

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: P926245

Luminaire Tested: DFN2DIP-TR3F0-050D050US950-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P926245  
REPORT IS A COMBINATION OF REPORTS P901823 AND P898751  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-050D050US950-FLLONL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

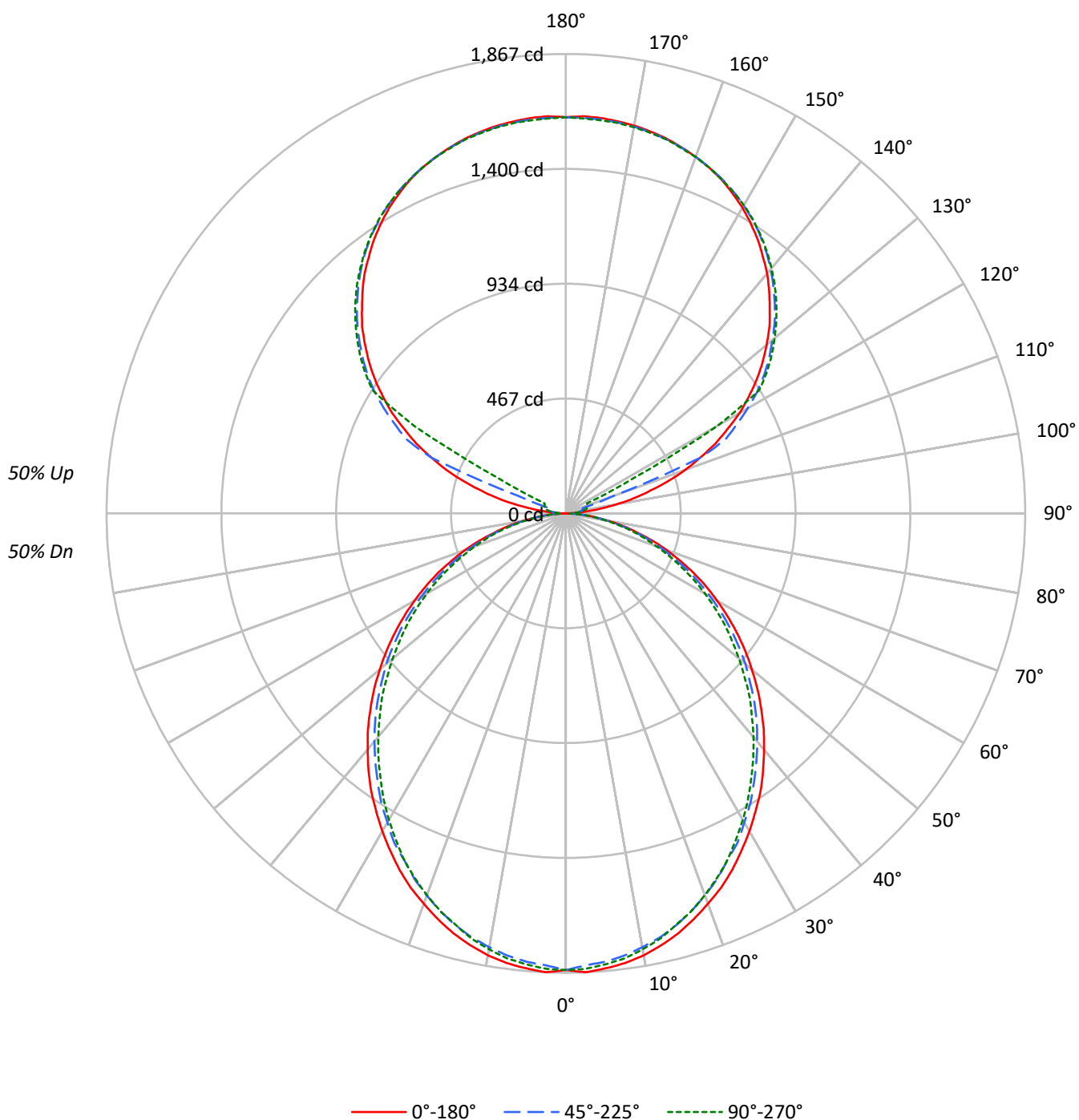
Lumens per Lamp: N/A  
Luminaire Lumens: 9444.6 lumens  
Efficiency: N/A  
Efficacy: 114.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 82.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
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



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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 | 69 | 69 | 69 | 56 | 56 | 56 |
| 1   | 98  | 93  | 90  | 86  | 90 | 86 | 83 | 80 | 73 | 71 | 68 | 61 | 59 | 58 | 50 | 48 | 47 |
| 2   | 89  | 82  | 75  | 70  | 82 | 76 | 70 | 66 | 64 | 60 | 57 | 53 | 51 | 48 | 44 | 42 | 40 |
| 3   | 81  | 72  | 64  | 59  | 75 | 66 | 60 | 55 | 56 | 52 | 48 | 47 | 44 | 41 | 39 | 36 | 34 |
| 4   | 74  | 64  | 56  | 50  | 68 | 59 | 52 | 47 | 50 | 45 | 41 | 42 | 38 | 35 | 35 | 32 | 29 |
| 5   | 68  | 57  | 48  | 42  | 63 | 53 | 45 | 40 | 45 | 39 | 35 | 38 | 34 | 30 | 31 | 28 | 26 |
| 6   | 63  | 51  | 43  | 37  | 58 | 47 | 40 | 35 | 40 | 35 | 31 | 34 | 30 | 27 | 28 | 25 | 23 |
| 7   | 58  | 46  | 38  | 32  | 53 | 43 | 36 | 30 | 37 | 31 | 27 | 31 | 27 | 23 | 26 | 23 | 20 |
| 8   | 54  | 42  | 34  | 29  | 50 | 39 | 32 | 27 | 33 | 28 | 24 | 28 | 24 | 21 | 24 | 20 | 18 |
| 9   | 50  | 38  | 30  | 25  | 46 | 35 | 29 | 24 | 31 | 25 | 21 | 26 | 22 | 19 | 22 | 19 | 16 |
| 10  | 47  | 35  | 28  | 23  | 43 | 33 | 26 | 22 | 28 | 23 | 19 | 24 | 20 | 17 | 20 | 17 | 15 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2313 | 2313 | 2313 |
| 5°  | 2315 | 2279 | 2295 |
| 10° | 2295 | 2246 | 2262 |
| 15° | 2260 | 2207 | 2212 |
| 20° | 2213 | 2154 | 2161 |
| 25° | 2167 | 2090 | 2101 |
| 30° | 2108 | 2031 | 2027 |
| 35° | 2053 | 1962 | 1948 |
| 40° | 1985 | 1892 | 1873 |
| 45° | 1918 | 1821 | 1796 |
| 50° | 1844 | 1747 | 1707 |
| 55° | 1766 | 1661 | 1625 |
| 60° | 1678 | 1560 | 1531 |
| 65° | 1582 | 1455 | 1420 |
| 70° | 1460 | 1326 | 1300 |
| 75° | 1290 | 1172 | 1187 |
| 80° | 1087 | 975  | 976  |
| 85° | 767  | 641  | 630  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
Vertical Angle: 45°  
Luminance: 1918 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 174.7  | 1.8       |
| 10°-20°   | 491.5  | 5.2       |
| 20°-30°   | 722.3  | 7.6       |
| 30°-40°   | 838.9  | 8.9       |
| 40°-50°   | 837.9  | 8.9       |
| 50°-60°   | 730.6  | 7.7       |
| 60°-70°   | 540.1  | 5.7       |
| 70°-80°   | 305.6  | 3.2       |
| 80°-90°   | 83.5   | 0.9       |
| 90°-100°  | 53.1   | 0.6       |
| 100°-110° | 197.9  | 2.1       |
| 110°-120° | 524.8  | 5.6       |
| 120°-130° | 870.4  | 9.2       |
| 130°-140° | 924.6  | 9.8       |
| 140°-150° | 859.3  | 9.1       |
| 150°-160° | 690.9  | 7.3       |
| 160°-170° | 445.2  | 4.7       |
| 170°-180° | 153.2  | 1.6       |
| 0°-30°    | 1388.5 | 14.7      |
| 0°-40°    | 2227.5 | 23.6      |
| 0°-60°    | 3796.0 | 40.2      |
| 0°-90°    | 4725.1 | 50.0      |
| 90°-120°  | 775.8  | 8.2       |
| 90°-150°  | 3430.2 | 36.3      |
| 90°-180°  | 4719.0 | 50.0      |
| 0°-180°   | 9444.6 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1856 | 1856  | 1856 | 1856  | 1856 |      |
| 5°   | 1856 | 1849  | 1829 | 1844  | 1840 | 176  |
| 15°  | 1767 | 1756  | 1733 | 1740  | 1731 | 498  |
| 25°  | 1599 | 1585  | 1554 | 1558  | 1554 | 736  |
| 35°  | 1380 | 1362  | 1333 | 1322  | 1314 | 862  |
| 45°  | 1123 | 1110  | 1083 | 1064  | 1057 | 866  |
| 55°  | 850  | 839   | 817  | 796   | 787  | 760  |
| 65°  | 573  | 562   | 544  | 528   | 519  | 567  |
| 75°  | 300  | 296   | 287  | 277   | 280  | 320  |
| 85°  | 73   | 71    | 70   | 64    | 62   | 82   |
| 90°  | 1    | 14    | 23   | 29    | 31   | 9    |
| 95°  | 76   | 37    | 45   | 51    | 50   | 90   |
| 105° | 354  | 389   | 71   | 84    | 88   | 378  |
| 115° | 670  | 690   | 719  | 179   | 96   | 659  |
| 125° | 947  | 962   | 984  | 992   | 996  | 845  |
| 135° | 1172 | 1191  | 1201 | 1213  | 1210 | 905  |
| 145° | 1359 | 1358  | 1378 | 1386  | 1380 | 850  |
| 155° | 1497 | 1486  | 1500 | 1507  | 1498 | 690  |
| 165° | 1577 | 1570  | 1574 | 1582  | 1574 | 446  |
| 175° | 1613 | 1605  | 1608 | 1616  | 1604 | 154  |
| 180° | 1610 | 1610  | 1610 | 1610  | 1610 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1856.0 | 1856.0 | 1856.0 | 1856.0 | 1856.0 |
| 2.5°   | 1866.8 | 1857.9 | 1838.3 | 1856.0 | 1852.7 |
| 5°     | 1856.0 | 1849.0 | 1829.3 | 1843.5 | 1840.2 |
| 7.5°   | 1843.5 | 1832.9 | 1813.3 | 1827.7 | 1824.0 |
| 10°    | 1824.0 | 1811.6 | 1790.2 | 1804.3 | 1799.1 |
| 12.5°  | 1797.1 | 1786.6 | 1765.2 | 1774.1 | 1770.4 |
| 15°    | 1766.8 | 1756.2 | 1732.9 | 1740.2 | 1731.2 |
| 17.5°  | 1729.3 | 1718.7 | 1695.4 | 1704.3 | 1695.4 |
| 20°    | 1688.3 | 1677.7 | 1652.7 | 1658.0 | 1651.0 |
| 22.5°  | 1647.4 | 1631.2 | 1608.0 | 1608.0 | 1604.3 |
| 25°    | 1599.1 | 1584.9 | 1554.5 | 1558.0 | 1554.5 |
| 27.5°  | 1545.5 | 1533.0 | 1509.9 | 1504.6 | 1495.7 |
| 30°    | 1492.1 | 1477.7 | 1451.0 | 1445.7 | 1438.5 |
| 32.5°  | 1434.9 | 1424.3 | 1395.7 | 1384.9 | 1377.8 |
| 35°    | 1379.6 | 1361.8 | 1333.2 | 1322.4 | 1313.6 |
| 37.5°  | 1317.1 | 1301.1 | 1272.4 | 1259.9 | 1251.1 |
| 40°    | 1253.0 | 1238.6 | 1210.0 | 1194.0 | 1186.9 |
| 42.5°  | 1190.5 | 1176.1 | 1147.7 | 1129.6 | 1119.0 |
| 45°    | 1122.7 | 1110.2 | 1083.3 | 1063.8 | 1056.6 |
| 47.5°  | 1056.6 | 1044.1 | 1015.5 | 995.8  | 985.2  |
| 50°    | 986.9  | 978.0  | 953.0  | 928.1  | 919.1  |
| 52.5°  | 919.1  | 906.6  | 883.5  | 863.8  | 851.3  |
| 55°    | 849.6  | 838.9  | 817.4  | 796.0  | 787.1  |
| 57.5°  | 779.9  | 771.0  | 747.7  | 726.4  | 719.1  |
| 60°    | 710.3  | 703.3  | 678.3  | 658.5  | 653.3  |
| 62.5°  | 642.5  | 630.0  | 612.2  | 594.3  | 587.2  |
| 65°    | 573.0  | 562.2  | 544.4  | 528.3  | 519.4  |
| 67.5°  | 501.6  | 492.6  | 476.6  | 464.1  | 456.9  |
| 70°    | 435.5  | 428.3  | 412.2  | 399.7  | 392.8  |
| 72.5°  | 367.8  | 360.5  | 351.6  | 339.1  | 333.8  |
| 75°    | 299.7  | 296.3  | 287.2  | 276.7  | 280.3  |
| 77.5°  | 239.2  | 231.9  | 228.4  | 223.0  | 217.8  |
| 80°    | 178.6  | 176.7  | 173.1  | 167.8  | 164.2  |
| 82.5°  | 121.3  | 121.3  | 119.6  | 112.5  | 112.5  |
| 85°    | 73.1   | 71.4   | 69.6   | 64.2   | 62.5   |
| 87.5°  | 32.1   | 28.6   | 25.0   | 19.7   | 17.8   |
| 90°    | 1.1    | 13.9   | 23.3   | 29.2   | 31.4   |
| 92.5°  | 29.2   | 24.5   | 28.0   | 30.3   | 31.4   |
| 95°    | 75.7   | 37.2   | 45.4   | 51.3   | 50.1   |
| 97.5°  | 136.2  | 40.8   | 59.3   | 63.0   | 64.0   |
| 100°   | 206.3  | 46.7   | 66.4   | 75.7   | 78.0   |
| 102.5° | 283.1  | 280.8  | 68.8   | 81.5   | 85.1   |
| 105°   | 354.1  | 389.1  | 71.1   | 83.9   | 88.5   |
| 107.5° | 436.8  | 465.8  | 73.5   | 86.1   | 90.9   |
| 110°   | 516.1  | 540.4  | 203.9  | 87.4   | 92.0   |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 590.6  | 611.5  | 591.8  | 89.7   | 93.2   |
| 115°   | 669.8  | 689.6  | 718.7  | 179.4  | 95.6   |
| 117.5° | 738.5  | 761.8  | 781.7  | 614.9  | 309.9  |
| 120°   | 815.4  | 832.8  | 853.8  | 867.9  | 710.5  |
| 122.5° | 880.5  | 899.2  | 922.6  | 929.6  | 930.8  |
| 125°   | 946.9  | 962.2  | 984.3  | 992.4  | 996.0  |
| 127.5° | 1007.5 | 1023.8 | 1041.5 | 1053.0 | 1054.2 |
| 130°   | 1064.7 | 1083.4 | 1096.1 | 1108.9 | 1107.9 |
| 132.5° | 1123.0 | 1138.1 | 1150.8 | 1161.4 | 1160.3 |
| 135°   | 1171.9 | 1190.6 | 1200.9 | 1212.7 | 1210.3 |
| 137.5° | 1223.0 | 1237.1 | 1248.8 | 1260.4 | 1257.0 |
| 140°   | 1273.1 | 1282.6 | 1295.2 | 1305.7 | 1300.0 |
| 142.5° | 1315.2 | 1323.4 | 1338.5 | 1347.7 | 1341.9 |
| 145°   | 1359.4 | 1358.2 | 1378.0 | 1386.2 | 1380.3 |
| 147.5° | 1397.8 | 1394.3 | 1414.1 | 1419.9 | 1415.4 |
| 150°   | 1435.1 | 1427.0 | 1445.6 | 1452.6 | 1446.7 |
| 152.5° | 1466.5 | 1457.2 | 1474.7 | 1481.8 | 1473.5 |
| 155°   | 1496.8 | 1486.4 | 1500.4 | 1507.3 | 1498.1 |
| 157.5° | 1521.2 | 1512.0 | 1522.5 | 1530.7 | 1521.2 |
| 160°   | 1542.3 | 1535.3 | 1542.3 | 1549.2 | 1541.1 |
| 162.5° | 1560.8 | 1554.0 | 1559.7 | 1567.9 | 1557.4 |
| 165°   | 1577.2 | 1570.3 | 1573.7 | 1581.8 | 1573.7 |
| 167.5° | 1590.0 | 1583.0 | 1586.6 | 1594.7 | 1584.2 |
| 170°   | 1600.5 | 1593.5 | 1595.9 | 1604.0 | 1593.5 |
| 172.5° | 1607.5 | 1600.5 | 1602.9 | 1611.0 | 1600.5 |
| 175°   | 1613.3 | 1605.1 | 1607.5 | 1615.6 | 1604.0 |
| 177.5° | 1615.6 | 1607.5 | 1608.7 | 1616.8 | 1606.3 |
| 180°   | 1609.8 | 1609.8 | 1609.8 | 1609.8 | 1609.8 |

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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 | 10.14            | 11.00 | 11.09 | 11.97 | 13.24 | 9.71           | 10.57 | 10.66 | 11.54 | 12.81 |
|                 | 3H   | 11.79            | 12.56 | 12.76 | 13.54 | 14.83 | 11.32          | 12.09 | 12.29 | 13.07 | 14.37 |
|                 | 4H   | 12.37            | 13.10 | 13.35 | 14.09 | 15.39 | 11.90          | 12.63 | 12.88 | 13.62 | 14.92 |
|                 | 6H   | 12.76            | 13.44 | 13.75 | 14.43 | 15.74 | 12.29          | 12.97 | 13.29 | 13.96 | 15.27 |
|                 | 8H   | 12.86            | 13.50 | 13.86 | 14.51 | 15.82 | 12.39          | 13.04 | 13.39 | 14.04 | 15.35 |
|                 | 12H  | 12.91            | 13.52 | 13.91 | 14.52 | 15.85 | 12.43          | 13.04 | 13.44 | 14.05 | 15.38 |
| 4H              | 2H   | 10.59            | 11.33 | 11.58 | 12.31 | 13.61 | 10.25          | 10.98 | 11.24 | 11.97 | 13.27 |
|                 | 3H   | 12.45            | 13.06 | 13.45 | 14.07 | 15.39 | 12.06          | 12.67 | 13.06 | 13.69 | 15.00 |
|                 | 4H   | 13.16            | 13.71 | 14.16 | 14.72 | 16.06 | 12.76          | 13.31 | 13.76 | 14.32 | 15.66 |
|                 | 6H   | 13.66            | 14.14 | 14.68 | 15.17 | 16.51 | 13.26          | 13.74 | 14.28 | 14.77 | 16.11 |
|                 | 8H   | 13.81            | 14.26 | 14.83 | 15.28 | 16.63 | 13.40          | 13.85 | 14.42 | 14.88 | 16.23 |
|                 | 12H  | 13.88            | 14.28 | 14.91 | 15.32 | 16.68 | 13.46          | 13.87 | 14.50 | 14.91 | 16.26 |
| 8H              | 4H   | 13.35            | 13.80 | 14.37 | 14.82 | 16.17 | 12.99          | 13.44 | 14.01 | 14.47 | 15.82 |
|                 | 6H   | 13.97            | 14.34 | 15.01 | 15.41 | 16.76 | 13.61          | 13.98 | 14.65 | 15.05 | 16.40 |
|                 | 8H   | 14.18            | 14.51 | 15.23 | 15.56 | 16.93 | 13.82          | 14.15 | 14.87 | 15.20 | 16.57 |
|                 | 12H  | 14.31            | 14.60 | 15.36 | 15.64 | 17.05 | 13.93          | 14.22 | 14.99 | 15.27 | 16.68 |
| 12H             | 4H   | 13.33            | 13.74 | 14.37 | 14.78 | 16.14 | 12.99          | 13.39 | 14.02 | 14.43 | 15.79 |
|                 | 6H   | 14.00            | 14.33 | 15.05 | 15.38 | 16.74 | 13.65          | 13.98 | 14.70 | 15.03 | 16.40 |
|                 | 8H   | 14.23            | 14.52 | 15.29 | 15.57 | 16.98 | 13.88          | 14.17 | 14.93 | 15.21 | 16.62 |