

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: P911275

Luminaire Tested: DFN2DIP-PN3F0-080D030US850-RLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P911275  
REPORT IS A COMBINATION OF REPORTS P901042 AND P897955  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-080D030US850-RLLONL  
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

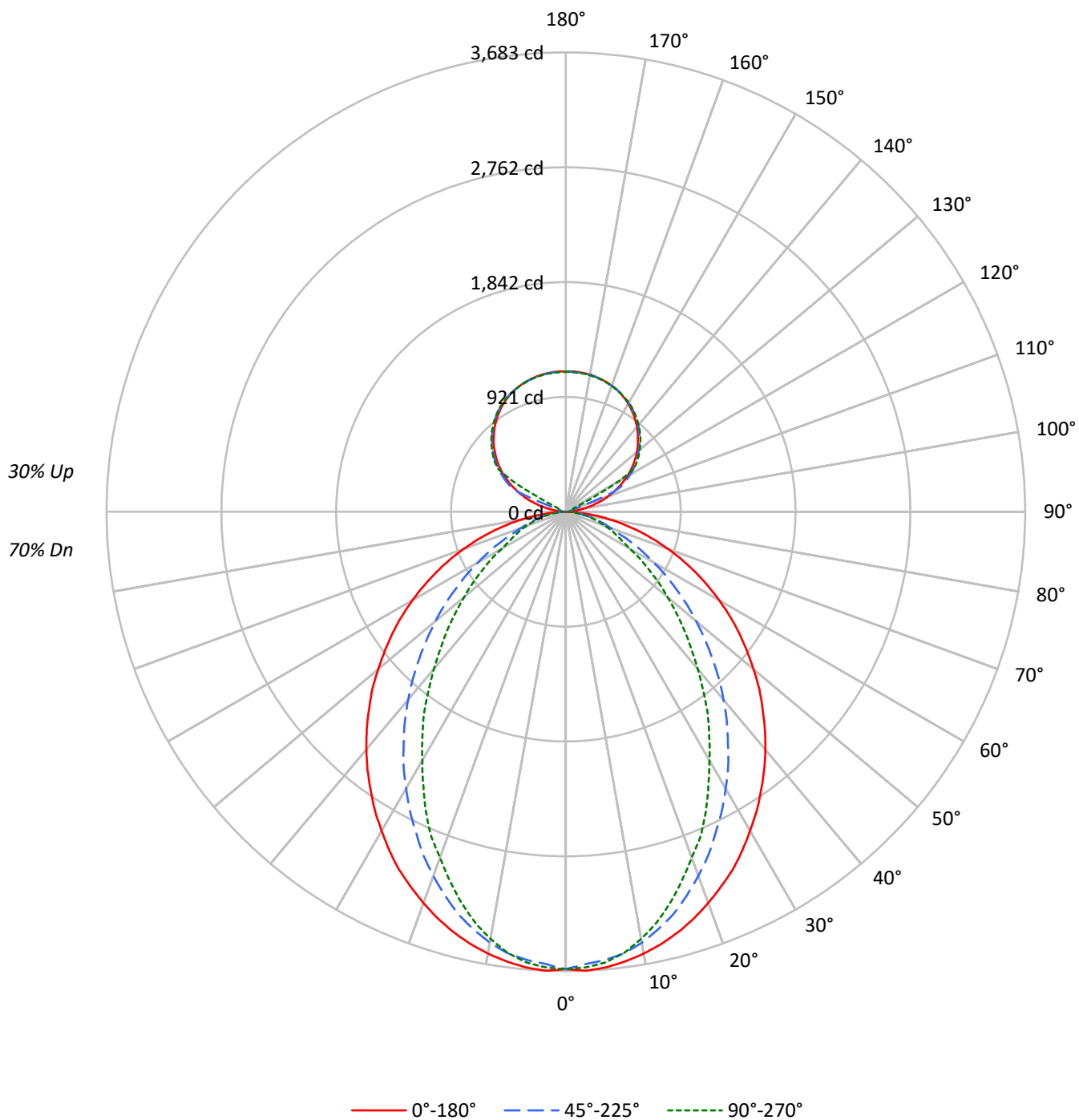
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10834.9 lumens  
Efficiency: N/A  
Efficacy: 105.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 103.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9967  
Total Harmonic Distortion (THDi): 0.063  
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   | 112 | 112 | 112 | 112 | 106 | 106 | 106 | 106 | 94 | 94 | 94 | 84 | 84 | 84 | 74 | 74 | 74 |
| 1   | 103 | 99  | 95  | 92  | 97  | 93  | 90  | 87  | 84 | 81 | 79 | 75 | 73 | 71 | 67 | 65 | 64 |
| 2   | 94  | 87  | 81  | 76  | 89  | 83  | 77  | 73  | 74 | 70 | 67 | 67 | 63 | 61 | 59 | 57 | 55 |
| 3   | 86  | 77  | 70  | 64  | 82  | 73  | 67  | 62  | 66 | 61 | 57 | 59 | 55 | 52 | 53 | 50 | 48 |
| 4   | 79  | 69  | 61  | 55  | 75  | 65  | 58  | 53  | 59 | 54 | 49 | 53 | 49 | 45 | 48 | 45 | 42 |
| 5   | 73  | 62  | 54  | 48  | 69  | 59  | 52  | 46  | 53 | 47 | 43 | 48 | 44 | 40 | 44 | 40 | 37 |
| 6   | 68  | 56  | 48  | 42  | 64  | 53  | 46  | 41  | 49 | 42 | 38 | 44 | 39 | 35 | 40 | 36 | 33 |
| 7   | 63  | 51  | 43  | 37  | 60  | 49  | 41  | 36  | 44 | 38 | 34 | 40 | 35 | 32 | 37 | 32 | 29 |
| 8   | 59  | 46  | 39  | 33  | 56  | 44  | 37  | 32  | 41 | 35 | 30 | 37 | 32 | 28 | 34 | 30 | 27 |
| 9   | 55  | 43  | 35  | 30  | 52  | 41  | 34  | 29  | 37 | 32 | 27 | 34 | 29 | 26 | 31 | 27 | 24 |
| 10  | 51  | 39  | 32  | 27  | 49  | 38  | 31  | 26  | 35 | 29 | 25 | 32 | 27 | 24 | 29 | 25 | 22 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4286 | 4286 | 4286 |
| 5°  | 4291 | 4215 | 4244 |
| 10° | 4246 | 4130 | 4104 |
| 15° | 4185 | 3990 | 3889 |
| 20° | 4105 | 3799 | 3625 |
| 25° | 4023 | 3586 | 3371 |
| 30° | 3914 | 3367 | 3049 |
| 35° | 3807 | 3132 | 2766 |
| 40° | 3698 | 2890 | 2442 |
| 45° | 3572 | 2621 | 2149 |
| 50° | 3441 | 2350 | 1862 |
| 55° | 3304 | 2061 | 1587 |
| 60° | 3145 | 1759 | 1305 |
| 65° | 2963 | 1452 | 1172 |
| 70° | 2741 | 1166 | 1058 |
| 75° | 2462 | 1021 | 959  |
| 80° | 2058 | 847  | 825  |
| 85° | 1399 | 551  | 610  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3572 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 343.7   | 3.2       |
| 10°-20°   | 943.4   | 8.7       |
| 20°-30°   | 1324.5  | 12.2      |
| 30°-40°   | 1443.8  | 13.3      |
| 40°-50°   | 1327.0  | 12.2      |
| 50°-60°   | 1042.1  | 9.6       |
| 60°-70°   | 678.3   | 6.3       |
| 70°-80°   | 349.2   | 3.2       |
| 80°-90°   | 91.1    | 0.8       |
| 90°-100°  | 37.0    | 0.3       |
| 100°-110° | 138.0   | 1.3       |
| 110°-120° | 366.1   | 3.4       |
| 120°-130° | 607.1   | 5.6       |
| 130°-140° | 644.9   | 6.0       |
| 140°-150° | 599.4   | 5.5       |
| 150°-160° | 481.9   | 4.4       |
| 160°-170° | 310.5   | 2.9       |
| 170°-180° | 106.9   | 1.0       |
| 0°-30°    | 2611.6  | 24.1      |
| 0°-40°    | 4055.4  | 37.4      |
| 0°-60°    | 6424.5  | 59.3      |
| 0°-90°    | 7543.2  | 69.6      |
| 90°-120°  | 541.1   | 5.0       |
| 90°-150°  | 2392.5  | 22.1      |
| 90°-180°  | 3292.0  | 30.4      |
| 0°-180°   | 10834.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 3667 | 3667  | 3667 | 3667  | 3667 |      |
| 5°   | 3667 | 3650  | 3607 | 3637  | 3627 | 348  |
| 15°  | 3488 | 3451  | 3338 | 3275  | 3242 | 983  |
| 25°  | 3166 | 3060  | 2840 | 2705  | 2655 | 1456 |
| 35°  | 2728 | 2558  | 2267 | 2058  | 1984 | 1707 |
| 45°  | 2230 | 2008  | 1659 | 1423  | 1344 | 1722 |
| 55°  | 1696 | 1437  | 1078 | 879   | 816  | 1515 |
| 65°  | 1145 | 876   | 577  | 465   | 454  | 1135 |
| 75°  | 610  | 378   | 266  | 242   | 239  | 646  |
| 85°  | 143  | 73    | 63   | 63    | 63   | 164  |
| 90°  | 1    | 10    | 16   | 20    | 22   | 10   |
| 95°  | 53   | 26    | 32   | 36    | 35   | 63   |
| 105° | 247  | 271   | 50   | 58    | 62   | 264  |
| 115° | 467  | 481   | 501  | 125   | 67   | 460  |
| 125° | 660  | 671   | 687  | 692   | 695  | 589  |
| 135° | 817  | 830   | 838  | 846   | 844  | 631  |
| 145° | 948  | 947   | 961  | 967   | 963  | 593  |
| 155° | 1044 | 1037  | 1046 | 1051  | 1045 | 481  |
| 165° | 1100 | 1095  | 1098 | 1103  | 1098 | 311  |
| 175° | 1125 | 1120  | 1121 | 1127  | 1119 | 107  |
| 180° | 1123 | 1123  | 1123 | 1123  | 1123 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 3666.8 | 3666.8 | 3666.8 | 3666.8 | 3666.8 |
| 2.5°   | 3683.3 | 3666.8 | 3630.2 | 3663.6 | 3656.9 |
| 5°     | 3666.8 | 3650.3 | 3606.9 | 3636.9 | 3627.0 |
| 7.5°   | 3636.9 | 3617.1 | 3570.6 | 3583.7 | 3567.1 |
| 10°    | 3597.0 | 3573.9 | 3507.7 | 3497.5 | 3477.7 |
| 12.5°  | 3547.5 | 3517.5 | 3427.7 | 3408.0 | 3371.4 |
| 15°    | 3487.6 | 3451.0 | 3338.3 | 3275.3 | 3242.2 |
| 17.5°  | 3417.8 | 3364.7 | 3225.3 | 3152.4 | 3099.2 |
| 20°    | 3338.3 | 3271.8 | 3106.0 | 3023.2 | 2949.9 |
| 22.5°  | 3252.0 | 3175.6 | 2983.1 | 2870.4 | 2820.7 |
| 25°    | 3165.8 | 3059.5 | 2840.5 | 2704.6 | 2654.6 |
| 27.5°  | 3062.9 | 2949.9 | 2707.7 | 2551.8 | 2475.4 |
| 30°    | 2953.5 | 2827.1 | 2561.7 | 2392.7 | 2302.8 |
| 32.5°  | 2847.1 | 2694.4 | 2422.6 | 2223.3 | 2140.3 |
| 35°    | 2727.8 | 2558.5 | 2266.6 | 2057.5 | 1984.2 |
| 37.5°  | 2611.6 | 2428.9 | 2120.5 | 1891.3 | 1808.6 |
| 40°    | 2488.8 | 2289.9 | 1967.7 | 1732.1 | 1645.9 |
| 42.5°  | 2362.7 | 2150.5 | 1815.2 | 1569.6 | 1486.7 |
| 45°    | 2230.0 | 2007.5 | 1659.3 | 1423.4 | 1343.9 |
| 47.5°  | 2104.0 | 1868.4 | 1510.0 | 1274.1 | 1201.3 |
| 50°    | 1964.5 | 1729.0 | 1364.0 | 1134.7 | 1065.3 |
| 52.5°  | 1828.3 | 1579.3 | 1224.4 | 1005.5 | 942.5  |
| 55°    | 1695.6 | 1436.8 | 1078.4 | 879.4  | 816.4  |
| 57.5°  | 1559.7 | 1294.2 | 949.2  | 763.3  | 710.1  |
| 60°    | 1420.2 | 1154.8 | 812.9  | 643.9  | 590.8  |
| 62.5°  | 1284.3 | 1018.8 | 696.8  | 537.6  | 511.2  |
| 65°    | 1144.9 | 875.9  | 577.3  | 464.8  | 454.5  |
| 67.5°  | 1012.2 | 743.3  | 464.8  | 408.0  | 398.2  |
| 70°    | 872.8  | 614.1  | 384.8  | 351.7  | 338.4  |
| 72.5°  | 740.0  | 494.3  | 321.8  | 295.4  | 288.7  |
| 75°    | 610.5  | 378.2  | 265.5  | 242.2  | 239.1  |
| 77.5°  | 481.3  | 268.6  | 209.2  | 195.7  | 189.1  |
| 80°    | 361.5  | 192.6  | 159.1  | 146.1  | 146.1  |
| 82.5°  | 252.1  | 129.5  | 109.5  | 102.8  | 102.8  |
| 85°    | 142.6  | 72.9   | 63.0   | 63.0   | 63.0   |
| 87.5°  | 53.1   | 26.4   | 26.4   | 23.3   | 23.3   |
| 90°    | 0.8    | 9.8    | 16.2   | 20.4   | 21.8   |
| 92.5°  | 20.4   | 17.1   | 19.5   | 21.2   | 21.8   |
| 95°    | 52.8   | 26.0   | 31.6   | 35.8   | 34.9   |
| 97.5°  | 95.0   | 28.5   | 41.4   | 43.9   | 44.7   |
| 100°   | 143.8  | 32.5   | 46.4   | 52.8   | 54.5   |
| 102.5° | 197.4  | 195.8  | 47.9   | 56.8   | 59.3   |
| 105°   | 247.0  | 271.4  | 49.6   | 58.4   | 61.8   |
| 107.5° | 304.6  | 324.9  | 51.2   | 60.1   | 63.4   |
| 110°   | 360.0  | 376.9  | 142.2  | 61.0   | 64.2   |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 412.0  | 426.5  | 412.8  | 62.5   | 65.0   |
| 115°   | 467.1  | 481.0  | 501.3  | 125.1  | 66.7   |
| 117.5° | 515.1  | 531.3  | 545.2  | 429.0  | 216.1  |
| 120°   | 568.7  | 580.9  | 595.5  | 605.3  | 495.6  |
| 122.5° | 614.2  | 627.3  | 643.6  | 648.3  | 649.2  |
| 125°   | 660.5  | 671.1  | 686.6  | 692.2  | 694.7  |
| 127.5° | 702.8  | 714.1  | 726.4  | 734.5  | 735.3  |
| 130°   | 742.6  | 755.7  | 764.5  | 773.4  | 772.8  |
| 132.5° | 783.2  | 793.8  | 802.7  | 810.0  | 809.2  |
| 135°   | 817.3  | 830.4  | 837.6  | 845.8  | 844.2  |
| 137.5° | 853.0  | 862.8  | 871.0  | 879.1  | 876.7  |
| 140°   | 888.0  | 894.5  | 903.4  | 910.7  | 906.7  |
| 142.5° | 917.4  | 923.0  | 933.6  | 940.0  | 936.0  |
| 145°   | 948.2  | 947.3  | 961.2  | 966.8  | 962.7  |
| 147.5° | 974.9  | 972.5  | 986.3  | 990.3  | 987.1  |
| 150°   | 1001.0 | 995.3  | 1008.3 | 1013.1 | 1009.1 |
| 152.5° | 1022.8 | 1016.4 | 1028.6 | 1033.5 | 1027.8 |
| 155°   | 1044.0 | 1036.8 | 1046.5 | 1051.3 | 1044.9 |
| 157.5° | 1061.1 | 1054.7 | 1062.0 | 1067.6 | 1061.1 |
| 160°   | 1075.7 | 1070.9 | 1075.7 | 1080.6 | 1074.8 |
| 162.5° | 1088.7 | 1083.8 | 1087.9 | 1093.6 | 1086.3 |
| 165°   | 1100.0 | 1095.2 | 1097.7 | 1103.3 | 1097.7 |
| 167.5° | 1109.0 | 1104.1 | 1106.6 | 1112.3 | 1105.0 |
| 170°   | 1116.3 | 1111.4 | 1113.1 | 1118.8 | 1111.4 |
| 172.5° | 1121.2 | 1116.3 | 1118.0 | 1123.6 | 1116.3 |
| 175°   | 1125.2 | 1119.5 | 1121.2 | 1126.9 | 1118.8 |
| 177.5° | 1126.9 | 1121.2 | 1122.1 | 1127.7 | 1120.4 |
| 180°   | 1122.9 | 1122.9 | 1122.9 | 1122.9 | 1122.9 |

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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 | 13.83            | 14.85 | 14.60 | 15.64 | 16.60 | 9.79           | 10.81 | 10.57 | 11.61 | 12.57 |
|                 | 3H   | 15.51            | 16.43 | 16.30 | 17.23 | 18.22 | 10.99          | 11.90 | 11.78 | 12.71 | 13.70 |
|                 | 4H   | 16.13            | 16.99 | 16.93 | 17.80 | 18.80 | 11.45          | 12.31 | 12.25 | 13.12 | 14.12 |
|                 | 6H   | 16.55            | 17.35 | 17.37 | 18.17 | 19.18 | 11.77          | 12.56 | 12.59 | 13.38 | 14.40 |
|                 | 8H   | 16.68            | 17.44 | 17.51 | 18.27 | 19.29 | 11.86          | 12.62 | 12.69 | 13.46 | 14.48 |
|                 | 12H  | 16.75            | 17.47 | 17.58 | 18.30 | 19.34 | 11.91          | 12.63 | 12.74 | 13.46 | 14.51 |
| 4H              | 2H   | 13.87            | 14.73 | 14.68 | 15.54 | 16.54 | 10.41          | 11.27 | 11.22 | 12.08 | 13.09 |
|                 | 3H   | 15.71            | 16.42 | 16.53 | 17.27 | 18.29 | 11.77          | 12.48 | 12.59 | 13.33 | 14.35 |
|                 | 4H   | 16.40            | 17.05 | 17.24 | 17.89 | 18.94 | 12.32          | 12.97 | 13.16 | 13.81 | 14.86 |
|                 | 6H   | 16.92            | 17.48 | 17.77 | 18.35 | 19.40 | 12.74          | 13.30 | 13.60 | 14.17 | 15.22 |
|                 | 8H   | 17.10            | 17.62 | 17.95 | 18.48 | 19.55 | 12.87          | 13.39 | 13.73 | 14.26 | 15.32 |
|                 | 12H  | 17.20            | 17.67 | 18.07 | 18.55 | 19.62 | 12.94          | 13.41 | 13.82 | 14.29 | 15.37 |
| 8H              | 4H   | 16.38            | 16.91 | 17.24 | 17.77 | 18.83 | 12.61          | 13.13 | 13.47 | 14.00 | 15.06 |
|                 | 6H   | 16.95            | 17.38 | 17.83 | 18.29 | 19.35 | 13.13          | 13.56 | 14.01 | 14.46 | 15.53 |
|                 | 8H   | 17.16            | 17.54 | 18.06 | 18.44 | 19.53 | 13.31          | 13.70 | 14.21 | 14.60 | 15.68 |
|                 | 12H  | 17.30            | 17.64 | 18.20 | 18.53 | 19.67 | 13.44          | 13.77 | 14.33 | 14.66 | 15.80 |
| 12H             | 4H   | 16.34            | 16.81 | 17.22 | 17.70 | 18.77 | 12.62          | 13.09 | 13.50 | 13.98 | 15.05 |
|                 | 6H   | 16.92            | 17.31 | 17.82 | 18.21 | 19.29 | 13.18          | 13.56 | 14.07 | 14.46 | 15.54 |
|                 | 8H   | 17.15            | 17.49 | 18.04 | 18.38 | 19.51 | 13.39          | 13.73 | 14.28 | 14.62 | 15.75 |