

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: P920687

Luminaire Tested: DFN2DIP-TR2F0-040D060US935-RLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P920687  
REPORT IS A COMBINATION OF REPORTS P901786 AND P897145  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR2F0-040D060US935-RLLONL  
Description: 2 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

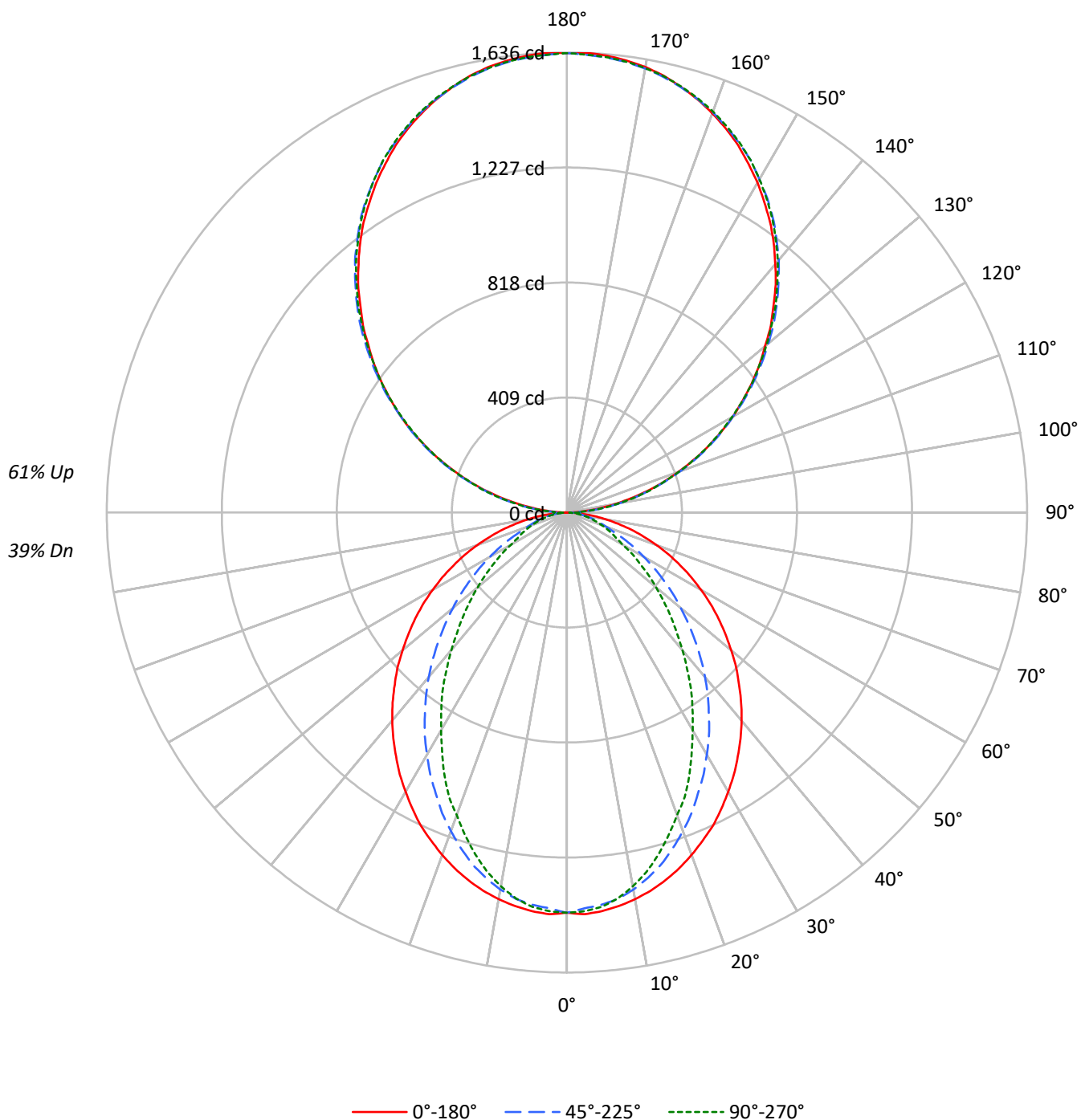
Lumens per Lamp: N/A  
Luminaire Lumens: 7499.3 lumens  
Efficiency: N/A  
Efficacy: 88.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')  
CIE Type: Semi-Indirect

Input Watts (W): 84.4  
Input Voltage (V):  
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

TEST NUMBER: P920687

CATALOG NUMBER: DFN2DIP-TR2F0-040D060US935-RLLONL

### Luminous Intensity Polar Plot



TEST NUMBER: P920687

CATALOG NUMBER: DFN2DIP-TR2F0-040D060US935-RLLONL

**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 | 95 | 95 | 95 | 95 | 77 | 77 | 77 | 61 | 61 | 61 | 46 | 46 | 46 |
| 1   | 96  | 92  | 88  | 85  | 87 | 83 | 80 | 78 | 68 | 66 | 64 | 54 | 53 | 51 | 41 | 40 | 40 |
| 2   | 87  | 80  | 75  | 70  | 79 | 73 | 68 | 64 | 60 | 57 | 54 | 48 | 46 | 44 | 37 | 35 | 34 |
| 3   | 80  | 71  | 64  | 58  | 73 | 65 | 59 | 54 | 53 | 49 | 46 | 43 | 40 | 37 | 33 | 31 | 29 |
| 4   | 73  | 63  | 55  | 50  | 66 | 58 | 51 | 46 | 48 | 43 | 39 | 38 | 35 | 32 | 30 | 27 | 26 |
| 5   | 67  | 56  | 48  | 43  | 61 | 52 | 45 | 40 | 43 | 38 | 34 | 35 | 31 | 28 | 27 | 24 | 22 |
| 6   | 62  | 51  | 43  | 37  | 56 | 46 | 40 | 35 | 39 | 33 | 30 | 31 | 28 | 25 | 25 | 22 | 20 |
| 7   | 57  | 46  | 38  | 33  | 52 | 42 | 35 | 30 | 35 | 30 | 26 | 29 | 25 | 22 | 22 | 20 | 18 |
| 8   | 53  | 41  | 34  | 29  | 49 | 38 | 32 | 27 | 32 | 27 | 23 | 26 | 22 | 20 | 21 | 18 | 16 |
| 9   | 50  | 38  | 31  | 26  | 45 | 35 | 29 | 24 | 29 | 24 | 21 | 24 | 20 | 18 | 19 | 17 | 15 |
| 10  | 46  | 35  | 28  | 23  | 42 | 32 | 26 | 22 | 27 | 22 | 19 | 22 | 19 | 16 | 18 | 15 | 13 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3175 | 3175 | 3175 |
| 5°  | 3175 | 3117 | 3139 |
| 10° | 3139 | 3049 | 3031 |
| 15° | 3091 | 2942 | 2869 |
| 20° | 3029 | 2796 | 2670 |
| 25° | 2966 | 2634 | 2479 |
| 30° | 2882 | 2469 | 2239 |
| 35° | 2800 | 2292 | 2028 |
| 40° | 2716 | 2110 | 1787 |
| 45° | 2619 | 1909 | 1569 |
| 50° | 2519 | 1706 | 1356 |
| 55° | 2413 | 1490 | 1152 |
| 60° | 2291 | 1266 | 943  |
| 65° | 2150 | 1039 | 843  |
| 70° | 1979 | 828  | 755  |
| 75° | 1763 | 716  | 676  |
| 80° | 1453 | 580  | 570  |
| 85° | 955  | 361  | 402  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2619 cd/sqm

TEST NUMBER: P920687

CATALOG NUMBER: DFN2DIP-TR2F0-040D060US935-RLLONL

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 133.4  | 1.8       |
| 10°-20°   | 366.2  | 4.9       |
| 20°-30°   | 514.2  | 6.9       |
| 30°-40°   | 560.5  | 7.5       |
| 40°-50°   | 515.1  | 6.9       |
| 50°-60°   | 404.5  | 5.4       |
| 60°-70°   | 263.3  | 3.5       |
| 70°-80°   | 135.6  | 1.8       |
| 80°-90°   | 39.2   | 0.5       |
| 90°-100°  | 101.1  | 1.3       |
| 100°-110° | 321.2  | 4.3       |
| 110°-120° | 549.7  | 7.3       |
| 120°-130° | 723.0  | 9.6       |
| 130°-140° | 811.5  | 10.8      |
| 140°-150° | 795.8  | 10.6      |
| 150°-160° | 667.5  | 8.9       |
| 160°-170° | 442.7  | 5.9       |
| 170°-180° | 154.7  | 2.1       |
| 0°-30°    | 1013.8 | 13.5      |
| 0°-40°    | 1574.2 | 21.0      |
| 0°-60°    | 2493.9 | 33.3      |
| 0°-90°    | 2932.0 | 39.1      |
| 90°-120°  | 972.0  | 13.0      |
| 90°-150°  | 3302.3 | 44.0      |
| 90°-180°  | 4567.0 | 60.9      |
| 0°-180°   | 7499.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1423 | 1423  | 1423 | 1423  | 1423 |      |
| 5°   | 1423 | 1417  | 1400 | 1412  | 1408 | 135  |
| 15°  | 1354 | 1340  | 1296 | 1271  | 1259 | 382  |
| 25°  | 1229 | 1188  | 1103 | 1050  | 1030 | 565  |
| 35°  | 1059 | 993   | 880  | 799   | 770  | 663  |
| 45°  | 866  | 779   | 644  | 553   | 522  | 668  |
| 55°  | 658  | 558   | 419  | 341   | 317  | 588  |
| 65°  | 444  | 340   | 224  | 180   | 176  | 441  |
| 75°  | 237  | 147   | 103  | 94    | 93   | 251  |
| 85°  | 55   | 28    | 24   | 24    | 24   | 64   |
| 90°  | 2    | 18    | 48   | 45    | 47   | 7    |
| 95°  | 72   | 86    | 88   | 88    | 86   | 80   |
| 105° | 296  | 300   | 303  | 306   | 306  | 313  |
| 115° | 552  | 560   | 557  | 556   | 552  | 546  |
| 125° | 802  | 815   | 811  | 806   | 805  | 717  |
| 135° | 1038 | 1053  | 1056 | 1055  | 1051 | 802  |
| 145° | 1260 | 1270  | 1278 | 1279  | 1274 | 787  |
| 155° | 1441 | 1445  | 1449 | 1456  | 1452 | 663  |
| 165° | 1567 | 1566  | 1566 | 1576  | 1569 | 442  |
| 175° | 1631 | 1627  | 1624 | 1634  | 1625 | 155  |
| 180° | 1634 | 1634  | 1634 | 1634  | 1634 |      |

TEST NUMBER: P920687

CATALOG NUMBER: DFN2DIP-TR2F0-040D060US935-RLLONL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1423.4 | 1423.4 | 1423.4 | 1423.4 | 1423.4 |
| 2.5°   | 1429.9 | 1423.4 | 1409.2 | 1422.2 | 1419.5 |
| 5°     | 1423.4 | 1416.9 | 1400.2 | 1411.8 | 1408.0 |
| 7.5°   | 1411.8 | 1404.1 | 1386.1 | 1391.1 | 1384.7 |
| 10°    | 1396.4 | 1387.3 | 1361.6 | 1357.6 | 1350.0 |
| 12.5°  | 1377.1 | 1365.5 | 1330.6 | 1322.9 | 1308.7 |
| 15°    | 1353.8 | 1339.6 | 1295.9 | 1271.4 | 1258.6 |
| 17.5°  | 1326.8 | 1306.1 | 1252.0 | 1223.7 | 1203.1 |
| 20°    | 1295.9 | 1270.1 | 1205.7 | 1173.5 | 1145.1 |
| 22.5°  | 1262.4 | 1232.8 | 1158.0 | 1114.2 | 1095.0 |
| 25°    | 1228.9 | 1187.7 | 1102.6 | 1049.9 | 1030.4 |
| 27.5°  | 1189.0 | 1145.1 | 1051.1 | 990.6  | 960.9  |
| 30°    | 1146.5 | 1097.4 | 994.4  | 928.8  | 894.0  |
| 32.5°  | 1105.3 | 1045.9 | 940.4  | 863.1  | 830.8  |
| 35°    | 1058.9 | 993.2  | 879.9  | 798.7  | 770.2  |
| 37.5°  | 1013.8 | 942.9  | 823.1  | 734.2  | 702.1  |
| 40°    | 966.1  | 888.9  | 763.9  | 672.4  | 638.9  |
| 42.5°  | 917.1  | 834.7  | 704.6  | 609.2  | 577.1  |
| 45°    | 865.6  | 779.3  | 644.1  | 552.6  | 521.7  |
| 47.5°  | 816.7  | 725.3  | 586.2  | 494.6  | 466.3  |
| 50°    | 762.6  | 671.1  | 529.4  | 440.5  | 413.5  |
| 52.5°  | 709.7  | 613.1  | 475.4  | 390.3  | 365.8  |
| 55°    | 658.2  | 557.8  | 418.6  | 341.4  | 316.9  |
| 57.5°  | 605.5  | 502.4  | 368.4  | 296.3  | 275.7  |
| 60°    | 551.3  | 448.2  | 315.6  | 249.9  | 229.4  |
| 62.5°  | 498.6  | 395.5  | 270.4  | 208.7  | 198.5  |
| 65°    | 444.4  | 340.0  | 224.1  | 180.4  | 176.4  |
| 67.5°  | 393.0  | 288.5  | 180.4  | 158.4  | 154.5  |
| 70°    | 338.8  | 238.3  | 149.4  | 136.6  | 131.3  |
| 72.5°  | 287.3  | 191.9  | 124.9  | 114.7  | 112.1  |
| 75°    | 236.9  | 146.8  | 103.1  | 94.0   | 92.8   |
| 77.5°  | 186.8  | 104.3  | 81.2   | 76.0   | 73.4   |
| 80°    | 140.3  | 74.7   | 61.7   | 56.7   | 56.7   |
| 82.5°  | 97.9   | 50.3   | 42.5   | 39.9   | 39.9   |
| 85°    | 55.4   | 28.3   | 24.5   | 24.5   | 24.5   |
| 87.5°  | 20.7   | 10.2   | 10.2   | 9.0    | 9.0    |
| 90°    | 1.5    | 17.7   | 48.3   | 45.3   | 46.8   |
| 92.5°  | 30.6   | 41.4   | 42.9   | 44.3   | 44.3   |
| 95°    | 71.9   | 85.7   | 88.2   | 88.2   | 85.7   |
| 97.5°  | 119.7  | 132.5  | 137.9  | 137.9  | 137.9  |
| 100°   | 174.9  | 186.1  | 190.1  | 190.1  | 188.6  |
| 102.5° | 233.0  | 241.3  | 246.8  | 248.2  | 246.8  |
| 105°   | 296.5  | 300.5  | 303.4  | 305.9  | 305.9  |
| 107.5° | 359.6  | 365.5  | 365.5  | 366.4  | 359.6  |
| 110°   | 420.7  | 428.5  | 428.5  | 428.5  | 424.6  |

TEST NUMBER: P920687

CATALOG NUMBER: DFN2DIP-TR2F0-040D060US935-RLLONL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 486.6  | 495.0  | 493.5  | 489.6  | 486.6  |
| 115°   | 551.6  | 559.6  | 557.1  | 555.6  | 551.6  |
| 117.5° | 616.2  | 627.1  | 620.1  | 616.2  | 612.3  |
| 120°   | 681.2  | 692.1  | 681.2  | 681.2  | 676.7  |
| 122.5° | 740.3  | 754.1  | 747.2  | 743.3  | 740.3  |
| 125°   | 802.4  | 814.7  | 810.7  | 806.3  | 804.9  |
| 127.5° | 863.0  | 878.2  | 872.8  | 866.9  | 863.0  |
| 130°   | 919.6  | 937.4  | 934.9  | 931.9  | 926.5  |
| 132.5° | 983.2  | 996.9  | 997.9  | 991.0  | 987.0  |
| 135°   | 1037.8 | 1053.1 | 1056.0 | 1054.6 | 1050.6 |
| 137.5° | 1098.9 | 1111.2 | 1113.7 | 1112.7 | 1106.8 |
| 140°   | 1152.6 | 1164.9 | 1171.8 | 1171.8 | 1166.4 |
| 142.5° | 1207.7 | 1220.0 | 1224.0 | 1225.5 | 1220.0 |
| 145°   | 1260.0 | 1269.8 | 1277.7 | 1279.2 | 1273.8 |
| 147.5° | 1306.7 | 1319.0 | 1325.0 | 1327.4 | 1322.0 |
| 150°   | 1355.0 | 1363.4 | 1368.8 | 1373.2 | 1368.8 |
| 152.5° | 1397.8 | 1406.3 | 1413.2 | 1418.6 | 1413.2 |
| 155°   | 1440.7 | 1444.7 | 1449.1 | 1456.0 | 1451.6 |
| 157.5° | 1477.6 | 1480.7 | 1483.1 | 1493.0 | 1486.1 |
| 160°   | 1510.7 | 1513.6 | 1515.1 | 1523.4 | 1517.6 |
| 162.5° | 1541.2 | 1541.2 | 1542.6 | 1552.0 | 1545.1 |
| 165°   | 1567.3 | 1565.8 | 1565.8 | 1575.7 | 1568.8 |
| 167.5° | 1591.0 | 1586.6 | 1586.6 | 1596.4 | 1589.5 |
| 170°   | 1608.7 | 1604.7 | 1603.3 | 1613.1 | 1604.7 |
| 172.5° | 1621.0 | 1617.0 | 1615.6 | 1625.4 | 1617.0 |
| 175°   | 1630.8 | 1626.9 | 1623.9 | 1633.8 | 1625.4 |
| 177.5° | 1636.2 | 1632.4 | 1629.4 | 1637.7 | 1629.4 |
| 180°   | 1633.8 | 1633.8 | 1633.8 | 1633.8 | 1633.8 |

TEST NUMBER: P920687

CATALOG NUMBER: DFN2DIP-TR2F0-040D060US935-RLONL

**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 | 9.92             | 10.67 | 10.97 | 11.72 | 13.14 | 5.90           | 6.65 | 6.95  | 7.70  | 9.12  |
|                 | 3H   | 11.57            | 12.24 | 12.63 | 13.30 | 14.74 | 7.07           | 7.74 | 8.13  | 8.80  | 10.24 |
|                 | 4H   | 12.16            | 12.79 | 13.23 | 13.85 | 15.30 | 7.50           | 8.14 | 8.58  | 9.20  | 10.65 |
|                 | 6H   | 12.55            | 13.14 | 13.64 | 14.20 | 15.66 | 7.81           | 8.39 | 8.89  | 9.46  | 10.91 |
|                 | 8H   | 12.67            | 13.22 | 13.75 | 14.30 | 15.76 | 7.89           | 8.44 | 8.97  | 9.52  | 10.98 |
|                 | 12H  | 12.72            | 13.24 | 13.81 | 14.32 | 15.80 | 7.92           | 8.45 | 9.01  | 9.52  | 11.00 |
| 4H              | 2H   | 9.92             | 10.56 | 11.00 | 11.62 | 13.07 | 6.47           | 7.11 | 7.55  | 8.17  | 9.62  |
|                 | 3H   | 11.72            | 12.25 | 12.80 | 13.34 | 14.80 | 7.80           | 8.32 | 8.88  | 9.41  | 10.87 |
|                 | 4H   | 12.39            | 12.87 | 13.48 | 13.95 | 15.43 | 8.33           | 8.81 | 9.42  | 9.89  | 11.37 |
|                 | 6H   | 12.88            | 13.29 | 13.98 | 14.39 | 15.87 | 8.73           | 9.14 | 9.83  | 10.24 | 11.72 |
|                 | 8H   | 13.04            | 13.42 | 14.14 | 14.52 | 16.01 | 8.84           | 9.23 | 9.94  | 10.33 | 11.82 |
|                 | 12H  | 13.12            | 13.47 | 14.23 | 14.57 | 16.07 | 8.90           | 9.25 | 10.01 | 10.36 | 11.85 |
| 8H              | 4H   | 12.35            | 12.73 | 13.45 | 13.83 | 15.32 | 8.59           | 8.98 | 9.69  | 10.07 | 11.56 |
|                 | 6H   | 12.88            | 13.20 | 14.00 | 14.34 | 15.83 | 9.08           | 9.40 | 10.20 | 10.54 | 12.03 |
|                 | 8H   | 13.08            | 13.36 | 14.21 | 14.48 | 15.99 | 9.26           | 9.54 | 10.39 | 10.66 | 12.17 |
|                 | 12H  | 13.20            | 13.45 | 14.33 | 14.56 | 16.11 | 9.36           | 9.61 | 10.49 | 10.72 | 12.27 |
| 12H             | 4H   | 12.29            | 12.64 | 13.41 | 13.75 | 15.25 | 8.59           | 8.94 | 9.70  | 10.04 | 11.54 |
|                 | 6H   | 12.86            | 13.14 | 13.98 | 14.26 | 15.76 | 9.12           | 9.40 | 10.25 | 10.52 | 12.03 |
|                 | 8H   | 13.06            | 13.30 | 14.19 | 14.42 | 15.96 | 9.32           | 9.56 | 10.45 | 10.68 | 12.22 |