

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: P914635

Luminaire Tested: DFN2DIP-SQ3F0-070D040US927-RLLONL

Issue Date: 11/21/2024

**Test Information**

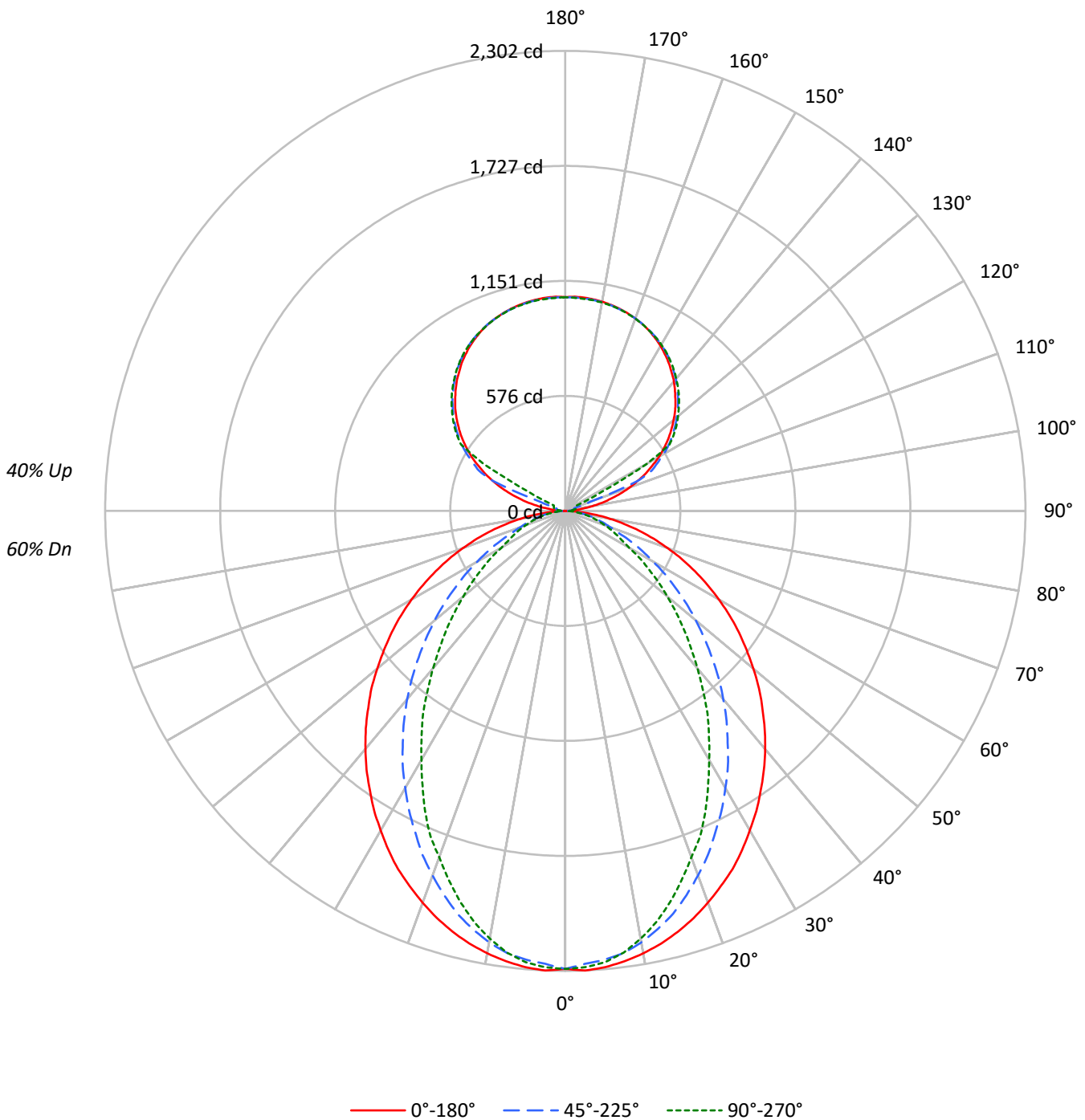
Test Method: LM-79-2019  
Report Number: P914635  
REPORT IS A COMBINATION OF REPORTS P901388 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-070D040US927-RLLONL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7850.5 lumens  
Efficiency: N/A  
Efficacy: 81.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 95.9  
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: P914635  
CATALOG NUMBER: DFN2DIP-SQ3F0-070D040US927-RLLONL

### Luminous Intensity Polar Plot



TEST NUMBER: P914635  
 CATALOG NUMBER: DFN2DIP-SQ3F0-070D040US927-RLLONL

**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   | 110 | 110 | 110 | 110 | 102 | 102 | 102 | 102 | 89 | 89 | 89 | 77 | 77 | 77 | 65 | 65 | 65 | 60 |    |    |   |
| 1   | 101 | 96  | 93  | 89  | 94  | 90  | 87  | 84  | 79 | 77 | 74 | 68 | 67 | 65 | 59 | 57 | 56 | 52 |    |    |   |
| 2   | 92  | 85  | 79  | 74  | 86  | 80  | 74  | 70  | 70 | 66 | 62 | 61 | 58 | 55 | 52 | 50 | 48 | 44 |    |    |   |
| 3   | 84  | 75  | 68  | 62  | 79  | 71  | 64  | 59  | 62 | 57 | 53 | 54 | 51 | 47 | 47 | 44 | 42 | 38 |    |    |   |
| 4   | 78  | 67  | 59  | 53  | 72  | 63  | 56  | 51  | 56 | 50 | 46 | 49 | 45 | 41 | 42 | 39 | 37 | 33 |    |    |   |
| 5   | 71  | 60  | 52  | 46  | 67  | 57  | 49  | 44  | 50 | 44 | 40 | 44 | 40 | 36 | 38 | 35 | 32 | 29 |    |    |   |
| 6   | 66  | 54  | 46  | 40  | 62  | 51  | 44  | 39  | 45 | 40 | 35 | 40 | 35 | 32 | 35 | 32 | 29 | 26 |    |    |   |
| 7   | 61  | 49  | 41  | 36  | 57  | 46  | 39  | 34  | 41 | 36 | 31 | 37 | 32 | 29 | 32 | 29 | 26 | 23 |    |    |   |
| 8   | 57  | 45  | 37  | 32  | 53  | 42  | 35  | 31  | 38 | 32 | 28 | 34 | 29 | 26 | 30 | 26 | 23 | 21 |    |    |   |
| 9   | 53  | 41  | 34  | 29  | 50  | 39  | 32  | 28  | 35 | 29 | 25 | 31 | 27 | 23 | 28 | 24 | 21 | 19 |    |    |   |
| 10  | 50  | 38  | 31  | 26  | 47  | 36  | 29  | 25  | 32 | 27 | 23 | 29 | 24 | 21 | 26 | 22 | 19 | 17 |    |    |   |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2626 | 2626 | 2626 |
| 5°  | 2629 | 2583 | 2600 |
| 10° | 2601 | 2530 | 2515 |
| 15° | 2563 | 2445 | 2383 |
| 20° | 2514 | 2328 | 2222 |
| 25° | 2464 | 2197 | 2066 |
| 30° | 2397 | 2063 | 1869 |
| 35° | 2331 | 1920 | 1696 |
| 40° | 2265 | 1771 | 1498 |
| 45° | 2187 | 1606 | 1318 |
| 50° | 2107 | 1440 | 1143 |
| 55° | 2023 | 1263 | 974  |
| 60° | 1925 | 1078 | 801  |
| 65° | 1813 | 890  | 720  |
| 70° | 1677 | 715  | 650  |
| 75° | 1506 | 627  | 590  |
| 80° | 1258 | 520  | 508  |
| 85° | 853  | 339  | 377  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2187 cd/sqm



TEST NUMBER: P914635  
 CATALOG NUMBER: DFN2DIP-SQ3F0-070D040US927-RLLONL

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 214.8  | 2.7       |
| 10°-20°   | 589.7  | 7.5       |
| 20°-30°   | 827.9  | 10.5      |
| 30°-40°   | 902.4  | 11.5      |
| 40°-50°   | 829.4  | 10.6      |
| 50°-60°   | 651.4  | 8.3       |
| 60°-70°   | 424.0  | 5.4       |
| 70°-80°   | 218.2  | 2.8       |
| 80°-90°   | 57.6   | 0.7       |
| 90°-100°  | 35.2   | 0.4       |
| 100°-110° | 131.5  | 1.7       |
| 110°-120° | 348.6  | 4.4       |
| 120°-130° | 578.2  | 7.4       |
| 130°-140° | 614.2  | 7.8       |
| 140°-150° | 570.9  | 7.3       |
| 150°-160° | 458.9  | 5.8       |
| 160°-170° | 295.7  | 3.8       |
| 170°-180° | 101.8  | 1.3       |
| 0°-30°    | 1632.3 | 20.8      |
| 0°-40°    | 2534.7 | 32.3      |
| 0°-60°    | 4015.5 | 51.2      |
| 0°-90°    | 4715.3 | 60.1      |
| 90°-120°  | 515.3  | 6.6       |
| 90°-150°  | 2278.7 | 29.0      |
| 90°-180°  | 3135.0 | 39.9      |
| 0°-180°   | 7850.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2292 | 2292  | 2292 | 2292  | 2292 |      |
| 5°   | 2292 | 2282  | 2254 | 2273  | 2267 | 217  |
| 15°  | 2180 | 2157  | 2086 | 2047  | 2026 | 614  |
| 25°  | 1979 | 1912  | 1775 | 1690  | 1659 | 910  |
| 35°  | 1705 | 1599  | 1417 | 1286  | 1240 | 1067 |
| 45°  | 1394 | 1255  | 1037 | 890   | 840  | 1076 |
| 55°  | 1060 | 898   | 674  | 550   | 510  | 947  |
| 65°  | 716  | 548   | 361  | 290   | 284  | 709  |
| 75°  | 382  | 236   | 166  | 151   | 149  | 404  |
| 85°  | 89   | 46    | 39   | 39    | 39   | 102  |
| 90°  | 1    | 9     | 15   | 19    | 21   | 7    |
| 95°  | 50   | 25    | 30   | 34    | 33   | 60   |
| 105° | 235  | 258   | 47   | 56    | 59   | 251  |
| 115° | 445  | 458   | 477  | 119   | 64   | 438  |
| 125° | 629  | 639   | 654  | 659   | 662  | 561  |
| 135° | 778  | 791   | 798  | 806   | 804  | 601  |
| 145° | 903  | 902   | 915  | 921   | 917  | 565  |
| 155° | 994  | 988   | 997  | 1001  | 995  | 458  |
| 165° | 1048 | 1043  | 1045 | 1051  | 1045 | 296  |
| 175° | 1072 | 1066  | 1068 | 1073  | 1066 | 102  |
| 180° | 1069 | 1069  | 1069 | 1069  | 1069 |      |



TEST NUMBER: P914635

CATALOG NUMBER: DFN2DIP-SQ3F0-070D040US927-RLONL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2291.9 | 2291.9 | 2291.9 | 2291.9 | 2291.9 |
| 2.5°   | 2302.2 | 2291.9 | 2269.0 | 2289.9 | 2285.7 |
| 5°     | 2291.9 | 2281.5 | 2254.5 | 2273.2 | 2267.0 |
| 7.5°   | 2273.2 | 2260.8 | 2231.8 | 2239.9 | 2229.6 |
| 10°    | 2248.3 | 2233.8 | 2192.4 | 2186.0 | 2173.7 |
| 12.5°  | 2217.2 | 2198.5 | 2142.5 | 2130.1 | 2107.2 |
| 15°    | 2179.8 | 2157.0 | 2086.5 | 2047.2 | 2026.5 |
| 17.5°  | 2136.3 | 2103.1 | 2015.9 | 1970.3 | 1937.1 |
| 20°    | 2086.5 | 2044.9 | 1941.3 | 1889.6 | 1843.8 |
| 22.5°  | 2032.7 | 1984.9 | 1864.5 | 1794.1 | 1763.1 |
| 25°    | 1978.7 | 1912.2 | 1775.4 | 1690.4 | 1659.2 |
| 27.5°  | 1914.5 | 1843.8 | 1692.4 | 1595.0 | 1547.2 |
| 30°    | 1846.0 | 1767.0 | 1601.1 | 1495.5 | 1439.4 |
| 32.5°  | 1779.6 | 1684.1 | 1514.2 | 1389.6 | 1337.7 |
| 35°    | 1704.9 | 1599.1 | 1416.7 | 1286.0 | 1240.2 |
| 37.5°  | 1632.4 | 1518.1 | 1325.4 | 1182.1 | 1130.4 |
| 40°    | 1555.5 | 1431.2 | 1229.9 | 1082.7 | 1028.7 |
| 42.5°  | 1476.8 | 1344.1 | 1134.6 | 981.0  | 929.3  |
| 45°    | 1393.8 | 1254.7 | 1037.1 | 889.7  | 839.9  |
| 47.5°  | 1315.0 | 1167.8 | 943.8  | 796.4  | 750.8  |
| 50°    | 1227.9 | 1080.7 | 852.5  | 709.2  | 665.9  |
| 52.5°  | 1142.7 | 987.1  | 765.3  | 628.4  | 589.1  |
| 55°    | 1059.8 | 898.0  | 674.0  | 549.7  | 510.3  |
| 57.5°  | 974.9  | 808.9  | 593.3  | 477.1  | 443.9  |
| 60°    | 887.7  | 721.8  | 508.1  | 402.5  | 369.2  |
| 62.5°  | 802.7  | 636.8  | 435.5  | 336.0  | 319.5  |
| 65°    | 715.6  | 547.5  | 360.9  | 290.5  | 284.1  |
| 67.5°  | 632.6  | 464.5  | 290.5  | 255.0  | 248.9  |
| 70°    | 545.5  | 383.7  | 240.5  | 219.8  | 211.4  |
| 72.5°  | 462.6  | 309.0  | 201.1  | 184.7  | 180.5  |
| 75°    | 381.6  | 236.3  | 165.9  | 151.4  | 149.4  |
| 77.5°  | 300.8  | 167.9  | 130.7  | 122.3  | 118.2  |
| 80°    | 226.0  | 120.3  | 99.5   | 91.3   | 91.3   |
| 82.5°  | 157.6  | 81.0   | 68.4   | 64.2   | 64.2   |
| 85°    | 89.1   | 45.6   | 39.4   | 39.4   | 39.4   |
| 87.5°  | 33.2   | 16.5   | 16.5   | 14.5   | 14.5   |
| 90°    | 0.7    | 9.3    | 15.4   | 19.4   | 20.8   |
| 92.5°  | 19.4   | 16.2   | 18.5   | 20.1   | 20.8   |
| 95°    | 50.2   | 24.7   | 30.1   | 34.1   | 33.3   |
| 97.5°  | 90.5   | 27.1   | 39.5   | 41.8   | 42.5   |
| 100°   | 137.0  | 31.0   | 44.1   | 50.2   | 51.8   |
| 102.5° | 188.0  | 186.6  | 45.6   | 54.1   | 56.5   |
| 105°   | 235.2  | 258.5  | 47.2   | 55.7   | 58.8   |
| 107.5° | 290.2  | 309.5  | 48.8   | 57.3   | 60.4   |
| 110°   | 342.9  | 359.0  | 135.5  | 58.1   | 61.1   |



TEST NUMBER: P914635

CATALOG NUMBER: DFN2DIP-SQ3F0-070D040US927-RLLONL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 392.4  | 406.2  | 393.1  | 59.6   | 61.9   |
| 115°   | 444.9  | 458.0  | 477.4  | 119.1  | 63.5   |
| 117.5° | 490.6  | 506.0  | 519.3  | 408.5  | 205.8  |
| 120°   | 541.7  | 553.3  | 567.2  | 576.5  | 472.1  |
| 122.5° | 584.9  | 597.4  | 612.9  | 617.5  | 618.3  |
| 125°   | 629.1  | 639.2  | 653.9  | 659.3  | 661.6  |
| 127.5° | 669.3  | 680.2  | 691.8  | 699.6  | 700.3  |
| 130°   | 707.3  | 719.7  | 728.1  | 736.6  | 735.9  |
| 132.5° | 745.9  | 756.1  | 764.5  | 771.5  | 770.8  |
| 135°   | 778.5  | 790.9  | 797.8  | 805.6  | 804.1  |
| 137.5° | 812.5  | 821.7  | 829.6  | 837.3  | 835.0  |
| 140°   | 845.7  | 852.0  | 860.5  | 867.4  | 863.6  |
| 142.5° | 873.7  | 879.1  | 889.1  | 895.2  | 891.4  |
| 145°   | 903.1  | 902.3  | 915.4  | 920.8  | 916.9  |
| 147.5° | 928.5  | 926.2  | 939.4  | 943.3  | 940.2  |
| 150°   | 953.3  | 947.9  | 960.4  | 965.0  | 961.1  |
| 152.5° | 974.2  | 968.0  | 979.6  | 984.3  | 978.9  |
| 155°   | 994.3  | 987.5  | 996.7  | 1001.3 | 995.1  |
| 157.5° | 1010.6 | 1004.4 | 1011.5 | 1016.8 | 1010.6 |
| 160°   | 1024.5 | 1019.9 | 1024.5 | 1029.1 | 1023.7 |
| 162.5° | 1036.9 | 1032.3 | 1036.2 | 1041.6 | 1034.6 |
| 165°   | 1047.7 | 1043.1 | 1045.4 | 1050.8 | 1045.4 |
| 167.5° | 1056.3 | 1051.5 | 1054.0 | 1059.4 | 1052.4 |
| 170°   | 1063.3 | 1058.6 | 1060.1 | 1065.6 | 1058.6 |
| 172.5° | 1067.9 | 1063.3 | 1064.8 | 1070.2 | 1063.3 |
| 175°   | 1071.7 | 1066.3 | 1067.9 | 1073.2 | 1065.6 |
| 177.5° | 1073.2 | 1067.9 | 1068.7 | 1074.1 | 1067.1 |
| 180°   | 1069.4 | 1069.4 | 1069.4 | 1069.4 | 1069.4 |



TEST NUMBER: P914635  
 CATALOG NUMBER: DFN2DIP-SQ3F0-070D040US927-RLONL

**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 | 11.36            | 12.28 | 12.23 | 13.17 | 14.29 | 7.32           | 8.24  | 8.19  | 9.13  | 10.25 |
|                 | 3H   | 13.04            | 13.86 | 13.92 | 14.76 | 15.91 | 8.51           | 9.33  | 9.39  | 10.23 | 11.38 |
|                 | 4H   | 13.65            | 14.42 | 14.55 | 15.33 | 16.49 | 8.96           | 9.73  | 9.86  | 10.64 | 11.80 |
|                 | 6H   | 14.07            | 14.79 | 14.98 | 15.70 | 16.87 | 9.28           | 9.99  | 10.19 | 10.90 | 12.08 |
|                 | 8H   | 14.20            | 14.88 | 15.12 | 15.81 | 16.98 | 9.37           | 10.05 | 10.29 | 10.98 | 12.15 |
|                 | 12H  | 14.26            | 14.91 | 15.19 | 15.83 | 17.02 | 9.41           | 10.06 | 10.34 | 10.98 | 12.18 |
| 4H              | 2H   | 11.39            | 12.16 | 12.29 | 13.07 | 14.23 | 7.92           | 8.70  | 8.83  | 9.60  | 10.76 |
|                 | 3H   | 13.22            | 13.86 | 14.13 | 14.80 | 15.97 | 9.27           | 9.92  | 10.19 | 10.85 | 12.03 |
|                 | 4H   | 13.91            | 14.50 | 14.84 | 15.43 | 16.63 | 9.82           | 10.41 | 10.75 | 11.34 | 12.54 |
|                 | 6H   | 14.43            | 14.93 | 15.37 | 15.89 | 17.09 | 10.24          | 10.74 | 11.18 | 11.70 | 12.90 |
|                 | 8H   | 14.60            | 15.07 | 15.54 | 16.02 | 17.23 | 10.36          | 10.84 | 11.31 | 11.78 | 13.00 |
|                 | 12H  | 14.70            | 15.12 | 15.66 | 16.09 | 17.31 | 10.43          | 10.85 | 11.39 | 11.82 | 13.04 |
| 8H              | 4H   | 13.88            | 14.35 | 14.83 | 15.30 | 16.52 | 10.10          | 10.58 | 11.05 | 11.52 | 12.74 |
|                 | 6H   | 14.45            | 14.84 | 15.42 | 15.83 | 17.04 | 10.62          | 11.01 | 11.59 | 12.00 | 13.21 |
|                 | 8H   | 14.66            | 15.00 | 15.64 | 15.98 | 17.22 | 10.80          | 11.15 | 11.78 | 12.13 | 13.36 |
|                 | 12H  | 14.80            | 15.10 | 15.78 | 16.08 | 17.35 | 10.92          | 11.22 | 11.90 | 12.20 | 13.48 |
| 12H             | 4H   | 13.84            | 14.26 | 14.80 | 15.23 | 16.45 | 10.11          | 10.54 | 11.07 | 11.50 | 12.72 |
|                 | 6H   | 14.42            | 14.77 | 15.40 | 15.75 | 16.98 | 10.66          | 11.01 | 11.64 | 11.99 | 13.22 |
|                 | 8H   | 14.64            | 14.95 | 15.62 | 15.92 | 17.20 | 10.87          | 11.18 | 11.85 | 12.15 | 13.43 |