754.7  | 751.1  |
| 142.5° | 777.9  | 785.7  | 788.3  | 789.3  | 785.7  |
| 145°   | 811.5  | 817.8  | 822.9  | 823.8  | 820.3  |
| 147.5° | 841.6  | 849.5  | 853.3  | 854.9  | 851.4  |
| 150°   | 872.7  | 878.1  | 881.5  | 884.4  | 881.5  |
| 152.5° | 900.3  | 905.6  | 910.0  | 913.6  | 910.0  |
| 155°   | 927.9  | 930.3  | 933.2  | 937.7  | 934.9  |
| 157.5° | 951.6  | 953.5  | 955.2  | 961.5  | 957.1  |
| 160°   | 972.9  | 974.8  | 975.8  | 981.1  | 977.4  |
| 162.5° | 992.6  | 992.6  | 993.6  | 999.5  | 995.1  |
| 165°   | 1009.4 | 1008.4 | 1008.4 | 1014.7 | 1010.3 |
| 167.5° | 1024.6 | 1021.7 | 1021.7 | 1028.0 | 1023.6 |
| 170°   | 1036.0 | 1033.5 | 1032.6 | 1038.9 | 1033.5 |
| 172.5° | 1043.9 | 1041.5 | 1040.5 | 1046.8 | 1041.5 |
| 175°   | 1050.3 | 1047.8 | 1045.9 | 1052.2 | 1046.8 |
| 177.5° | 1053.8 | 1051.2 | 1049.3 | 1054.8 | 1049.3 |
| 180°   | 1052.2 | 1052.2 | 1052.2 | 1052.2 | 1052.2 |



TEST NUMBER: P911700  
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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 | 13.86            | 14.87 | 14.67 | 15.71 | 16.75 | 13.41          | 14.43 | 14.23 | 15.27 | 16.30 |
|                 | 3H   | 15.51            | 16.42 | 16.34 | 17.27 | 18.33 | 15.02          | 15.93 | 15.85 | 16.78 | 17.84 |
|                 | 4H   | 16.09            | 16.95 | 16.93 | 17.81 | 18.88 | 15.60          | 16.46 | 16.44 | 17.31 | 18.39 |
|                 | 6H   | 16.48            | 17.28 | 17.34 | 18.14 | 19.23 | 15.98          | 16.78 | 16.84 | 17.64 | 18.73 |
|                 | 8H   | 16.58            | 17.34 | 17.45 | 18.22 | 19.31 | 16.08          | 16.84 | 16.95 | 17.72 | 18.81 |
|                 | 12H  | 16.63            | 17.35 | 17.50 | 18.23 | 19.34 | 16.12          | 16.84 | 16.99 | 17.72 | 18.83 |
| 4H              | 2H   | 14.32            | 15.19 | 15.17 | 16.04 | 17.12 | 13.97          | 14.83 | 14.82 | 15.69 | 16.76 |
|                 | 3H   | 16.18            | 16.90 | 17.04 | 17.79 | 18.88 | 15.77          | 16.49 | 16.63 | 17.38 | 18.47 |
|                 | 4H   | 16.89            | 17.54 | 17.76 | 18.43 | 19.54 | 16.46          | 17.12 | 17.34 | 18.00 | 19.12 |
|                 | 6H   | 17.39            | 17.96 | 18.28 | 18.87 | 19.99 | 16.96          | 17.53 | 17.85 | 18.43 | 19.56 |
|                 | 8H   | 17.53            | 18.06 | 18.43 | 18.97 | 20.10 | 17.10          | 17.63 | 17.99 | 18.53 | 19.67 |
|                 | 12H  | 17.61            | 18.08 | 18.52 | 19.01 | 20.15 | 17.16          | 17.64 | 18.07 | 18.56 | 19.70 |
| 8H              | 4H   | 17.08            | 17.61 | 17.98 | 18.52 | 19.65 | 16.71          | 17.24 | 17.60 | 18.14 | 19.27 |
|                 | 6H   | 17.70            | 18.14 | 18.62 | 19.08 | 20.22 | 17.31          | 17.75 | 18.23 | 18.70 | 19.83 |
|                 | 8H   | 17.91            | 18.29 | 18.84 | 19.23 | 20.38 | 17.51          | 17.90 | 18.44 | 18.84 | 19.99 |
|                 | 12H  | 18.03            | 18.37 | 18.96 | 19.30 | 20.51 | 17.62          | 17.96 | 18.55 | 18.89 | 20.10 |
| 12H             | 4H   | 17.07            | 17.55 | 17.99 | 18.47 | 19.61 | 16.70          | 17.18 | 17.62 | 18.10 | 19.24 |
|                 | 6H   | 17.72            | 18.11 | 18.65 | 19.05 | 20.20 | 17.35          | 17.74 | 18.28 | 18.68 | 19.83 |
|                 | 8H   | 17.96            | 18.30 | 18.89 | 19.23 | 20.43 | 17.58          | 17.92 | 18.51 | 18.85 | 20.05 |