

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: P916128

Luminaire Tested: DFN2DIP-HX2F0-050D040US930-RLLFLL

Issue Date: 11/21/2024

**Test Information**

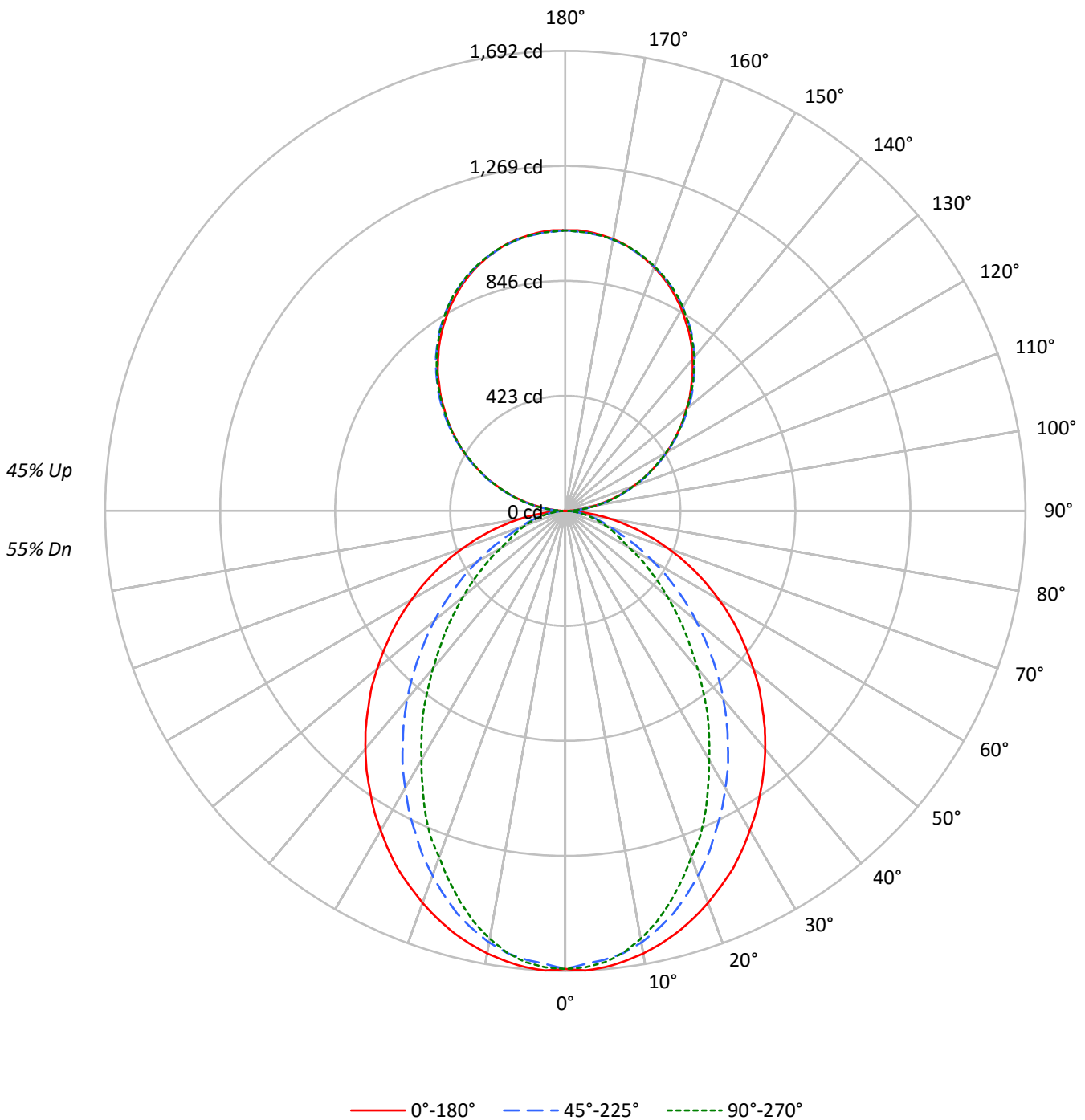
Test Method: LM-79-2019  
Report Number: P916128  
REPORT IS A COMBINATION OF REPORTS P899178 AND P896039  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX2F0-050D040US930-RLLFLL  
Description: 2 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6351.1 lumens  
Efficiency: N/A  
Efficacy: 82.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 76.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
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





TEST NUMBER: P916128

CATALOG NUMBER: DFN2DIP-HX2F0-050D040US930-RLFL

**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 | 0  |
| RCR |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |    |
| 0   | 108 | 108 | 108 | 108 | 100 | 100 | 100 | 100 | 86 | 86 | 86 | 73 | 73 | 73 | 60 | 60 | 60 | 55 |
| 1   | 99  | 95  | 91  | 88  | 92  | 89  | 85  | 82  | 76 | 74 | 72 | 65 | 63 | 62 | 54 | 53 | 52 | 47 |
| 2   | 91  | 84  | 78  | 73  | 84  | 78  | 73  | 69  | 67 | 63 | 60 | 57 | 55 | 52 | 48 | 46 | 45 | 40 |
| 3   | 83  | 74  | 67  | 61  | 77  | 69  | 63  | 58  | 60 | 55 | 51 | 51 | 48 | 45 | 43 | 41 | 39 | 35 |
| 4   | 76  | 66  | 58  | 52  | 71  | 62  | 55  | 50  | 54 | 48 | 44 | 46 | 42 | 39 | 39 | 36 | 34 | 30 |
| 5   | 70  | 59  | 51  | 45  | 65  | 55  | 48  | 43  | 48 | 43 | 38 | 42 | 37 | 34 | 35 | 32 | 30 | 27 |
| 6   | 65  | 53  | 45  | 40  | 60  | 50  | 43  | 38  | 44 | 38 | 34 | 38 | 33 | 30 | 32 | 29 | 26 | 24 |
| 7   | 60  | 48  | 40  | 35  | 56  | 45  | 38  | 33  | 40 | 34 | 30 | 35 | 30 | 27 | 30 | 26 | 24 | 21 |
| 8   | 56  | 44  | 36  | 31  | 52  | 41  | 34  | 30  | 36 | 31 | 27 | 32 | 27 | 24 | 27 | 24 | 21 | 19 |
| 9   | 52  | 40  | 33  | 28  | 49  | 38  | 31  | 27  | 34 | 28 | 24 | 29 | 25 | 22 | 25 | 22 | 19 | 17 |
| 10  | 49  | 37  | 30  | 25  | 46  | 35  | 28  | 24  | 31 | 26 | 22 | 27 | 23 | 20 | 24 | 20 | 18 | 16 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3970 | 3970 | 3970 |
| 5°  | 3970 | 3897 | 3924 |
| 10° | 3924 | 3811 | 3789 |
| 15° | 3864 | 3676 | 3585 |
| 20° | 3786 | 3494 | 3337 |
| 25° | 3706 | 3291 | 3098 |
| 30° | 3602 | 3084 | 2798 |
| 35° | 3499 | 2863 | 2533 |
| 40° | 3393 | 2634 | 2232 |
| 45° | 3272 | 2382 | 1959 |
| 50° | 3146 | 2129 | 1693 |
| 55° | 3013 | 1859 | 1438 |
| 60° | 2860 | 1579 | 1176 |
| 65° | 2682 | 1295 | 1051 |
| 70° | 2467 | 1030 | 941  |
| 75° | 2197 | 890  | 842  |
| 80° | 1808 | 721  | 708  |
| 85° | 1182 | 444  | 496  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3272 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 157.9  | 2.5       |
| 10°-20°   | 433.5  | 6.8       |
| 20°-30°   | 608.6  | 9.6       |
| 30°-40°   | 663.4  | 10.4      |
| 40°-50°   | 609.7  | 9.6       |
| 50°-60°   | 478.8  | 7.5       |
| 60°-70°   | 311.7  | 4.9       |
| 70°-80°   | 160.4  | 2.5       |
| 80°-90°   | 43.9   | 0.7       |
| 90°-100°  | 63.8   | 1.0       |
| 100°-110° | 202.8  | 3.2       |
| 110°-120° | 347.0  | 5.5       |
| 120°-130° | 456.4  | 7.2       |
| 130°-140° | 512.3  | 8.1       |
| 140°-150° | 502.4  | 7.9       |
| 150°-160° | 421.4  | 6.6       |
| 160°-170° | 279.5  | 4.4       |
| 170°-180° | 97.7   | 1.5       |
| 0°-30°    | 1200.0 | 18.9      |
| 0°-40°    | 1863.4 | 29.3      |
| 0°-60°    | 2951.9 | 46.5      |
| 0°-90°    | 3467.9 | 54.6      |
| 90°-120°  | 613.6  | 9.7       |
| 90°-150°  | 2084.7 | 32.8      |
| 90°-180°  | 2883.0 | 45.4      |
| 0°-180°   | 6351.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1685 | 1685  | 1685 | 1685  | 1685 |      |
| 5°   | 1685 | 1677  | 1657 | 1671  | 1667 | 160  |
| 15°  | 1602 | 1586  | 1534 | 1505  | 1490 | 452  |
| 25°  | 1455 | 1406  | 1305 | 1243  | 1220 | 669  |
| 35°  | 1253 | 1176  | 1042 | 945   | 912  | 784  |
| 45°  | 1025 | 922   | 762  | 654   | 617  | 791  |
| 55°  | 779  | 660   | 496  | 404   | 375  | 696  |
| 65°  | 526  | 402   | 265  | 214   | 209  | 521  |
| 75°  | 280  | 174   | 122  | 111   | 110  | 297  |
| 85°  | 66   | 34    | 29   | 29    | 29   | 75   |
| 90°  | 1    | 11    | 30   | 29    | 30   | 6    |
| 95°  | 45   | 54    | 56   | 56    | 54   | 51   |
| 105° | 187  | 190   | 192  | 193   | 193  | 198  |
| 115° | 348  | 353   | 352  | 351   | 348  | 344  |
| 125° | 506  | 514   | 512  | 509   | 508  | 453  |
| 135° | 655  | 665   | 667  | 666   | 663  | 506  |
| 145° | 795  | 802   | 807  | 808   | 804  | 497  |
| 155° | 910  | 912   | 915  | 919   | 916  | 419  |
| 165° | 989  | 988   | 988  | 995   | 990  | 279  |
| 175° | 1030 | 1027  | 1025 | 1031  | 1026 | 98   |
| 180° | 1031 | 1031  | 1031 | 1031  | 1031 |      |



TEST NUMBER: P916128

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1684.8 | 1684.8 | 1684.8 | 1684.8 | 1684.8 |
| 2.5°   | 1692.4 | 1684.8 | 1668.0 | 1683.3 | 1680.2 |
| 5°     | 1684.8 | 1677.2 | 1657.3 | 1671.0 | 1666.6 |
| 7.5°   | 1671.0 | 1662.0 | 1640.6 | 1646.7 | 1639.0 |
| 10°    | 1652.8 | 1642.1 | 1611.7 | 1607.0 | 1597.9 |
| 12.5°  | 1629.9 | 1616.2 | 1575.0 | 1565.9 | 1549.1 |
| 15°    | 1602.5 | 1585.7 | 1533.9 | 1505.0 | 1489.7 |
| 17.5°  | 1570.4 | 1546.1 | 1482.0 | 1448.5 | 1424.0 |
| 20°    | 1533.9 | 1503.3 | 1427.1 | 1389.1 | 1355.4 |
| 22.5°  | 1494.3 | 1459.1 | 1370.7 | 1318.9 | 1296.1 |
| 25°    | 1454.6 | 1405.7 | 1305.1 | 1242.7 | 1219.7 |
| 27.5°  | 1407.4 | 1355.4 | 1244.1 | 1172.5 | 1137.4 |
| 30°    | 1357.1 | 1299.0 | 1177.0 | 1099.3 | 1058.1 |
| 32.5°  | 1308.2 | 1238.0 | 1113.1 | 1021.6 | 983.4  |
| 35°    | 1253.4 | 1175.6 | 1041.5 | 945.3  | 911.7  |
| 37.5°  | 1200.0 | 1116.1 | 974.4  | 869.0  | 831.0  |
| 40°    | 1143.5 | 1052.1 | 904.1  | 795.9  | 756.3  |
| 42.5°  | 1085.7 | 988.1  | 834.1  | 721.1  | 683.1  |
| 45°    | 1024.7 | 922.4  | 762.4  | 654.0  | 617.4  |
| 47.5°  | 966.7  | 858.5  | 693.8  | 585.5  | 552.0  |
| 50°    | 902.7  | 794.4  | 626.7  | 521.4  | 489.5  |
| 52.5°  | 840.1  | 725.7  | 562.6  | 462.0  | 433.1  |
| 55°    | 779.1  | 660.1  | 495.5  | 404.1  | 375.1  |
| 57.5°  | 716.6  | 594.7  | 436.1  | 350.7  | 326.3  |
| 60°    | 652.6  | 530.6  | 373.5  | 295.9  | 271.4  |
| 62.5°  | 590.1  | 468.1  | 320.2  | 247.0  | 234.9  |
| 65°    | 526.0  | 402.5  | 265.3  | 213.5  | 208.9  |
| 67.5°  | 465.0  | 341.5  | 213.5  | 187.5  | 183.0  |
| 70°    | 401.0  | 282.1  | 176.8  | 161.6  | 155.5  |
| 72.5°  | 340.1  | 227.1  | 147.9  | 135.7  | 132.6  |
| 75°    | 280.5  | 173.7  | 122.0  | 111.3  | 109.8  |
| 77.5°  | 221.1  | 123.4  | 96.1   | 89.9   | 86.8   |
| 80°    | 166.2  | 88.5   | 73.1   | 67.1   | 67.1   |
| 82.5°  | 115.9  | 59.5   | 50.3   | 47.2   | 47.2   |
| 85°    | 65.5   | 33.5   | 28.9   | 28.9   | 28.9   |
| 87.5°  | 24.5   | 12.1   | 12.1   | 10.7   | 10.7   |
| 90°    | 0.9    | 11.2   | 30.5   | 28.6   | 29.5   |
| 92.5°  | 19.2   | 26.1   | 27.1   | 28.0   | 28.0   |
| 95°    | 45.4   | 54.1   | 55.7   | 55.7   | 54.1   |
| 97.5°  | 75.6   | 83.6   | 87.1   | 87.1   | 87.1   |
| 100°   | 110.4  | 117.6  | 120.0  | 120.0  | 119.1  |
| 102.5° | 147.1  | 152.4  | 155.8  | 156.7  | 155.8  |
| 105°   | 187.2  | 189.6  | 191.5  | 193.1  | 193.1  |
| 107.5° | 227.0  | 230.7  | 230.7  | 231.3  | 227.0  |
| 110°   | 265.5  | 270.5  | 270.5  | 270.5  | 268.1  |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 307.2  | 312.5  | 311.5  | 309.1  | 307.2  |
| 115°   | 348.2  | 353.3  | 351.6  | 350.7  | 348.2  |
| 117.5° | 389.0  | 395.8  | 391.5  | 389.0  | 386.5  |
| 120°   | 430.1  | 436.8  | 430.1  | 430.1  | 427.2  |
| 122.5° | 467.3  | 476.1  | 471.7  | 469.2  | 467.3  |
| 125°   | 506.5  | 514.3  | 511.8  | 509.0  | 508.1  |
| 127.5° | 544.8  | 554.4  | 551.0  | 547.2  | 544.8  |
| 130°   | 580.5  | 591.7  | 590.2  | 588.3  | 584.9  |
| 132.5° | 620.6  | 629.3  | 630.0  | 625.6  | 623.1  |
| 135°   | 655.2  | 664.8  | 666.7  | 665.7  | 663.2  |
| 137.5° | 693.7  | 701.5  | 703.0  | 702.4  | 698.7  |
| 140°   | 727.6  | 735.4  | 739.7  | 739.7  | 736.3  |
| 142.5° | 762.5  | 770.2  | 772.7  | 773.6  | 770.2  |
| 145°   | 795.4  | 801.6  | 806.6  | 807.6  | 804.1  |
| 147.5° | 824.9  | 832.7  | 836.4  | 838.0  | 834.5  |
| 150°   | 855.4  | 860.7  | 864.1  | 866.9  | 864.1  |
| 152.5° | 882.5  | 887.7  | 892.1  | 895.5  | 892.1  |
| 155°   | 909.5  | 912.0  | 914.8  | 919.2  | 916.3  |
| 157.5° | 932.9  | 934.7  | 936.2  | 942.5  | 938.1  |
| 160°   | 953.7  | 955.5  | 956.4  | 961.7  | 958.0  |
| 162.5° | 972.9  | 972.9  | 973.9  | 979.7  | 975.4  |
| 165°   | 989.4  | 988.5  | 988.5  | 994.7  | 990.3  |
| 167.5° | 1004.4 | 1001.5 | 1001.5 | 1007.8 | 1003.4 |
| 170°   | 1015.5 | 1013.0 | 1012.1 | 1018.3 | 1013.0 |
| 172.5° | 1023.3 | 1020.8 | 1019.9 | 1026.1 | 1020.8 |
| 175°   | 1029.6 | 1027.0 | 1025.2 | 1031.4 | 1026.1 |
| 177.5° | 1033.0 | 1030.5 | 1028.6 | 1033.9 | 1028.6 |
| 180°   | 1031.4 | 1031.4 | 1031.4 | 1031.4 | 1031.4 |



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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 | 12.22            | 13.09 | 13.14 | 14.03 | 15.23 | 8.20           | 9.07  | 9.12  | 10.01 | 11.21 |
|                 | 3H   | 13.87            | 14.65 | 14.81 | 15.60 | 16.83 | 9.38           | 10.15 | 10.31 | 11.10 | 12.33 |
|                 | 4H   | 14.47            | 15.20 | 15.42 | 16.15 | 17.39 | 9.82           | 10.55 | 10.77 | 11.50 | 12.74 |
|                 | 6H   | 14.87            | 15.55 | 15.83 | 16.50 | 17.76 | 10.12          | 10.80 | 11.09 | 11.76 | 13.01 |
|                 | 8H   | 14.99            | 15.63 | 15.96 | 16.60 | 17.85 | 10.21          | 10.85 | 11.18 | 11.82 | 13.07 |
|                 | 12H  | 15.04            | 15.65 | 16.01 | 16.62 | 17.89 | 10.24          | 10.86 | 11.22 | 11.82 | 13.10 |
| 4H              | 2H   | 12.24            | 12.97 | 13.19 | 13.92 | 15.16 | 8.79           | 9.52  | 9.74  | 10.47 | 11.71 |
|                 | 3H   | 14.04            | 14.65 | 15.01 | 15.63 | 16.89 | 10.12          | 10.73 | 11.09 | 11.71 | 12.97 |
|                 | 4H   | 14.72            | 15.27 | 15.69 | 16.25 | 17.53 | 10.66          | 11.21 | 11.63 | 12.19 | 13.47 |
|                 | 6H   | 15.21            | 15.69 | 16.20 | 16.69 | 17.96 | 11.06          | 11.54 | 12.05 | 12.54 | 13.81 |
|                 | 8H   | 15.37            | 15.82 | 16.36 | 16.81 | 18.10 | 11.18          | 11.63 | 12.17 | 12.62 | 13.91 |
|                 | 12H  | 15.45            | 15.86 | 16.46 | 16.87 | 18.16 | 11.24          | 11.64 | 12.24 | 12.65 | 13.94 |
| 8H              | 4H   | 14.68            | 15.13 | 15.67 | 16.12 | 17.41 | 10.92          | 11.37 | 11.91 | 12.36 | 13.65 |
|                 | 6H   | 15.22            | 15.59 | 16.24 | 16.63 | 17.91 | 11.42          | 11.79 | 12.43 | 12.82 | 14.11 |
|                 | 8H   | 15.42            | 15.75 | 16.44 | 16.77 | 18.08 | 11.60          | 11.92 | 12.62 | 12.94 | 14.25 |
|                 | 12H  | 15.55            | 15.83 | 16.57 | 16.85 | 18.20 | 11.70          | 11.99 | 12.73 | 13.01 | 14.36 |
| 12H             | 4H   | 14.64            | 15.04 | 15.64 | 16.05 | 17.34 | 10.93          | 11.33 | 11.93 | 12.34 | 13.63 |
|                 | 6H   | 15.20            | 15.52 | 16.22 | 16.54 | 17.85 | 11.46          | 11.79 | 12.48 | 12.81 | 14.12 |
|                 | 8H   | 15.40            | 15.69 | 16.43 | 16.70 | 18.06 | 11.66          | 11.95 | 12.68 | 12.96 | 14.31 |