

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: P926276

Luminaire Tested: DFN2DIP-TR3F0-060D060US950-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P926276  
REPORT IS A COMBINATION OF REPORTS P900320 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-060D060US950-RLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

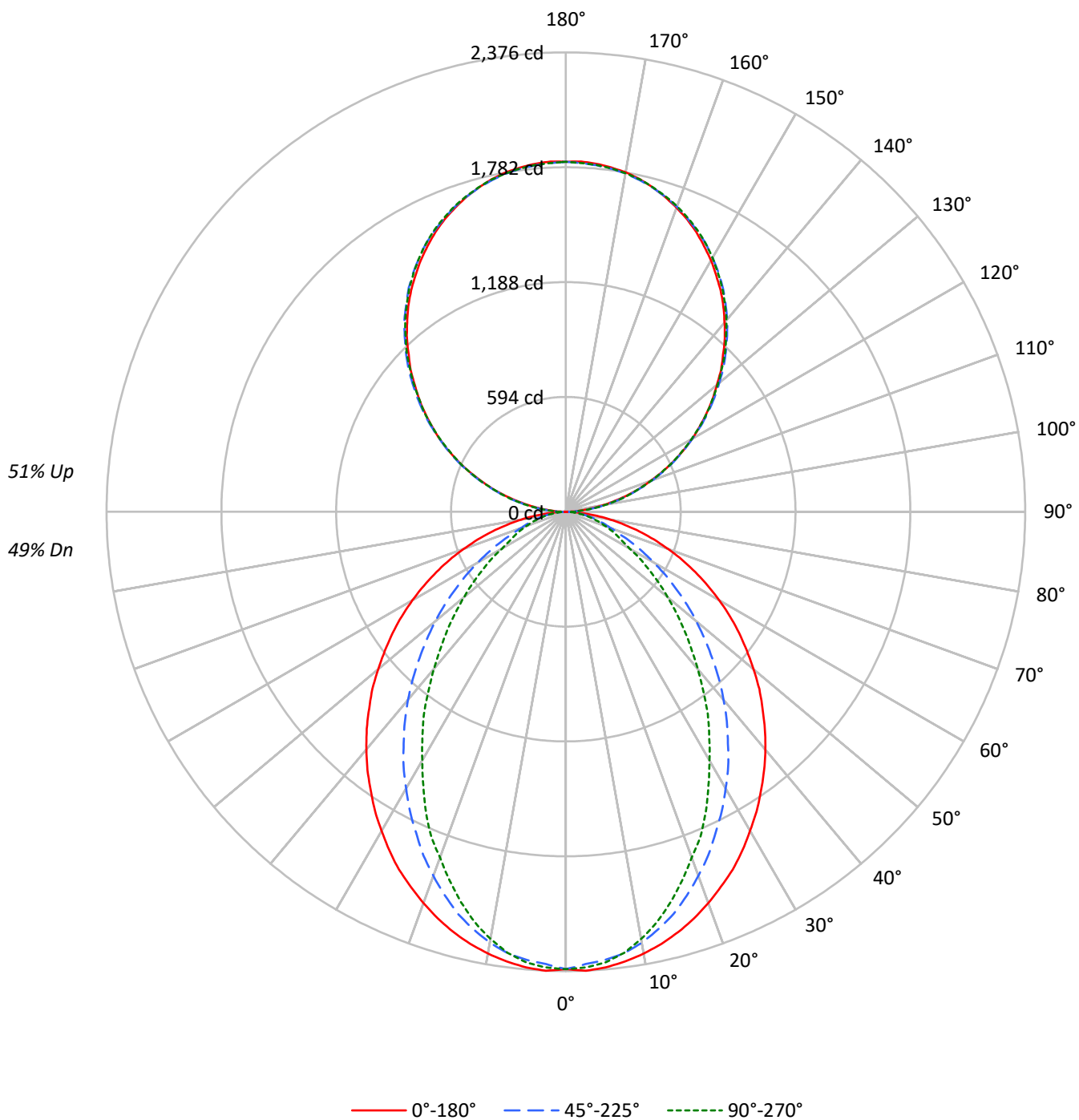
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9931.1 lumens  
Efficiency: N/A  
Efficacy: 96.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 102.5  
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: P926276

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**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   | 107 | 107 | 107 | 107 | 99 | 99 | 99 | 99 | 83 | 83 | 83 | 68 | 68 | 68 | 55 | 55 | 55 |
| 1   | 98  | 94  | 90  | 87  | 90 | 87 | 84 | 81 | 73 | 71 | 69 | 61 | 59 | 58 | 50 | 49 | 48 |
| 2   | 90  | 83  | 77  | 72  | 82 | 76 | 71 | 67 | 65 | 61 | 58 | 54 | 51 | 49 | 44 | 42 | 41 |
| 3   | 82  | 73  | 66  | 60  | 75 | 68 | 61 | 57 | 58 | 53 | 49 | 48 | 45 | 42 | 40 | 37 | 35 |
| 4   | 75  | 65  | 57  | 51  | 69 | 60 | 54 | 48 | 51 | 46 | 42 | 43 | 40 | 36 | 36 | 33 | 31 |
| 5   | 69  | 58  | 50  | 44  | 64 | 54 | 47 | 42 | 46 | 41 | 37 | 39 | 35 | 32 | 32 | 29 | 27 |
| 6   | 64  | 52  | 44  | 39  | 59 | 49 | 42 | 37 | 42 | 36 | 32 | 35 | 31 | 28 | 30 | 26 | 24 |
| 7   | 59  | 47  | 40  | 34  | 55 | 44 | 37 | 32 | 38 | 33 | 29 | 32 | 28 | 25 | 27 | 24 | 22 |
| 8   | 55  | 43  | 36  | 30  | 51 | 40 | 33 | 29 | 35 | 29 | 26 | 30 | 26 | 23 | 25 | 22 | 20 |
| 9   | 51  | 39  | 32  | 27  | 47 | 37 | 30 | 26 | 32 | 27 | 23 | 27 | 23 | 20 | 23 | 20 | 18 |
| 10  | 48  | 36  | 29  | 24  | 44 | 34 | 28 | 23 | 30 | 24 | 21 | 25 | 21 | 19 | 22 | 18 | 16 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2948 | 2948 | 2948 |
| 5°  | 2951 | 2899 | 2918 |
| 10° | 2920 | 2839 | 2821 |
| 15° | 2878 | 2743 | 2672 |
| 20° | 2824 | 2611 | 2491 |
| 25° | 2767 | 2464 | 2315 |
| 30° | 2693 | 2314 | 2094 |
| 35° | 2619 | 2152 | 1899 |
| 40° | 2544 | 1985 | 1676 |
| 45° | 2458 | 1800 | 1474 |
| 50° | 2368 | 1613 | 1277 |
| 55° | 2274 | 1414 | 1087 |
| 60° | 2165 | 1206 | 893  |
| 65° | 2040 | 995  | 802  |
| 70° | 1887 | 798  | 723  |
| 75° | 1696 | 698  | 654  |
| 80° | 1419 | 579  | 560  |
| 85° | 966  | 374  | 409  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2458 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 221.7  | 2.2       |
| 10°-20°   | 608.7  | 6.1       |
| 20°-30°   | 854.5  | 8.6       |
| 30°-40°   | 931.5  | 9.4       |
| 40°-50°   | 856.2  | 8.6       |
| 50°-60°   | 672.4  | 6.8       |
| 60°-70°   | 437.7  | 4.4       |
| 70°-80°   | 225.3  | 2.3       |
| 80°-90°   | 62.7   | 0.6       |
| 90°-100°  | 112.0  | 1.1       |
| 100°-110° | 355.9  | 3.6       |
| 110°-120° | 609.1  | 6.1       |
| 120°-130° | 801.1  | 8.1       |
| 130°-140° | 899.2  | 9.1       |
| 140°-150° | 881.7  | 8.9       |
| 150°-160° | 739.6  | 7.4       |
| 160°-170° | 490.5  | 4.9       |
| 170°-180° | 171.4  | 1.7       |
| 0°-30°    | 1684.9 | 17.0      |
| 0°-40°    | 2616.4 | 26.3      |
| 0°-60°    | 4144.9 | 41.7      |
| 0°-90°    | 4870.5 | 49.0      |
| 90°-120°  | 1077.0 | 10.8      |
| 90°-150°  | 3659.0 | 36.8      |
| 90°-180°  | 5061.0 | 51.0      |
| 0°-180°   | 9931.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2366 | 2366  | 2366 | 2366  | 2366 |      |
| 5°   | 2366 | 2355  | 2327 | 2346  | 2340 | 224  |
| 15°  | 2250 | 2226  | 2154 | 2113  | 2092 | 634  |
| 25°  | 2042 | 1974  | 1833 | 1745  | 1713 | 939  |
| 35°  | 1760 | 1651  | 1462 | 1327  | 1280 | 1102 |
| 45°  | 1439 | 1295  | 1071 | 918   | 867  | 1111 |
| 55°  | 1094 | 927   | 696  | 567   | 527  | 978  |
| 65°  | 739  | 565   | 372  | 300   | 293  | 732  |
| 75°  | 394  | 244   | 171  | 156   | 154  | 417  |
| 85°  | 92   | 47    | 41   | 41    | 41   | 106  |
| 90°  | 2    | 20    | 54   | 50    | 52   | 10   |
| 95°  | 80   | 95    | 98   | 98    | 95   | 89   |
| 105° | 329  | 333   | 336  | 339   | 339  | 347  |
| 115° | 611  | 620   | 617  | 616   | 611  | 605  |
| 125° | 889  | 903   | 898  | 893   | 892  | 794  |
| 135° | 1150 | 1167  | 1170 | 1168  | 1164 | 889  |
| 145° | 1396 | 1407  | 1416 | 1417  | 1411 | 872  |
| 155° | 1596 | 1601  | 1606 | 1613  | 1608 | 735  |
| 165° | 1737 | 1735  | 1735 | 1746  | 1738 | 490  |
| 175° | 1807 | 1803  | 1799 | 1810  | 1801 | 172  |
| 180° | 1810 | 1810  | 1810 | 1810  | 1810 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2365.7 | 2365.7 | 2365.7 | 2365.7 | 2365.7 |
| 2.5°   | 2376.4 | 2365.7 | 2342.1 | 2363.6 | 2359.3 |
| 5°     | 2365.7 | 2355.0 | 2327.1 | 2346.5 | 2340.1 |
| 7.5°   | 2346.5 | 2333.7 | 2303.7 | 2312.1 | 2301.4 |
| 10°    | 2320.7 | 2305.7 | 2263.1 | 2256.5 | 2243.7 |
| 12.5°  | 2288.7 | 2269.4 | 2211.5 | 2198.8 | 2175.1 |
| 15°    | 2250.1 | 2226.4 | 2153.8 | 2113.1 | 2091.7 |
| 17.5°  | 2205.2 | 2170.8 | 2080.9 | 2033.8 | 1999.6 |
| 20°    | 2153.8 | 2110.8 | 2003.9 | 1950.5 | 1903.2 |
| 22.5°  | 2098.1 | 2048.8 | 1924.6 | 1851.9 | 1819.9 |
| 25°    | 2042.5 | 1973.9 | 1832.6 | 1745.0 | 1712.7 |
| 27.5°  | 1976.2 | 1903.2 | 1747.0 | 1646.3 | 1597.1 |
| 30°    | 1905.5 | 1824.0 | 1652.7 | 1543.7 | 1485.8 |
| 32.5°  | 1836.9 | 1738.4 | 1563.0 | 1434.4 | 1380.8 |
| 35°    | 1759.9 | 1650.7 | 1462.4 | 1327.4 | 1280.2 |
| 37.5°  | 1685.0 | 1567.0 | 1368.1 | 1220.3 | 1166.8 |
| 40°    | 1605.7 | 1477.4 | 1269.5 | 1117.5 | 1061.9 |
| 42.5°  | 1524.4 | 1387.4 | 1171.1 | 1012.6 | 959.2  |
| 45°    | 1438.7 | 1295.2 | 1070.6 | 918.3  | 867.0  |
| 47.5°  | 1357.4 | 1205.5 | 974.2  | 822.1  | 775.0  |
| 50°    | 1267.5 | 1115.5 | 880.0  | 732.1  | 687.4  |
| 52.5°  | 1179.5 | 1019.0 | 790.0  | 648.7  | 608.1  |
| 55°    | 1094.0 | 927.0  | 695.8  | 567.4  | 526.7  |
| 57.5°  | 1006.3 | 834.9  | 612.4  | 492.5  | 458.1  |
| 60°    | 916.3  | 745.1  | 524.5  | 415.5  | 381.1  |
| 62.5°  | 828.6  | 657.4  | 449.5  | 346.9  | 329.8  |
| 65°    | 738.7  | 565.1  | 372.5  | 299.8  | 293.3  |
| 67.5°  | 653.0  | 479.5  | 299.8  | 263.3  | 256.9  |
| 70°    | 563.1  | 396.1  | 248.2  | 227.0  | 218.3  |
| 72.5°  | 477.5  | 318.9  | 207.6  | 190.6  | 186.2  |
| 75°    | 393.9  | 243.9  | 171.2  | 156.3  | 154.3  |
| 77.5°  | 310.5  | 173.3  | 134.9  | 126.3  | 122.0  |
| 80°    | 233.3  | 124.2  | 102.7  | 94.3   | 94.3   |
| 82.5°  | 162.7  | 83.6   | 70.6   | 66.3   | 66.3   |
| 85°    | 92.0   | 47.0   | 40.6   | 40.6   | 40.6   |
| 87.5°  | 34.3   | 17.1   | 17.1   | 15.0   | 15.0   |
| 90°    | 1.6    | 19.7   | 53.5   | 50.2   | 51.8   |
| 92.5°  | 33.9   | 45.9   | 47.5   | 49.1   | 49.1   |
| 95°    | 79.7   | 94.9   | 97.7   | 97.7   | 94.9   |
| 97.5°  | 132.6  | 146.8  | 152.8  | 152.8  | 152.8  |
| 100°   | 193.8  | 206.3  | 210.6  | 210.6  | 209.0  |
| 102.5° | 258.2  | 267.4  | 273.4  | 275.0  | 273.4  |
| 105°   | 328.6  | 332.9  | 336.2  | 339.0  | 339.0  |
| 107.5° | 398.4  | 405.0  | 405.0  | 406.0  | 398.4  |
| 110°   | 466.1  | 474.8  | 474.8  | 474.8  | 470.4  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 539.2  | 548.5  | 546.8  | 542.4  | 539.2  |
| 115°   | 611.2  | 620.0  | 617.2  | 615.6  | 611.2  |
| 117.5° | 682.8  | 694.8  | 687.1  | 682.8  | 678.4  |
| 120°   | 754.8  | 766.8  | 754.8  | 754.8  | 749.8  |
| 122.5° | 820.2  | 835.5  | 827.9  | 823.6  | 820.2  |
| 125°   | 889.0  | 902.7  | 898.3  | 893.4  | 891.8  |
| 127.5° | 956.2  | 973.1  | 967.1  | 960.6  | 956.2  |
| 130°   | 1019.0 | 1038.6 | 1035.9 | 1032.6 | 1026.6 |
| 132.5° | 1089.4 | 1104.6 | 1105.7 | 1098.1 | 1093.7 |
| 135°   | 1150.0 | 1166.8 | 1170.1 | 1168.5 | 1164.1 |
| 137.5° | 1217.6 | 1231.2 | 1234.0 | 1232.9 | 1226.4 |
| 140°   | 1277.1 | 1290.8 | 1298.4 | 1298.4 | 1292.4 |
| 142.5° | 1338.2 | 1351.8 | 1356.2 | 1357.8 | 1351.8 |
| 145°   | 1396.1 | 1407.0 | 1415.7 | 1417.4 | 1411.3 |
| 147.5° | 1447.9 | 1461.5 | 1468.1 | 1470.8 | 1464.8 |
| 150°   | 1501.4 | 1510.7 | 1516.7 | 1521.5 | 1516.7 |
| 152.5° | 1548.8 | 1558.2 | 1565.8 | 1571.8 | 1565.8 |
| 155°   | 1596.3 | 1600.7 | 1605.6 | 1613.3 | 1608.3 |
| 157.5° | 1637.3 | 1640.6 | 1643.3 | 1654.2 | 1646.6 |
| 160°   | 1673.9 | 1677.1 | 1678.8 | 1688.0 | 1681.5 |
| 162.5° | 1707.7 | 1707.7 | 1709.3 | 1719.7 | 1712.0 |
| 165°   | 1736.6 | 1734.9 | 1734.9 | 1745.9 | 1738.3 |
| 167.5° | 1762.8 | 1757.9 | 1757.9 | 1768.8 | 1761.2 |
| 170°   | 1782.5 | 1778.1 | 1776.4 | 1787.3 | 1778.1 |
| 172.5° | 1796.1 | 1791.7 | 1790.1 | 1801.0 | 1791.7 |
| 175°   | 1807.0 | 1802.7 | 1799.3 | 1810.3 | 1801.0 |
| 177.5° | 1813.0 | 1808.7 | 1805.3 | 1814.6 | 1805.3 |
| 180°   | 1810.3 | 1810.3 | 1810.3 | 1810.3 | 1810.3 |

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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 | 10.76            | 11.58 | 11.73 | 12.56 | 13.85 | 6.74           | 7.56  | 7.71  | 8.54  | 9.83  |
|                 | 3H   | 12.43            | 13.16 | 13.41 | 14.15 | 15.46 | 7.92           | 8.65  | 8.90  | 9.65  | 10.95 |
|                 | 4H   | 13.03            | 13.72 | 14.03 | 14.72 | 16.04 | 8.37           | 9.06  | 9.36  | 10.06 | 11.37 |
|                 | 6H   | 13.44            | 14.08 | 14.45 | 15.08 | 16.41 | 8.68           | 9.32  | 9.69  | 10.32 | 11.65 |
|                 | 8H   | 13.56            | 14.17 | 14.58 | 15.19 | 16.52 | 8.77           | 9.38  | 9.78  | 10.39 | 11.72 |
|                 | 12H  | 13.62            | 14.20 | 14.64 | 15.21 | 16.56 | 8.81           | 9.39  | 9.83  | 10.40 | 11.75 |
| 4H              | 2H   | 10.77            | 11.47 | 11.78 | 12.46 | 13.78 | 7.33           | 8.02  | 8.33  | 9.02  | 10.33 |
|                 | 3H   | 12.59            | 13.17 | 13.60 | 14.19 | 15.53 | 8.67           | 9.25  | 9.68  | 10.27 | 11.60 |
|                 | 4H   | 13.28            | 13.81 | 14.30 | 14.82 | 16.18 | 9.21           | 9.74  | 10.23 | 10.76 | 12.11 |
|                 | 6H   | 13.78            | 14.24 | 14.81 | 15.28 | 16.63 | 9.62           | 10.08 | 10.65 | 11.12 | 12.47 |
|                 | 8H   | 13.95            | 14.38 | 14.98 | 15.41 | 16.77 | 9.75           | 10.17 | 10.78 | 11.21 | 12.57 |
|                 | 12H  | 14.04            | 14.42 | 15.09 | 15.47 | 16.84 | 9.81           | 10.19 | 10.86 | 11.24 | 12.61 |
| 8H              | 4H   | 13.24            | 13.67 | 14.27 | 14.70 | 16.06 | 9.49           | 9.91  | 10.52 | 10.94 | 12.31 |
|                 | 6H   | 13.80            | 14.15 | 14.85 | 15.22 | 16.59 | 10.00          | 10.35 | 11.05 | 11.42 | 12.78 |
|                 | 8H   | 14.01            | 14.32 | 15.07 | 15.38 | 16.76 | 10.18          | 10.49 | 11.24 | 11.55 | 12.93 |
|                 | 12H  | 14.14            | 14.41 | 15.21 | 15.47 | 16.89 | 10.30          | 10.57 | 11.36 | 11.62 | 13.05 |
| 12H             | 4H   | 13.19            | 13.58 | 14.24 | 14.62 | 15.99 | 9.49           | 9.87  | 10.54 | 10.92 | 12.29 |
|                 | 6H   | 13.77            | 14.08 | 14.84 | 15.14 | 16.52 | 10.04          | 10.35 | 11.10 | 11.41 | 12.79 |
|                 | 8H   | 13.99            | 14.26 | 15.05 | 15.31 | 16.74 | 10.25          | 10.52 | 11.31 | 11.57 | 13.00 |