

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: P906472

Luminaire Tested: DFN2DIP-SQ3F0-070D100US835-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P906472  
REPORT IS A COMBINATION OF REPORTS P899975 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-070D100US835-FLLFL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

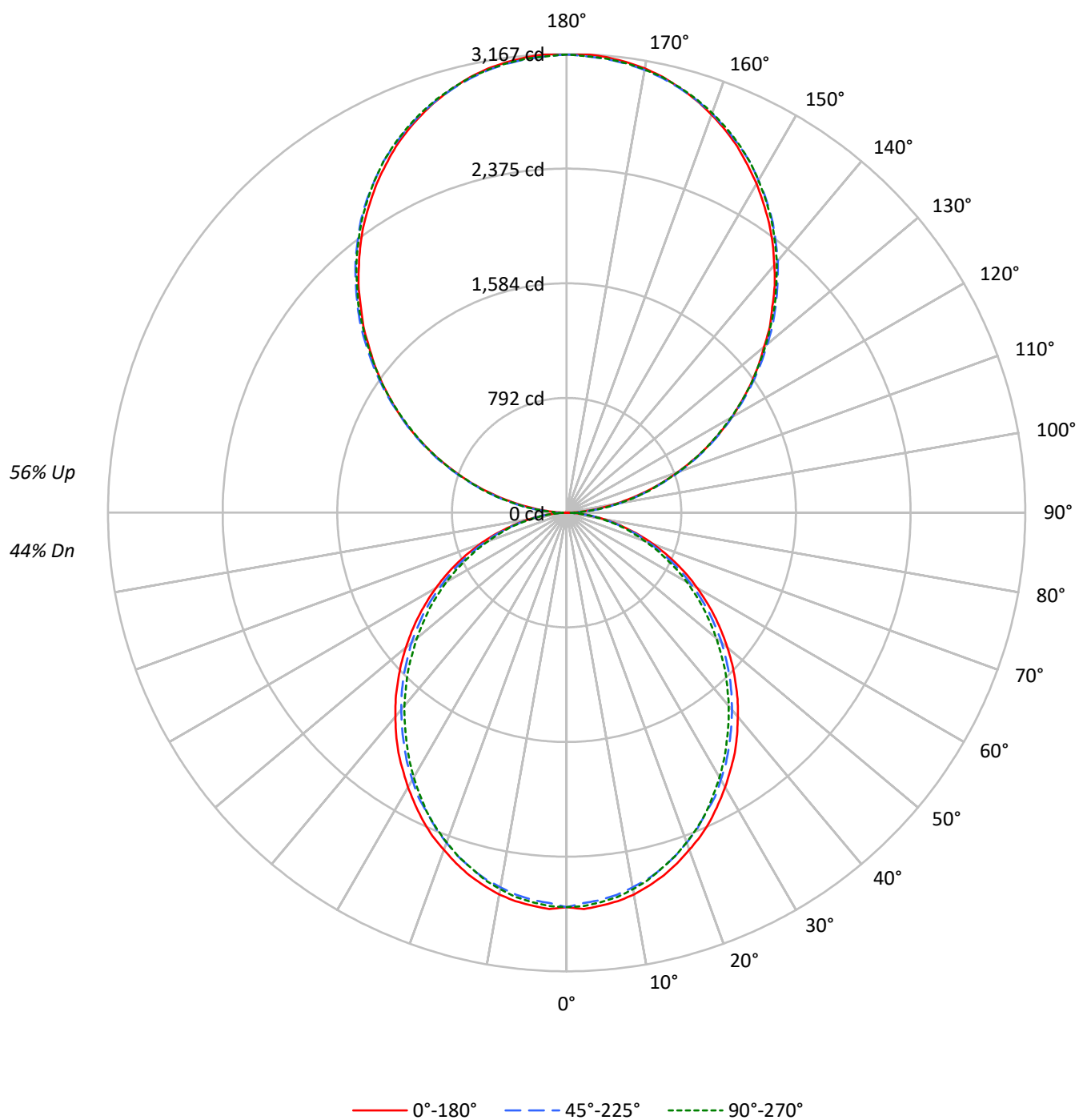
Lumens per Lamp: N/A  
Luminaire Lumens: 15780.0 lumens  
Efficiency: N/A  
Efficacy: 110.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 143.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9963  
Total Harmonic Distortion (THDi): 0.065  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P906472

CATALOG NUMBER: DFN2DIP-SQ3F0-070D100US835-FLLFLL

### 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   | 106 | 106 | 106 | 106 | 97 | 97 | 97 | 97 | 80 | 80 | 80 | 65 | 65 | 65 | 51 | 51 | 51 |
| 1   | 96  | 92  | 88  | 85  | 88 | 84 | 81 | 78 | 70 | 68 | 66 | 57 | 55 | 54 | 45 | 44 | 43 |
| 2   | 88  | 80  | 74  | 69  | 80 | 74 | 69 | 64 | 61 | 58 | 54 | 50 | 47 | 45 | 39 | 38 | 36 |
| 3   | 80  | 71  | 63  | 58  | 73 | 65 | 59 | 54 | 54 | 49 | 46 | 44 | 41 | 38 | 35 | 33 | 31 |
| 4   | 73  | 63  | 55  | 49  | 67 | 58 | 51 | 45 | 48 | 43 | 39 | 39 | 36 | 33 | 31 | 29 | 26 |
| 5   | 67  | 56  | 48  | 42  | 61 | 51 | 44 | 39 | 43 | 38 | 33 | 35 | 31 | 28 | 28 | 25 | 23 |
| 6   | 62  | 50  | 42  | 36  | 56 | 46 | 39 | 34 | 39 | 33 | 29 | 32 | 28 | 25 | 25 | 23 | 20 |
| 7   | 57  | 45  | 37  | 32  | 52 | 42 | 35 | 30 | 35 | 30 | 26 | 29 | 25 | 22 | 23 | 20 | 18 |
| 8   | 53  | 41  | 33  | 28  | 48 | 38 | 31 | 26 | 32 | 27 | 23 | 26 | 22 | 19 | 21 | 18 | 16 |
| 9   | 49  | 37  | 30  | 25  | 45 | 35 | 28 | 23 | 29 | 24 | 20 | 24 | 20 | 17 | 20 | 17 | 15 |
| 10  | 46  | 34  | 27  | 22  | 42 | 32 | 25 | 21 | 27 | 22 | 18 | 22 | 19 | 16 | 18 | 15 | 13 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3121 | 3121 | 3121 |
| 5°  | 3124 | 3075 | 3097 |
| 10° | 3097 | 3032 | 3054 |
| 15° | 3049 | 2980 | 2988 |
| 20° | 2985 | 2908 | 2920 |
| 25° | 2922 | 2824 | 2841 |
| 30° | 2844 | 2744 | 2741 |
| 35° | 2769 | 2651 | 2636 |
| 40° | 2677 | 2557 | 2536 |
| 45° | 2585 | 2462 | 2433 |
| 50° | 2485 | 2363 | 2314 |
| 55° | 2380 | 2248 | 2205 |
| 60° | 2261 | 2112 | 2079 |
| 65° | 2131 | 1971 | 1931 |
| 70° | 1965 | 1798 | 1772 |
| 75° | 1736 | 1592 | 1623 |
| 80° | 1459 | 1328 | 1341 |
| 85° | 1027 | 881  | 878  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3182 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 256.4   | 1.6       |
| 10°-20°   | 721.3   | 4.6       |
| 20°-30°   | 1060.0  | 6.7       |
| 30°-40°   | 1231.1  | 7.8       |
| 40°-50°   | 1229.6  | 7.8       |
| 50°-60°   | 1072.2  | 6.8       |
| 60°-70°   | 792.6   | 5.0       |
| 70°-80°   | 448.4   | 2.8       |
| 80°-90°   | 127.4   | 0.8       |
| 90°-100°  | 195.7   | 1.2       |
| 100°-110° | 621.8   | 3.9       |
| 110°-120° | 1064.1  | 6.7       |
| 120°-130° | 1399.5  | 8.9       |
| 130°-140° | 1570.9  | 10.0      |
| 140°-150° | 1540.4  | 9.8       |
| 150°-160° | 1292.2  | 8.2       |
| 160°-170° | 856.9   | 5.4       |
| 170°-180° | 299.5   | 1.9       |
| 0°-30°    | 2037.7  | 12.9      |
| 0°-40°    | 3268.8  | 20.7      |
| 0°-60°    | 5570.6  | 35.3      |
| 0°-90°    | 6939.0  | 44.0      |
| 90°-120°  | 1881.6  | 11.9      |
| 90°-150°  | 6392.4  | 40.5      |
| 90°-180°  | 8841.0  | 56.0      |
| 0°-180°   | 15780.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2724 | 2724  | 2724 | 2724  | 2724 |      |
| 5°   | 2724 | 2714  | 2685 | 2705  | 2700 | 259  |
| 15°  | 2593 | 2577  | 2543 | 2554  | 2541 | 730  |
| 25°  | 2347 | 2326  | 2281 | 2286  | 2281 | 1080 |
| 35°  | 2025 | 1998  | 1956 | 1941  | 1928 | 1264 |
| 45°  | 1648 | 1629  | 1590 | 1561  | 1550 | 1271 |
| 55°  | 1247 | 1231  | 1200 | 1168  | 1155 | 1115 |
| 65°  | 841  | 825   | 799  | 775   | 762  | 831  |
| 75°  | 440  | 435   | 422  | 406   | 411  | 470  |
| 85°  | 107  | 105   | 102  | 94    | 92   | 120  |
| 90°  | 3    | 34    | 93   | 88    | 91   | 15   |
| 95°  | 139  | 166   | 171  | 171   | 166  | 155  |
| 105° | 574  | 582   | 587  | 592   | 592  | 606  |
| 115° | 1068 | 1083  | 1078 | 1076  | 1068 | 1056 |
| 125° | 1553 | 1577  | 1569 | 1561  | 1558 | 1388 |
| 135° | 2009 | 2038  | 2044 | 2041  | 2034 | 1553 |
| 145° | 2439 | 2458  | 2473 | 2476  | 2466 | 1524 |
| 155° | 2789 | 2796  | 2805 | 2818  | 2810 | 1284 |
| 165° | 3034 | 3031  | 3031 | 3050  | 3037 | 856  |
| 175° | 3157 | 3149  | 3144 | 3163  | 3146 | 300  |
| 180° | 3163 | 3163  | 3163 | 3163  | 3163 |      |

TEST NUMBER: P906472

CATALOG NUMBER: DFN2DIP-SQ3F0-070D100US835-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2723.7 | 2723.7 | 2723.7 | 2723.7 | 2723.7 |
| 2.5°   | 2739.6 | 2726.5 | 2697.6 | 2723.7 | 2718.7 |
| 5°     | 2723.7 | 2713.5 | 2684.6 | 2705.4 | 2700.4 |
| 7.5°   | 2705.4 | 2689.8 | 2660.9 | 2682.1 | 2676.8 |
| 10°    | 2676.8 | 2658.4 | 2627.0 | 2647.9 | 2640.1 |
| 12.5°  | 2637.3 | 2621.8 | 2590.4 | 2603.4 | 2598.1 |
| 15°    | 2592.9 | 2577.3 | 2543.1 | 2553.7 | 2540.6 |
| 17.5°  | 2537.8 | 2522.3 | 2488.1 | 2501.2 | 2488.1 |
| 20°    | 2477.5 | 2462.0 | 2425.3 | 2433.1 | 2422.8 |
| 22.5°  | 2417.5 | 2393.9 | 2359.7 | 2359.7 | 2354.4 |
| 25°    | 2346.7 | 2325.8 | 2281.4 | 2286.4 | 2281.4 |
| 27.5°  | 2268.0 | 2249.7 | 2215.8 | 2208.0 | 2194.9 |
| 30°    | 2189.7 | 2168.5 | 2129.4 | 2121.6 | 2111.0 |
| 32.5°  | 2105.7 | 2090.2 | 2048.2 | 2032.4 | 2021.8 |
| 35°    | 2024.6 | 1998.5 | 1956.5 | 1940.7 | 1927.6 |
| 37.5°  | 1932.9 | 1909.3 | 1867.3 | 1849.0 | 1835.9 |
| 40°    | 1838.7 | 1817.6 | 1775.6 | 1752.3 | 1741.7 |
| 42.5°  | 1747.0 | 1725.9 | 1684.2 | 1657.8 | 1642.2 |
| 45°    | 1647.5 | 1629.2 | 1589.7 | 1561.1 | 1550.5 |
| 47.5°  | 1550.5 | 1532.2 | 1490.2 | 1461.3 | 1445.8 |
| 50°    | 1448.3 | 1435.2 | 1398.5 | 1361.9 | 1348.8 |
| 52.5°  | 1348.8 | 1330.5 | 1296.6 | 1267.7 | 1249.3 |
| 55°    | 1246.8 | 1231.0 | 1199.6 | 1168.2 | 1155.1 |
| 57.5°  | 1144.6 | 1131.5 | 1097.3 | 1065.9 | 1055.4 |
| 60°    | 1042.3 | 1032.0 | 995.4  | 966.5  | 958.7  |
| 62.5°  | 942.8  | 924.5  | 898.4  | 872.3  | 861.7  |
| 65°    | 840.9  | 825.0  | 798.9  | 775.3  | 762.2  |
| 67.5°  | 736.1  | 722.8  | 699.4  | 681.1  | 670.5  |
| 70°    | 639.1  | 628.6  | 604.9  | 586.6  | 576.3  |
| 72.5°  | 539.6  | 529.1  | 516.0  | 497.7  | 489.9  |
| 75°    | 439.9  | 434.9  | 421.5  | 406.0  | 411.3  |
| 77.5°  | 351.0  | 340.4  | 335.1  | 327.3  | 319.6  |
| 80°    | 262.0  | 259.3  | 254.0  | 246.2  | 240.9  |
| 82.5°  | 178.1  | 178.1  | 175.6  | 165.1  | 165.1  |
| 85°    | 107.3  | 104.8  | 102.3  | 94.2   | 91.7   |
| 87.5°  | 47.2   | 42.0   | 36.7   | 28.9   | 26.1   |
| 90°    | 2.9    | 34.3   | 93.4   | 87.7   | 90.6   |
| 92.5°  | 59.1   | 80.1   | 83.0   | 85.8   | 85.8   |
| 95°    | 139.2  | 165.9  | 170.7  | 170.7  | 165.9  |
| 97.5°  | 231.7  | 256.5  | 267.0  | 267.0  | 267.0  |
| 100°   | 338.5  | 360.4  | 368.0  | 368.0  | 365.2  |
| 102.5° | 451.0  | 467.2  | 477.7  | 480.5  | 477.7  |
| 105°   | 574.0  | 581.6  | 587.3  | 592.1  | 592.1  |
| 107.5° | 696.0  | 707.5  | 707.5  | 709.4  | 696.0  |
| 110°   | 814.3  | 829.5  | 829.5  | 829.5  | 821.9  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 942.0  | 958.2  | 955.4  | 947.7  | 942.0  |
| 115°   | 1067.9 | 1083.1 | 1078.4 | 1075.5 | 1067.9 |
| 117.5° | 1192.8 | 1213.8 | 1200.4 | 1192.8 | 1185.1 |
| 120°   | 1318.6 | 1339.6 | 1318.6 | 1318.6 | 1310.1 |
| 122.5° | 1433.0 | 1459.7 | 1446.4 | 1438.8 | 1433.0 |
| 125°   | 1553.2 | 1577.0 | 1569.4 | 1560.8 | 1558.0 |
| 127.5° | 1670.5 | 1700.0 | 1689.5 | 1678.1 | 1670.5 |
| 130°   | 1780.1 | 1814.4 | 1809.7 | 1803.9 | 1793.5 |
| 132.5° | 1903.1 | 1929.8 | 1931.7 | 1918.4 | 1910.7 |
| 135°   | 2008.9 | 2038.5 | 2044.2 | 2041.4 | 2033.7 |
| 137.5° | 2127.2 | 2151.0 | 2155.8 | 2153.9 | 2142.4 |
| 140°   | 2231.1 | 2254.9 | 2268.3 | 2268.3 | 2257.8 |
| 142.5° | 2337.9 | 2361.7 | 2369.3 | 2372.2 | 2361.7 |
| 145°   | 2438.9 | 2458.0 | 2473.3 | 2476.1 | 2465.6 |
| 147.5° | 2529.5 | 2553.4 | 2564.8 | 2569.6 | 2559.1 |
| 150°   | 2623.0 | 2639.2 | 2649.7 | 2658.2 | 2649.7 |
| 152.5° | 2705.9 | 2722.1 | 2735.5 | 2746.0 | 2735.5 |
| 155°   | 2788.9 | 2796.5 | 2805.1 | 2818.4 | 2809.8 |
| 157.5° | 2860.4 | 2866.1 | 2870.9 | 2889.9 | 2876.6 |
| 160°   | 2924.3 | 2930.0 | 2932.8 | 2949.0 | 2937.6 |
| 162.5° | 2983.4 | 2983.4 | 2986.2 | 3004.3 | 2991.0 |
| 165°   | 3033.9 | 3031.0 | 3031.0 | 3050.1 | 3036.8 |
| 167.5° | 3079.7 | 3071.1 | 3071.1 | 3090.2 | 3076.8 |
| 170°   | 3114.0 | 3106.4 | 3103.5 | 3122.6 | 3106.4 |
| 172.5° | 3137.8 | 3130.2 | 3127.3 | 3146.4 | 3130.2 |
| 175°   | 3156.9 | 3149.3 | 3143.6 | 3162.6 | 3146.4 |
| 177.5° | 3167.4 | 3159.8 | 3154.0 | 3170.2 | 3154.0 |
| 180°   | 3162.6 | 3162.6 | 3162.6 | 3162.6 | 3162.6 |

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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 | 10.61            | 11.42 | 11.61 | 12.43 | 13.79 | 10.16          | 10.97 | 11.17 | 11.99 | 13.34 |
|                 | 3H   | 12.26            | 12.98 | 13.28 | 14.01 | 15.39 | 11.77          | 12.49 | 12.79 | 13.52 | 14.90 |
|                 | 4H   | 12.84            | 13.53 | 13.87 | 14.56 | 15.94 | 12.35          | 13.03 | 13.38 | 14.06 | 15.45 |
|                 | 6H   | 13.23            | 13.87 | 14.27 | 14.90 | 16.30 | 12.73          | 13.37 | 13.77 | 14.40 | 15.80 |
|                 | 8H   | 13.34            | 13.94 | 14.38 | 14.99 | 16.38 | 12.83          | 13.44 | 13.88 | 14.49 | 15.88 |
|                 | 12H  | 13.38            | 13.95 | 14.43 | 15.00 | 16.41 | 12.87          | 13.44 | 13.92 | 14.49 | 15.90 |
| 4H              | 2H   | 11.06            | 11.75 | 12.09 | 12.77 | 14.16 | 10.70          | 11.39 | 11.74 | 12.42 | 13.80 |
|                 | 3H   | 12.91            | 13.49 | 13.96 | 14.54 | 15.94 | 12.50          | 13.08 | 13.55 | 14.14 | 15.53 |
|                 | 4H   | 13.62            | 14.15 | 14.67 | 15.20 | 16.61 | 13.20          | 13.72 | 14.25 | 14.77 | 16.19 |
|                 | 6H   | 14.13            | 14.58 | 15.19 | 15.65 | 17.07 | 13.70          | 14.15 | 14.76 | 15.22 | 16.63 |
|                 | 8H   | 14.28            | 14.70 | 15.34 | 15.76 | 17.19 | 13.84          | 14.26 | 14.90 | 15.32 | 16.75 |
|                 | 12H  | 14.34            | 14.73 | 15.42 | 15.80 | 17.24 | 13.89          | 14.28 | 14.97 | 15.36 | 16.79 |
| 8H              | 4H   | 13.81            | 14.23 | 14.87 | 15.30 | 16.73 | 13.43          | 13.85 | 14.49 | 14.92 | 16.35 |
|                 | 6H   | 14.43            | 14.78 | 15.52 | 15.89 | 17.31 | 14.05          | 14.40 | 15.13 | 15.50 | 16.93 |
|                 | 8H   | 14.65            | 14.96 | 15.74 | 16.05 | 17.49 | 14.26          | 14.56 | 15.35 | 15.65 | 17.10 |
|                 | 12H  | 14.78            | 15.04 | 15.87 | 16.13 | 17.62 | 14.36          | 14.63 | 15.46 | 15.72 | 17.20 |
| 12H             | 4H   | 13.79            | 14.17 | 14.87 | 15.25 | 16.69 | 13.42          | 13.81 | 14.50 | 14.88 | 16.32 |
|                 | 6H   | 14.46            | 14.77 | 15.55 | 15.86 | 17.30 | 14.09          | 14.39 | 15.18 | 15.48 | 16.93 |
|                 | 8H   | 14.70            | 14.97 | 15.79 | 16.05 | 17.54 | 14.31          | 14.58 | 15.41 | 15.67 | 17.15 |