

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: P913964

Luminaire Tested: DFN2DIP-PN3F0-060D080US927-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P913964  
REPORT IS A COMBINATION OF REPORTS P899587 AND P896399  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-060D080US927-FLLFLL  
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

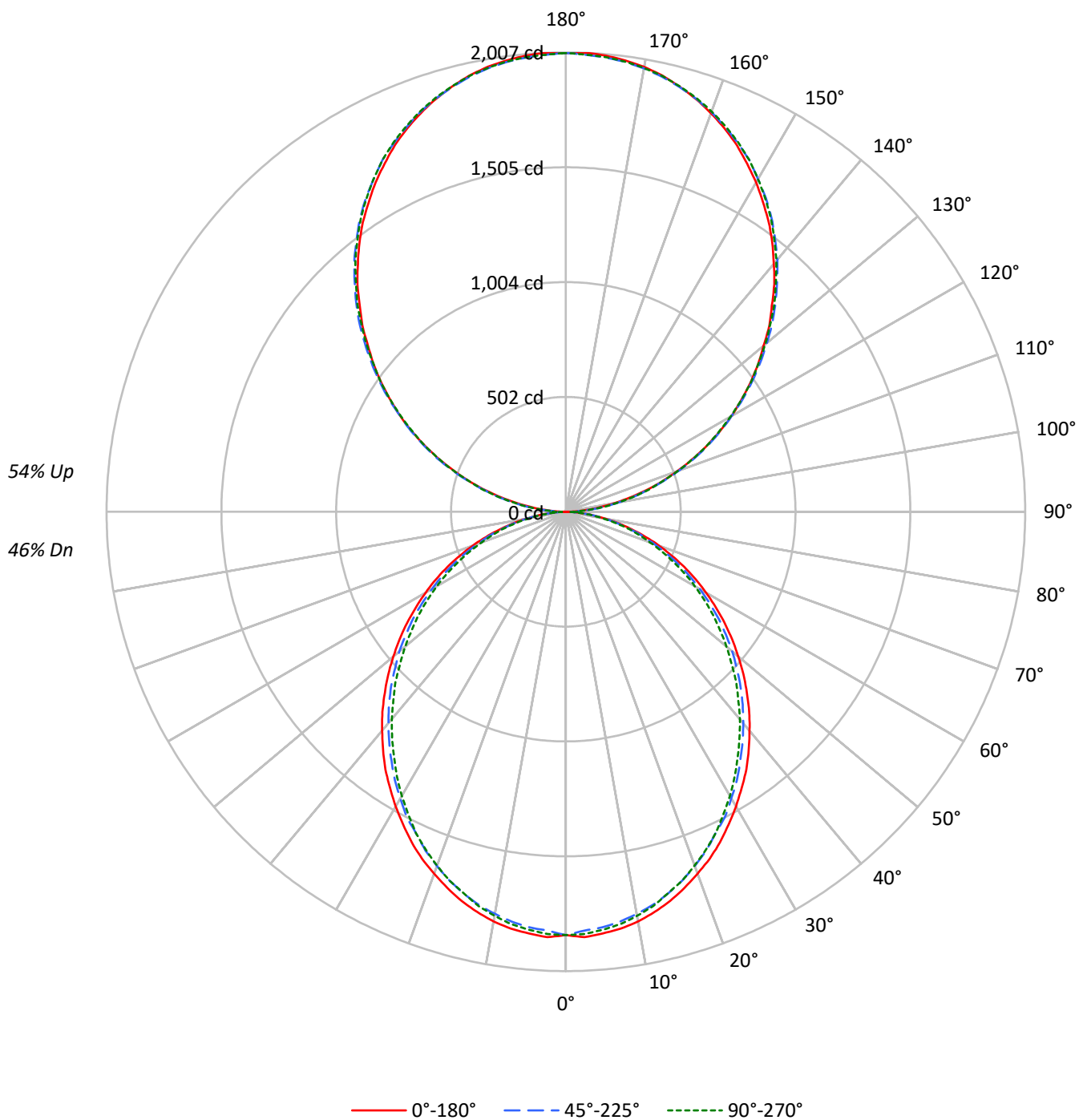
Lumens per Lamp: N/A  
Luminaire Lumens: 10314.2 lumens  
Efficiency: N/A  
Efficacy: 87.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 118.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9821  
Total Harmonic Distortion (THDi): 0.08  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P913964

CATALOG NUMBER: DFN2DIP-PN3F0-060D080US927-FLLFLL

### Luminous Intensity Polar Plot



TEST NUMBER: P913964

CATALOG NUMBER: DFN2DIP-PN3F0-060D080US927-FLLFL

**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 | 81 | 81 | 81 | 66 | 66 | 66 | 52 | 52 | 52 |
| 1   | 97  | 93  | 89  | 85  | 89 | 85 | 82 | 79 | 71 | 69 | 66 | 58 | 56 | 55 | 46 | 45 | 44 |
| 2   | 88  | 81  | 75  | 70  | 81 | 74 | 69 | 65 | 62 | 58 | 55 | 51 | 48 | 46 | 41 | 39 | 37 |
| 3   | 80  | 71  | 64  | 58  | 73 | 65 | 59 | 54 | 55 | 50 | 46 | 45 | 42 | 39 | 36 | 34 | 32 |
| 4   | 74  | 63  | 55  | 49  | 67 | 58 | 51 | 46 | 49 | 43 | 39 | 40 | 36 | 33 | 32 | 29 | 27 |
| 5   | 67  | 56  | 48  | 42  | 62 | 52 | 45 | 39 | 44 | 38 | 34 | 36 | 32 | 29 | 29 | 26 | 24 |
| 6   | 62  | 50  | 42  | 36  | 57 | 46 | 39 | 34 | 39 | 34 | 30 | 33 | 28 | 25 | 26 | 23 | 21 |
| 7   | 57  | 45  | 37  | 32  | 53 | 42 | 35 | 30 | 36 | 30 | 26 | 30 | 25 | 22 | 24 | 21 | 19 |
| 8   | 53  | 41  | 33  | 28  | 49 | 38 | 31 | 26 | 32 | 27 | 23 | 27 | 23 | 20 | 22 | 19 | 17 |
| 9   | 50  | 37  | 30  | 25  | 45 | 35 | 28 | 24 | 30 | 24 | 21 | 25 | 21 | 18 | 20 | 17 | 15 |
| 10  | 46  | 34  | 27  | 22  | 42 | 32 | 25 | 21 | 27 | 22 | 19 | 23 | 19 | 16 | 19 | 16 | 14 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2162 | 2162 | 2162 |
| 5°  | 2164 | 2130 | 2145 |
| 10° | 2145 | 2100 | 2115 |
| 15° | 2112 | 2064 | 2069 |
| 20° | 2069 | 2014 | 2022 |
| 25° | 2025 | 1955 | 1967 |
| 30° | 1970 | 1901 | 1898 |
| 35° | 1919 | 1836 | 1825 |
| 40° | 1855 | 1771 | 1755 |
| 45° | 1792 | 1705 | 1684 |
| 50° | 1722 | 1636 | 1601 |
| 55° | 1650 | 1556 | 1525 |
| 60° | 1567 | 1462 | 1438 |
| 65° | 1477 | 1364 | 1335 |
| 70° | 1363 | 1244 | 1224 |
| 75° | 1205 | 1101 | 1120 |
| 80° | 1013 | 918  | 924  |
| 85° | 714  | 607  | 603  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1986 cd/sqm

TEST NUMBER: P913964

CATALOG NUMBER: DFN2DIP-PN3F0-060D080US927-FLLFLL

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 174.1   | 1.7       |
| 10°-20°   | 489.8   | 4.7       |
| 20°-30°   | 719.8   | 7.0       |
| 30°-40°   | 836.0   | 8.1       |
| 40°-50°   | 834.9   | 8.1       |
| 50°-60°   | 728.0   | 7.1       |
| 60°-70°   | 538.2   | 5.2       |
| 70°-80°   | 304.5   | 3.0       |
| 80°-90°   | 86.1    | 0.8       |
| 90°-100°  | 124.0   | 1.2       |
| 100°-110° | 394.1   | 3.8       |
| 110°-120° | 674.4   | 6.5       |
| 120°-130° | 886.9   | 8.6       |
| 130°-140° | 995.5   | 9.7       |
| 140°-150° | 976.2   | 9.5       |
| 150°-160° | 818.9   | 7.9       |
| 160°-170° | 543.1   | 5.3       |
| 170°-180° | 189.8   | 1.8       |
| 0°-30°    | 1383.6  | 13.4      |
| 0°-40°    | 2219.6  | 21.5      |
| 0°-60°    | 3782.5  | 36.7      |
| 0°-90°    | 4711.2  | 45.7      |
| 90°-120°  | 1192.5  | 11.6      |
| 90°-150°  | 4051.1  | 39.3      |
| 90°-180°  | 5603.0  | 54.3      |
| 0°-180°   | 10314.2 | 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°  | 2    | 22    | 59   | 56    | 57   | 10   |
| 95°  | 88   | 105   | 108  | 108   | 105  | 98   |
| 105° | 364  | 369   | 372  | 375   | 375  | 384  |
| 115° | 677  | 686   | 683  | 682   | 677  | 669  |
| 125° | 984  | 999   | 995  | 989   | 987  | 880  |
| 135° | 1273 | 1292  | 1296 | 1294  | 1289 | 984  |
| 145° | 1546 | 1558  | 1567 | 1569  | 1563 | 966  |
| 155° | 1767 | 1772  | 1778 | 1786  | 1781 | 813  |
| 165° | 1923 | 1921  | 1921 | 1933  | 1924 | 542  |
| 175° | 2001 | 1996  | 1992 | 2004  | 1994 | 190  |
| 180° | 2004 | 2004  | 2004 | 2004  | 2004 |      |

TEST NUMBER: P913964

CATALOG NUMBER: DFN2DIP-PN3F0-060D080US927-FLLFLL

**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°    | 1.8    | 21.8   | 59.3   | 55.6   | 57.4   |
| 92.5°  | 37.5   | 50.8   | 52.6   | 54.3   | 54.3   |
| 95°    | 88.2   | 105.1  | 108.1  | 108.1  | 105.1  |
| 97.5°  | 146.9  | 162.6  | 169.2  | 169.2  | 169.2  |
| 100°   | 214.5  | 228.4  | 233.2  | 233.2  | 231.4  |
| 102.5° | 285.8  | 296.1  | 302.7  | 304.5  | 302.7  |
| 105°   | 363.8  | 368.6  | 372.2  | 375.3  | 375.3  |
| 107.5° | 441.1  | 448.4  | 448.4  | 449.6  | 441.1  |
| 110°   | 516.0  | 525.7  | 525.7  | 525.7  | 520.9  |

TEST NUMBER: P913964

CATALOG NUMBER: DFN2DIP-PN3F0-060D080US927-FLLFLL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 597.0  | 607.3  | 605.5  | 600.6  | 597.0  |
| 115°   | 676.8  | 686.4  | 683.4  | 681.6  | 676.8  |
| 117.5° | 755.9  | 769.2  | 760.7  | 755.9  | 751.1  |
| 120°   | 835.7  | 849.0  | 835.7  | 835.7  | 830.2  |
| 122.5° | 908.2  | 925.1  | 916.6  | 911.8  | 908.2  |
| 125°   | 984.3  | 999.4  | 994.6  | 989.1  | 987.4  |
| 127.5° | 1058.7 | 1077.4 | 1070.7 | 1063.5 | 1058.7 |
| 130°   | 1128.1 | 1149.9 | 1146.8 | 1143.3 | 1136.6 |
| 132.5° | 1206.1 | 1223.0 | 1224.2 | 1215.8 | 1210.9 |
| 135°   | 1273.1 | 1291.9 | 1295.5 | 1293.7 | 1288.9 |
| 137.5° | 1348.1 | 1363.2 | 1366.2 | 1365.0 | 1357.7 |
| 140°   | 1414.0 | 1429.0 | 1437.5 | 1437.5 | 1430.8 |
| 142.5° | 1481.6 | 1496.7 | 1501.6 | 1503.4 | 1496.7 |
| 145°   | 1545.7 | 1557.7 | 1567.4 | 1569.2 | 1562.6 |
| 147.5° | 1603.1 | 1618.2 | 1625.4 | 1628.5 | 1621.8 |
| 150°   | 1662.3 | 1672.5 | 1679.2 | 1684.7 | 1679.2 |
| 152.5° | 1714.8 | 1725.1 | 1733.6 | 1740.3 | 1733.6 |
| 155°   | 1767.4 | 1772.3 | 1777.7 | 1786.1 | 1780.7 |
| 157.5° | 1812.7 | 1816.4 | 1819.4 | 1831.4 | 1823.0 |
| 160°   | 1853.2 | 1856.9 | 1858.7 | 1868.9 | 1861.7 |
| 162.5° | 1890.7 | 1890.7 | 1892.5 | 1904.0 | 1895.5 |
| 165°   | 1922.7 | 1920.9 | 1920.9 | 1933.0 | 1924.5 |
| 167.5° | 1951.7 | 1946.3 | 1946.3 | 1958.4 | 1949.9 |
| 170°   | 1973.5 | 1968.6 | 1966.8 | 1978.9 | 1968.6 |
| 172.5° | 1988.6 | 1983.8 | 1982.0 | 1994.0 | 1983.8 |
| 175°   | 2000.7 | 1995.8 | 1992.2 | 2004.3 | 1994.0 |
| 177.5° | 2007.3 | 2002.5 | 1998.8 | 2009.1 | 1998.8 |
| 180°   | 2004.3 | 2004.3 | 2004.3 | 2004.3 | 2004.3 |

TEST NUMBER: P913964

CATALOG NUMBER: DFN2DIP-PN3F0-060D080US927-FLLFLL

**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 | 9.50             | 10.32 | 10.49 | 11.33 | 12.66 | 9.06           | 9.88  | 10.05 | 10.89 | 12.22 |
|                 | 3H   | 11.15            | 11.89 | 12.15 | 12.90 | 14.25 | 10.67          | 11.40 | 11.67 | 12.42 | 13.77 |
|                 | 4H   | 11.73            | 12.43 | 12.75 | 13.45 | 14.81 | 11.24          | 11.94 | 12.26 | 12.96 | 14.32 |
|                 | 6H   | 12.12            | 12.77 | 13.15 | 13.79 | 15.16 | 11.63          | 12.28 | 12.66 | 13.30 | 14.67 |
|                 | 8H   | 12.22            | 12.84 | 13.26 | 13.88 | 15.25 | 11.73          | 12.35 | 12.77 | 13.39 | 14.75 |
|                 | 12H  | 12.27            | 12.85 | 13.31 | 13.88 | 15.28 | 11.77          | 12.36 | 12.81 | 13.39 | 14.78 |
| 4H              | 2H   | 9.95             | 10.65 | 10.97 | 11.67 | 13.03 | 9.60           | 10.30 | 10.62 | 11.32 | 12.68 |
|                 | 3H   | 11.81            | 12.39 | 12.84 | 13.43 | 14.81 | 11.40          | 11.99 | 12.44 | 13.03 | 14.41 |
|                 | 4H   | 12.51            | 13.05 | 13.55 | 14.09 | 15.48 | 12.10          | 12.63 | 13.14 | 13.67 | 15.07 |
|                 | 6H   | 13.02            | 13.48 | 14.07 | 14.54 | 15.93 | 12.60          | 13.06 | 13.65 | 14.12 | 15.51 |
|                 | 8H   | 13.17            | 13.60 | 14.22 | 14.65 | 16.06 | 12.74          | 13.17 | 13.79 | 14.22 | 15.63 |
|                 | 12H  | 13.23            | 13.62 | 14.30 | 14.69 | 16.10 | 12.80          | 13.19 | 13.86 | 14.25 | 15.67 |
| 8H              | 4H   | 12.70            | 13.13 | 13.75 | 14.19 | 15.59 | 12.33          | 12.76 | 13.38 | 13.82 | 15.22 |
|                 | 6H   | 13.32            | 13.68 | 14.40 | 14.78 | 16.18 | 12.95          | 13.30 | 14.02 | 14.40 | 15.80 |
|                 | 8H   | 13.54            | 13.85 | 14.62 | 14.93 | 16.36 | 13.16          | 13.47 | 14.24 | 14.55 | 15.97 |
|                 | 12H  | 13.67            | 13.94 | 14.75 | 15.02 | 16.48 | 13.27          | 13.54 | 14.35 | 14.62 | 16.08 |
| 12H             | 4H   | 12.69            | 13.07 | 13.75 | 14.14 | 15.55 | 12.32          | 12.71 | 13.39 | 13.78 | 15.19 |
|                 | 6H   | 13.35            | 13.67 | 14.43 | 14.74 | 16.17 | 12.99          | 13.30 | 14.07 | 14.38 | 15.80 |
|                 | 8H   | 13.59            | 13.86 | 14.67 | 14.94 | 16.40 | 13.22          | 13.49 | 14.30 | 14.57 | 16.03 |