

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: P915253

Luminaire Tested: DFN2DIP-TR2F0-060D020US927-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P915253  
REPORT IS A COMBINATION OF REPORTS P901749 AND P897145  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR2F0-060D020US927-FLLONL  
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

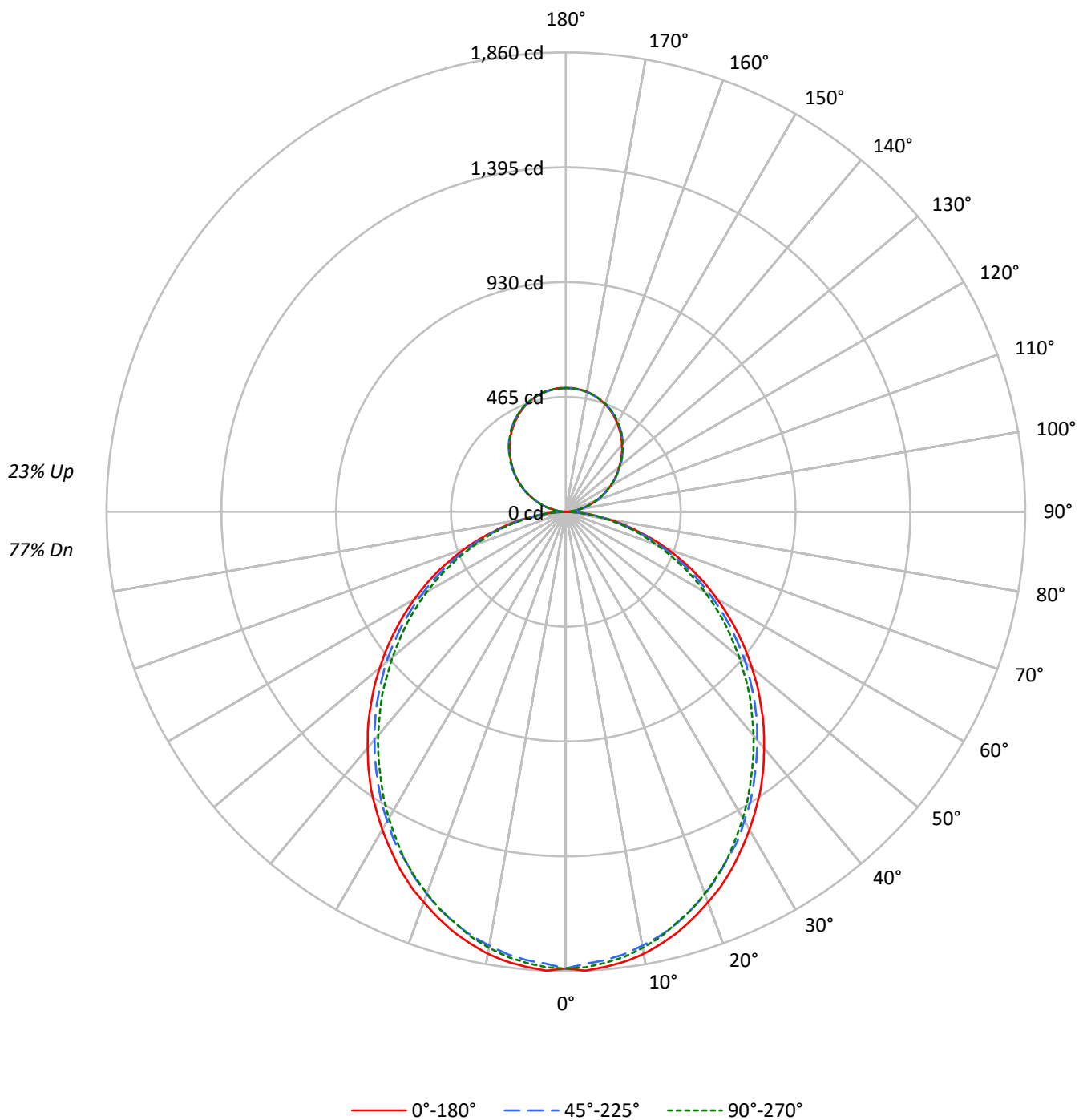
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6107.7 lumens  
Efficiency: N/A  
Efficacy: 81.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 74.7  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P915253

CATALOG NUMBER: DFN2DIP-TR2F0-060D020US927-FLLONL

### Luminous Intensity Polar Plot



TEST NUMBER: P915253

CATALOG NUMBER: DFN2DIP-TR2F0-060D020US927-FLLONL

**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   | 114 | 114 | 114 | 114 | 108 | 108 | 108 | 108 | 98 | 98 | 98 | 89 | 89 | 89 | 81 | 81 | 81 |
| 1   | 104 | 99  | 95  | 92  | 99  | 95  | 91  | 88  | 86 | 84 | 81 | 79 | 77 | 75 | 72 | 70 | 68 |
| 2   | 95  | 87  | 80  | 75  | 90  | 83  | 77  | 72  | 76 | 71 | 67 | 69 | 66 | 62 | 63 | 60 | 58 |
| 3   | 86  | 76  | 69  | 63  | 82  | 73  | 66  | 61  | 67 | 61 | 57 | 61 | 57 | 53 | 56 | 52 | 49 |
| 4   | 79  | 68  | 59  | 53  | 75  | 65  | 57  | 52  | 60 | 53 | 48 | 55 | 50 | 45 | 50 | 46 | 42 |
| 5   | 73  | 61  | 52  | 46  | 69  | 58  | 50  | 44  | 53 | 47 | 42 | 49 | 44 | 39 | 45 | 41 | 37 |
| 6   | 67  | 55  | 46  | 40  | 64  | 52  | 45  | 39  | 48 | 42 | 37 | 45 | 39 | 35 | 41 | 36 | 33 |
| 7   | 62  | 49  | 41  | 35  | 59  | 48  | 40  | 34  | 44 | 37 | 33 | 41 | 35 | 31 | 37 | 33 | 29 |
| 8   | 58  | 45  | 37  | 31  | 55  | 43  | 36  | 31  | 40 | 34 | 29 | 37 | 32 | 28 | 34 | 30 | 26 |
| 9   | 54  | 41  | 33  | 28  | 52  | 40  | 32  | 27  | 37 | 31 | 26 | 34 | 29 | 25 | 32 | 27 | 24 |
| 10  | 51  | 38  | 30  | 25  | 48  | 37  | 30  | 25  | 34 | 28 | 24 | 32 | 26 | 23 | 30 | 25 | 22 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4125 | 4125 | 4125 |
| 5°  | 4125 | 4058 | 4088 |
| 10° | 4086 | 3995 | 4025 |
| 15° | 4020 | 3920 | 3932 |
| 20° | 3932 | 3819 | 3836 |
| 25° | 3845 | 3701 | 3727 |
| 30° | 3738 | 3590 | 3590 |
| 35° | 3636 | 3461 | 3446 |
| 40° | 3510 | 3330 | 3308 |
| 45° | 3385 | 3198 | 3166 |
| 50° | 3248 | 3060 | 3003 |
| 55° | 3104 | 2900 | 2851 |
| 60° | 2941 | 2712 | 2677 |
| 65° | 2762 | 2515 | 2472 |
| 70° | 2535 | 2275 | 2249 |
| 75° | 2223 | 1988 | 2035 |
| 80° | 1842 | 1622 | 1645 |
| 85° | 1255 | 1022 | 1023 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3385 cd/sqm

TEST NUMBER: P915253

CATALOG NUMBER: DFN2DIP-TR2F0-060D020US927-FLLONL

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 174.1  | 2.9       |
| 10°-20°   | 489.8  | 8.0       |
| 20°-30°   | 719.8  | 11.8      |
| 30°-40°   | 836.0  | 13.7      |
| 40°-50°   | 834.9  | 13.7      |
| 50°-60°   | 728.0  | 11.9      |
| 60°-70°   | 538.2  | 8.8       |
| 70°-80°   | 304.5  | 5.0       |
| 80°-90°   | 81.8   | 1.3       |
| 90°-100°  | 31.0   | 0.5       |
| 100°-110° | 98.5   | 1.6       |
| 110°-120° | 168.6  | 2.8       |
| 120°-130° | 221.7  | 3.6       |
| 130°-140° | 248.9  | 4.1       |
| 140°-150° | 244.1  | 4.0       |
| 150°-160° | 204.7  | 3.4       |
| 160°-170° | 135.8  | 2.2       |
| 170°-180° | 47.5   | 0.8       |
| 0°-30°    | 1383.6 | 22.7      |
| 0°-40°    | 2219.6 | 36.3      |
| 0°-60°    | 3782.5 | 61.9      |
| 0°-90°    | 4707.0 | 77.1      |
| 90°-120°  | 298.1  | 4.9       |
| 90°-150°  | 1012.8 | 16.6      |
| 90°-180°  | 1401.0 | 22.9      |
| 0°-180°   | 6107.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1849 | 1849  | 1849 | 1849  | 1849 |      |
| 5°   | 1849 | 1842  | 1823 | 1837  | 1834 | 176  |
| 15°  | 1760 | 1750  | 1727 | 1734  | 1725 | 496  |
| 25°  | 1593 | 1579  | 1549 | 1552  | 1549 | 733  |
| 35°  | 1375 | 1357  | 1328 | 1318  | 1309 | 858  |
| 45°  | 1119 | 1106  | 1079 | 1060  | 1053 | 863  |
| 55°  | 847  | 836   | 814  | 793   | 784  | 757  |
| 65°  | 571  | 560   | 542  | 526   | 518  | 564  |
| 75°  | 299  | 295   | 286  | 276   | 279  | 319  |
| 85°  | 73   | 71    | 69   | 64    | 62   | 81   |
| 90°  | 0    | 6     | 15   | 14    | 14   | 6    |
| 95°  | 22   | 26    | 27   | 27    | 26   | 25   |
| 105° | 91   | 92    | 93   | 94    | 94   | 96   |
| 115° | 169  | 172   | 171  | 170   | 169  | 167  |
| 125° | 246  | 250   | 249  | 247   | 247  | 220  |
| 135° | 318  | 323   | 324  | 323   | 322  | 246  |
| 145° | 386  | 389   | 392  | 392   | 391  | 241  |
| 155° | 442  | 443   | 444  | 447   | 445  | 203  |
| 165° | 481  | 480   | 480  | 483   | 481  | 136  |
| 175° | 500  | 499   | 498  | 501   | 498  | 48   |
| 180° | 501  | 501   | 501  | 501   | 501  |      |

TEST NUMBER: P915253

CATALOG NUMBER: DFN2DIP-TR2F0-060D020US927-FLLONL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1849.4 | 1849.4 | 1849.4 | 1849.4 | 1849.4 |
| 2.5°   | 1860.2 | 1851.3 | 1831.7 | 1849.4 | 1846.0 |
| 5°     | 1849.4 | 1842.5 | 1822.8 | 1837.0 | 1833.6 |
| 7.5°   | 1837.0 | 1826.5 | 1806.8 | 1821.1 | 1817.6 |
| 10°    | 1817.6 | 1805.1 | 1783.8 | 1797.9 | 1792.6 |
| 12.5°  | 1790.8 | 1780.2 | 1758.9 | 1767.8 | 1764.2 |
| 15°    | 1760.5 | 1750.0 | 1726.8 | 1734.0 | 1725.1 |
| 17.5°  | 1723.2 | 1712.7 | 1689.5 | 1698.3 | 1689.5 |
| 20°    | 1682.3 | 1671.7 | 1646.8 | 1652.1 | 1645.1 |
| 22.5°  | 1641.6 | 1625.5 | 1602.3 | 1602.3 | 1598.7 |
| 25°    | 1593.4 | 1579.3 | 1549.0 | 1552.4 | 1549.0 |
| 27.5°  | 1540.0 | 1527.6 | 1504.5 | 1499.3 | 1490.4 |
| 30°    | 1486.8 | 1472.4 | 1445.9 | 1440.6 | 1433.4 |
| 32.5°  | 1429.8 | 1419.3 | 1390.8 | 1380.0 | 1372.8 |
| 35°    | 1374.8 | 1357.0 | 1328.5 | 1317.7 | 1308.8 |
| 37.5°  | 1312.5 | 1296.4 | 1268.0 | 1255.4 | 1246.6 |
| 40°    | 1248.5 | 1234.1 | 1205.7 | 1189.9 | 1182.6 |
| 42.5°  | 1186.2 | 1171.9 | 1143.6 | 1125.7 | 1115.1 |
| 45°    | 1118.7 | 1106.2 | 1079.4 | 1060.0 | 1052.8 |
| 47.5°  | 1052.8 | 1040.4 | 1011.9 | 992.3  | 981.7  |
| 50°    | 983.4  | 974.5  | 949.7  | 924.7  | 915.8  |
| 52.5°  | 915.8  | 903.4  | 880.4  | 860.8  | 848.3  |
| 55°    | 846.6  | 835.8  | 814.5  | 793.2  | 784.3  |
| 57.5°  | 777.2  | 768.3  | 745.1  | 723.8  | 716.6  |
| 60°    | 707.7  | 700.8  | 675.9  | 656.2  | 650.9  |
| 62.5°  | 640.2  | 627.7  | 610.0  | 592.2  | 585.1  |
| 65°    | 570.9  | 560.2  | 542.5  | 526.4  | 517.5  |
| 67.5°  | 499.8  | 490.8  | 474.9  | 462.5  | 455.3  |
| 70°    | 434.0  | 426.8  | 410.7  | 398.3  | 391.3  |
| 72.5°  | 366.4  | 359.3  | 350.4  | 337.9  | 332.6  |
| 75°    | 298.7  | 295.3  | 286.2  | 275.7  | 279.2  |
| 77.5°  | 238.3  | 231.2  | 227.5  | 222.3  | 217.0  |
| 80°    | 177.9  | 176.0  | 172.5  | 167.2  | 163.6  |
| 82.5°  | 121.0  | 121.0  | 119.2  | 112.1  | 112.1  |
| 85°    | 72.8   | 71.1   | 69.4   | 63.9   | 62.3   |
| 87.5°  | 32.1   | 28.5   | 24.9   | 19.6   | 17.7   |
| 90°    | 0.5    | 5.5    | 14.8   | 13.9   | 14.3   |
| 92.5°  | 9.3    | 12.7   | 13.2   | 13.6   | 13.6   |
| 95°    | 22.0   | 26.3   | 27.0   | 27.0   | 26.3   |
| 97.5°  | 36.7   | 40.6   | 42.3   | 42.3   | 42.3   |
| 100°   | 53.6   | 57.1   | 58.3   | 58.3   | 57.8   |
| 102.5° | 71.5   | 74.0   | 75.7   | 76.1   | 75.7   |
| 105°   | 90.9   | 92.1   | 93.1   | 93.8   | 93.8   |
| 107.5° | 110.3  | 112.1  | 112.1  | 112.4  | 110.3  |
| 110°   | 129.0  | 131.4  | 131.4  | 131.4  | 130.2  |

TEST NUMBER: P915253

CATALOG NUMBER: DFN2DIP-TR2F0-060D020US927-FLLONL

**CANDELA DISTRIBUTION (continued):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 112.5° | 149.2 | 151.8 | 151.4 | 150.1 | 149.2 |
| 115°   | 169.2 | 171.6 | 170.9 | 170.4 | 169.2 |
| 117.5° | 189.0 | 192.3 | 190.2 | 189.0 | 187.7 |
| 120°   | 208.9 | 212.2 | 208.9 | 208.9 | 207.6 |
| 122.5° | 227.0 | 231.2 | 229.2 | 228.0 | 227.0 |
| 125°   | 246.1 | 249.9 | 248.7 | 247.3 | 246.8 |
| 127.5° | 264.7 | 269.3 | 267.7 | 265.9 | 264.7 |
| 130°   | 282.0 | 287.5 | 286.7 | 285.8 | 284.2 |
| 132.5° | 301.5 | 305.8 | 306.0 | 304.0 | 302.7 |
| 135°   | 318.3 | 323.0 | 323.8 | 323.4 | 322.2 |
| 137.5° | 337.0 | 340.8 | 341.6 | 341.3 | 339.4 |
| 140°   | 353.5 | 357.3 | 359.4 | 359.4 | 357.7 |
| 142.5° | 370.4 | 374.1 | 375.4 | 375.8 | 374.1 |
| 145°   | 386.4 | 389.4 | 391.9 | 392.3 | 390.6 |
| 147.5° | 400.8 | 404.6 | 406.4 | 407.1 | 405.4 |
| 150°   | 415.6 | 418.1 | 419.8 | 421.1 | 419.8 |
| 152.5° | 428.7 | 431.3 | 433.4 | 435.1 | 433.4 |
| 155°   | 441.9 | 443.1 | 444.4 | 446.6 | 445.2 |
| 157.5° | 453.2 | 454.1 | 454.9 | 457.9 | 455.7 |
| 160°   | 463.3 | 464.2 | 464.7 | 467.2 | 465.4 |
| 162.5° | 472.7 | 472.7 | 473.1 | 476.0 | 473.9 |
| 165°   | 480.7 | 480.2 | 480.2 | 483.2 | 481.2 |
| 167.5° | 487.9 | 486.6 | 486.6 | 489.6 | 487.5 |
| 170°   | 493.4 | 492.2 | 491.7 | 494.7 | 492.2 |
| 172.5° | 497.2 | 495.9 | 495.5 | 498.5 | 495.9 |
| 175°   | 500.2 | 499.0 | 498.0 | 501.1 | 498.5 |
| 177.5° | 501.8 | 500.7 | 499.7 | 502.2 | 499.7 |
| 180°   | 501.1 | 501.1 | 501.1 | 501.1 | 501.1 |

TEST NUMBER: P915253

CATALOG NUMBER: DFN2DIP-TR2F0-060D020US927-FLLONL

**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 | 14.27            | 15.44 | 14.95 | 16.14 | 16.96 | 13.84          | 15.01 | 14.53 | 15.72 | 16.54 |
|                 | 3H   | 15.92            | 16.98 | 16.62 | 17.69 | 18.55 | 15.46          | 16.52 | 16.16 | 17.23 | 18.09 |
|                 | 4H   | 16.51            | 17.50 | 17.23 | 18.23 | 19.10 | 16.05          | 17.04 | 16.77 | 17.77 | 18.64 |
|                 | 6H   | 16.91            | 17.83 | 17.64 | 18.56 | 19.44 | 16.45          | 17.37 | 17.18 | 18.10 | 18.98 |
|                 | 8H   | 17.01            | 17.89 | 17.75 | 18.64 | 19.53 | 16.55          | 17.43 | 17.29 | 18.18 | 19.07 |
|                 | 12H  | 17.06            | 17.90 | 17.81 | 18.64 | 19.56 | 16.60          | 17.43 | 17.34 | 18.18 | 19.09 |
| 4H              | 2H   | 14.75            | 15.75 | 15.47 | 16.47 | 17.34 | 14.41          | 15.41 | 15.13 | 16.13 | 17.00 |
|                 | 3H   | 16.62            | 17.45 | 17.35 | 18.21 | 19.10 | 16.24          | 17.07 | 16.97 | 17.83 | 18.71 |
|                 | 4H   | 17.33            | 18.08 | 18.08 | 18.84 | 19.76 | 16.93          | 17.69 | 17.68 | 18.45 | 19.37 |
|                 | 6H   | 17.84            | 18.49 | 18.60 | 19.28 | 20.20 | 17.44          | 18.10 | 18.21 | 18.88 | 19.81 |
|                 | 8H   | 17.98            | 18.60 | 18.75 | 19.38 | 20.31 | 17.59          | 18.20 | 18.36 | 18.98 | 19.92 |
|                 | 12H  | 18.06            | 18.61 | 18.85 | 19.42 | 20.36 | 17.66          | 18.21 | 18.45 | 19.01 | 19.95 |
| 8H              | 4H   | 17.54            | 18.15 | 18.31 | 18.93 | 19.87 | 17.19          | 17.80 | 17.96 | 18.58 | 19.52 |
|                 | 6H   | 18.15            | 18.66 | 18.96 | 19.49 | 20.43 | 17.80          | 18.31 | 18.60 | 19.13 | 20.07 |
|                 | 8H   | 18.36            | 18.81 | 19.18 | 19.64 | 20.59 | 18.01          | 18.46 | 18.82 | 19.28 | 20.24 |
|                 | 12H  | 18.49            | 18.89 | 19.31 | 19.71 | 20.72 | 18.12          | 18.52 | 18.94 | 19.34 | 20.35 |
| 12H             | 4H   | 17.54            | 18.09 | 18.33 | 18.89 | 19.83 | 17.19          | 17.74 | 17.98 | 18.55 | 19.49 |
|                 | 6H   | 18.18            | 18.64 | 19.00 | 19.46 | 20.41 | 17.84          | 18.29 | 18.65 | 19.12 | 20.07 |
|                 | 8H   | 18.42            | 18.82 | 19.24 | 19.63 | 20.65 | 18.08          | 18.47 | 18.89 | 19.29 | 20.30 |