

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: P919392

Luminaire Tested: DFN2DIP-PN3F0-050D080US935-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P919392  
REPORT IS A COMBINATION OF REPORTS P899585 AND P896399  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-050D080US935-FLLFLL  
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

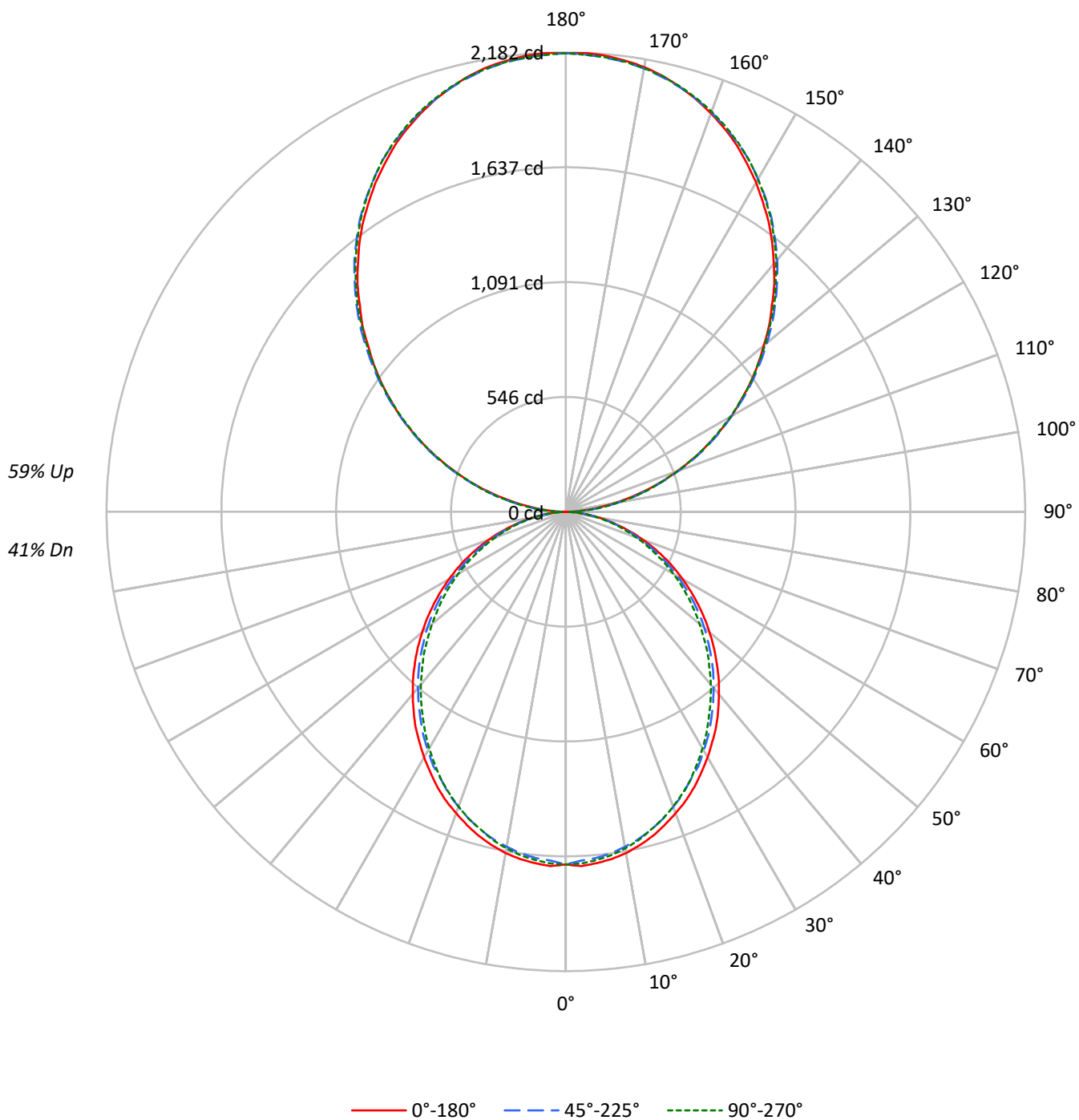
Lumens per Lamp: N/A  
Luminaire Lumens: 10357.8 lumens  
Efficiency: N/A  
Efficacy: 97.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 106.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9613  
Total Harmonic Distortion (THDi): 0.083  
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: P919392

CATALOG NUMBER: DFN2DIP-PN3F0-050D080US935-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   | 105 | 105 | 105 | 105 | 96 | 96 | 96 | 96 | 78 | 78 | 78 | 63 | 63 | 63 | 48 | 48 | 48 |
| 1   | 96  | 92  | 88  | 84  | 87 | 84 | 80 | 77 | 69 | 66 | 64 | 55 | 53 | 52 | 42 | 41 | 41 |
| 2   | 87  | 80  | 74  | 69  | 79 | 73 | 68 | 63 | 60 | 56 | 53 | 48 | 46 | 43 | 37 | 36 | 34 |
| 3   | 80  | 70  | 63  | 57  | 72 | 64 | 58 | 53 | 53 | 48 | 45 | 43 | 39 | 37 | 33 | 31 | 29 |
| 4   | 73  | 62  | 54  | 48  | 66 | 57 | 50 | 45 | 47 | 42 | 38 | 38 | 34 | 31 | 30 | 27 | 25 |
| 5   | 67  | 55  | 47  | 41  | 61 | 51 | 44 | 38 | 42 | 37 | 33 | 34 | 30 | 27 | 27 | 24 | 22 |
| 6   | 61  | 50  | 42  | 36  | 56 | 46 | 38 | 33 | 38 | 33 | 29 | 31 | 27 | 24 | 24 | 21 | 19 |
| 7   | 57  | 45  | 37  | 31  | 52 | 41 | 34 | 29 | 34 | 29 | 25 | 28 | 24 | 21 | 22 | 19 | 17 |
| 8   | 53  | 40  | 33  | 28  | 48 | 37 | 31 | 26 | 31 | 26 | 22 | 26 | 22 | 19 | 20 | 17 | 15 |
| 9   | 49  | 37  | 30  | 25  | 45 | 34 | 27 | 23 | 29 | 23 | 20 | 24 | 20 | 17 | 19 | 16 | 14 |
| 10  | 46  | 34  | 27  | 22  | 42 | 31 | 25 | 21 | 26 | 21 | 18 | 22 | 18 | 15 | 17 | 15 | 13 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1958 | 1958 | 1958 |
| 5°  | 1960 | 1929 | 1943 |
| 10° | 1943 | 1902 | 1916 |
| 15° | 1913 | 1869 | 1874 |
| 20° | 1874 | 1825 | 1831 |
| 25° | 1834 | 1771 | 1782 |
| 30° | 1785 | 1721 | 1719 |
| 35° | 1738 | 1663 | 1653 |
| 40° | 1680 | 1604 | 1590 |
| 45° | 1623 | 1544 | 1525 |
| 50° | 1560 | 1482 | 1450 |
| 55° | 1494 | 1410 | 1381 |
| 60° | 1420 | 1324 | 1302 |
| 65° | 1338 | 1235 | 1209 |
| 70° | 1234 | 1127 | 1109 |
| 75° | 1091 | 997  | 1015 |
| 80° | 918  | 832  | 837  |
| 85° | 647  | 550  | 546  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2159 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 157.7   | 1.5       |
| 10°-20°   | 443.6   | 4.3       |
| 20°-30°   | 651.9   | 6.3       |
| 30°-40°   | 757.2   | 7.3       |
| 40°-50°   | 756.2   | 7.3       |
| 50°-60°   | 659.4   | 6.4       |
| 60°-70°   | 487.4   | 4.7       |
| 70°-80°   | 275.8   | 2.7       |
| 80°-90°   | 79.0    | 0.8       |
| 90°-100°  | 134.8   | 1.3       |
| 100°-110° | 428.3   | 4.1       |
| 110°-120° | 733.0   | 7.1       |
| 120°-130° | 964.0   | 9.3       |
| 130°-140° | 1082.0  | 10.4      |
| 140°-150° | 1061.0  | 10.2      |
| 150°-160° | 890.1   | 8.6       |
| 160°-170° | 590.3   | 5.7       |
| 170°-180° | 206.3   | 2.0       |
| 0°-30°    | 1253.2  | 12.1      |
| 0°-40°    | 2010.3  | 19.4      |
| 0°-60°    | 3425.9  | 33.1      |
| 0°-90°    | 4268.1  | 41.2      |
| 90°-120°  | 1296.1  | 12.5      |
| 90°-150°  | 4403.1  | 42.5      |
| 90°-180°  | 6090.0  | 58.8      |
| 0°-180°   | 10357.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1675 | 1675  | 1675 | 1675  | 1675 |      |
| 5°   | 1675 | 1669  | 1651 | 1664  | 1661 | 159  |
| 15°  | 1595 | 1585  | 1564 | 1570  | 1562 | 449  |
| 25°  | 1443 | 1430  | 1403 | 1406  | 1403 | 664  |
| 35°  | 1245 | 1229  | 1203 | 1194  | 1186 | 778  |
| 45°  | 1013 | 1002  | 978  | 960   | 954  | 782  |
| 55°  | 767  | 757   | 738  | 718   | 710  | 686  |
| 65°  | 517  | 507   | 491  | 477   | 469  | 511  |
| 75°  | 270  | 267   | 259  | 250   | 253  | 289  |
| 85°  | 66   | 64    | 63   | 58    | 56   | 74   |
| 90°  | 2    | 24    | 64   | 60    | 62   | 10   |
| 95°  | 96   | 114   | 118  | 118   | 114  | 107  |
| 105° | 395  | 401   | 405  | 408   | 408  | 417  |
| 115° | 736  | 746   | 743  | 741   | 736  | 728  |
| 125° | 1070 | 1086  | 1081 | 1075  | 1073 | 956  |
| 135° | 1384 | 1404  | 1408 | 1406  | 1401 | 1070 |
| 145° | 1680 | 1693  | 1704 | 1706  | 1698 | 1050 |
| 155° | 1921 | 1926  | 1932 | 1941  | 1935 | 884  |
| 165° | 2090 | 2088  | 2088 | 2101  | 2092 | 590  |
| 175° | 2174 | 2169  | 2165 | 2178  | 2167 | 207  |
| 180° | 2178 | 2178  | 2178 | 2178  | 2178 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1675.1 | 1675.1 | 1675.1 | 1675.1 | 1675.1 |
| 2.5°   | 1684.8 | 1676.8 | 1659.1 | 1675.1 | 1672.1 |
| 5°     | 1675.1 | 1668.8 | 1651.0 | 1663.8 | 1660.8 |
| 7.5°   | 1663.8 | 1654.2 | 1636.5 | 1649.5 | 1646.2 |
| 10°    | 1646.2 | 1634.9 | 1615.7 | 1628.4 | 1623.7 |
| 12.5°  | 1621.9 | 1612.4 | 1593.1 | 1601.1 | 1597.8 |
| 15°    | 1594.6 | 1585.0 | 1564.0 | 1570.5 | 1562.5 |
| 17.5°  | 1560.7 | 1551.2 | 1530.2 | 1538.2 | 1530.2 |
| 20°    | 1523.7 | 1514.2 | 1491.6 | 1496.3 | 1490.0 |
| 22.5°  | 1486.8 | 1472.2 | 1451.2 | 1451.2 | 1447.9 |
| 25°    | 1443.2 | 1430.4 | 1403.0 | 1406.1 | 1403.0 |
| 27.5°  | 1394.8 | 1383.5 | 1362.7 | 1357.9 | 1349.9 |
| 30°    | 1346.6 | 1333.7 | 1309.6 | 1304.8 | 1298.3 |
| 32.5°  | 1295.0 | 1285.5 | 1259.6 | 1249.9 | 1243.5 |
| 35°    | 1245.1 | 1229.1 | 1203.2 | 1193.5 | 1185.5 |
| 37.5°  | 1188.7 | 1174.2 | 1148.4 | 1137.1 | 1129.1 |
| 40°    | 1130.8 | 1117.8 | 1092.0 | 1077.6 | 1071.2 |
| 42.5°  | 1074.4 | 1061.4 | 1035.8 | 1019.5 | 1010.0 |
| 45°    | 1013.2 | 1001.9 | 977.7  | 960.1  | 953.6  |
| 47.5°  | 953.6  | 942.3  | 916.5  | 898.7  | 889.2  |
| 50°    | 890.7  | 882.7  | 860.1  | 837.6  | 829.5  |
| 52.5°  | 829.5  | 818.2  | 797.4  | 779.6  | 768.4  |
| 55°    | 766.8  | 757.1  | 737.7  | 718.4  | 710.4  |
| 57.5°  | 703.9  | 695.9  | 674.9  | 655.6  | 649.0  |
| 60°    | 641.0  | 634.7  | 612.2  | 594.3  | 589.6  |
| 62.5°  | 579.9  | 568.6  | 552.5  | 536.4  | 529.9  |
| 65°    | 517.1  | 507.4  | 491.3  | 476.8  | 468.7  |
| 67.5°  | 452.7  | 444.5  | 430.2  | 418.9  | 412.3  |
| 70°    | 393.0  | 386.6  | 372.0  | 360.8  | 354.5  |
| 72.5°  | 331.9  | 325.4  | 317.4  | 306.1  | 301.3  |
| 75°    | 270.5  | 267.4  | 259.2  | 249.7  | 253.0  |
| 77.5°  | 215.9  | 209.3  | 206.1  | 201.3  | 196.6  |
| 80°    | 161.2  | 159.5  | 156.2  | 151.4  | 148.2  |
| 82.5°  | 109.5  | 109.5  | 108.0  | 101.5  | 101.5  |
| 85°    | 66.0   | 64.4   | 62.9   | 57.9   | 56.4   |
| 87.5°  | 29.0   | 25.8   | 22.6   | 17.7   | 16.1   |
| 90°    | 2.0    | 23.7   | 64.4   | 60.4   | 62.4   |
| 92.5°  | 40.7   | 55.2   | 57.2   | 59.1   | 59.1   |
| 95°    | 95.9   | 114.3  | 117.5  | 117.5  | 114.3  |
| 97.5°  | 159.6  | 176.7  | 183.9  | 183.9  | 183.9  |
| 100°   | 233.2  | 248.2  | 253.5  | 253.5  | 251.5  |
| 102.5° | 310.6  | 321.8  | 329.0  | 331.0  | 329.0  |
| 105°   | 395.4  | 400.6  | 404.6  | 407.9  | 407.9  |
| 107.5° | 479.4  | 487.3  | 487.3  | 488.6  | 479.4  |
| 110°   | 560.9  | 571.4  | 571.4  | 571.4  | 566.1  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 648.8  | 660.0  | 658.1  | 652.8  | 648.8  |
| 115°   | 735.6  | 746.1  | 742.8  | 740.8  | 735.6  |
| 117.5° | 821.6  | 836.0  | 826.8  | 821.6  | 816.3  |
| 120°   | 908.3  | 922.7  | 908.3  | 908.3  | 902.3  |
| 122.5° | 987.0  | 1005.5 | 996.3  | 991.0  | 987.0  |
| 125°   | 1069.8 | 1086.2 | 1081.0 | 1075.0 | 1073.1 |
| 127.5° | 1150.6 | 1171.0 | 1163.7 | 1155.9 | 1150.6 |
| 130°   | 1226.1 | 1249.7 | 1246.5 | 1242.6 | 1235.4 |
| 132.5° | 1310.9 | 1329.2 | 1330.6 | 1321.4 | 1316.1 |
| 135°   | 1383.7 | 1404.1 | 1408.1 | 1406.1 | 1400.8 |
| 137.5° | 1465.2 | 1481.6 | 1484.9 | 1483.6 | 1475.7 |
| 140°   | 1536.8 | 1553.2 | 1562.4 | 1562.4 | 1555.1 |
| 142.5° | 1610.3 | 1626.8 | 1632.0 | 1634.0 | 1626.8 |
| 145°   | 1680.0 | 1693.1 | 1703.6 | 1705.6 | 1698.3 |
| 147.5° | 1742.3 | 1758.8 | 1766.6 | 1770.0 | 1762.7 |
| 150°   | 1806.7 | 1817.8 | 1825.1 | 1831.0 | 1825.1 |
| 152.5° | 1863.8 | 1875.0 | 1884.2 | 1891.4 | 1884.2 |
| 155°   | 1921.0 | 1926.2 | 1932.2 | 1941.3 | 1935.4 |
| 157.5° | 1970.2 | 1974.2 | 1977.5 | 1990.5 | 1981.4 |
| 160°   | 2014.2 | 2018.2 | 2020.2 | 2031.3 | 2023.4 |
| 162.5° | 2054.9 | 2054.9 | 2056.9 | 2069.4 | 2060.2 |
| 165°   | 2089.7 | 2087.7 | 2087.7 | 2100.9 | 2091.7 |
| 167.5° | 2121.2 | 2115.4 | 2115.4 | 2128.5 | 2119.3 |
| 170°   | 2144.9 | 2139.7 | 2137.7 | 2150.9 | 2139.7 |
| 172.5° | 2161.4 | 2156.1 | 2154.1 | 2167.2 | 2156.1 |
| 175°   | 2174.5 | 2169.2 | 2165.2 | 2178.4 | 2167.2 |
| 177.5° | 2181.7 | 2176.4 | 2172.5 | 2183.7 | 2172.5 |
| 180°   | 2178.4 | 2178.4 | 2178.4 | 2178.4 | 2178.4 |

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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 | 8.69             | 9.48  | 9.72  | 10.52 | 11.91 | 8.26           | 9.04  | 9.28  | 10.08 | 11.47 |
|                 | 3H   | 10.34            | 11.05 | 11.38 | 12.09 | 13.51 | 9.86           | 10.57 | 10.90 | 11.61 | 13.02 |
|                 | 4H   | 10.92            | 11.59 | 11.97 | 12.64 | 14.06 | 10.44          | 11.11 | 11.49 | 12.16 | 13.57 |
|                 | 6H   | 11.31            | 11.93 | 12.38 | 12.98 | 14.41 | 10.83          | 11.44 | 11.89 | 12.49 | 13.92 |
|                 | 8H   | 11.41            | 12.00 | 12.48 | 13.07 | 14.49 | 10.93          | 11.51 | 11.99 | 12.58 | 14.00 |
|                 | 12H  | 11.46            | 12.02 | 12.53 | 13.08 | 14.53 | 10.96          | 11.52 | 12.03 | 12.58 | 14.03 |
| 4H              | 2H   | 9.14             | 9.81  | 10.20 | 10.86 | 12.28 | 8.79           | 9.46  | 9.85  | 10.51 | 11.93 |
|                 | 3H   | 11.00            | 11.55 | 12.06 | 12.63 | 14.06 | 10.59          | 11.15 | 11.66 | 12.23 | 13.66 |
|                 | 4H   | 11.70            | 12.21 | 12.77 | 13.28 | 14.73 | 11.29          | 11.80 | 12.36 | 12.86 | 14.32 |
|                 | 6H   | 12.21            | 12.65 | 13.29 | 13.74 | 15.18 | 11.78          | 12.22 | 12.86 | 13.31 | 14.76 |
|                 | 8H   | 12.35            | 12.76 | 13.43 | 13.84 | 15.31 | 11.93          | 12.34 | 13.01 | 13.42 | 14.88 |
|                 | 12H  | 12.42            | 12.79 | 13.52 | 13.89 | 15.35 | 11.98          | 12.35 | 13.08 | 13.45 | 14.92 |
| 8H              | 4H   | 11.89            | 12.30 | 12.97 | 13.38 | 14.84 | 11.52          | 11.93 | 12.60 | 13.01 | 14.47 |
|                 | 6H   | 12.51            | 12.85 | 13.61 | 13.97 | 15.43 | 12.13          | 12.47 | 13.24 | 13.60 | 15.06 |
|                 | 8H   | 12.72            | 13.02 | 13.83 | 14.13 | 15.61 | 12.34          | 12.64 | 13.45 | 13.75 | 15.22 |
|                 | 12H  | 12.85            | 13.11 | 13.96 | 14.21 | 15.73 | 12.45          | 12.71 | 13.56 | 13.81 | 15.33 |
| 12H             | 4H   | 11.87            | 12.24 | 12.97 | 13.34 | 14.80 | 11.51          | 11.88 | 12.61 | 12.97 | 14.44 |
|                 | 6H   | 12.54            | 12.83 | 13.65 | 13.94 | 15.42 | 12.17          | 12.47 | 13.28 | 13.58 | 15.06 |
|                 | 8H   | 12.77            | 13.03 | 13.88 | 14.13 | 15.65 | 12.40          | 12.66 | 13.51 | 13.76 | 15.28 |