

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: P914571

Luminaire Tested: DFN2DIP-SQ3F0-050D060US927-RLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P914571  
REPORT IS A COMBINATION OF REPORTS P901420 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-050D060US927-RLLONL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

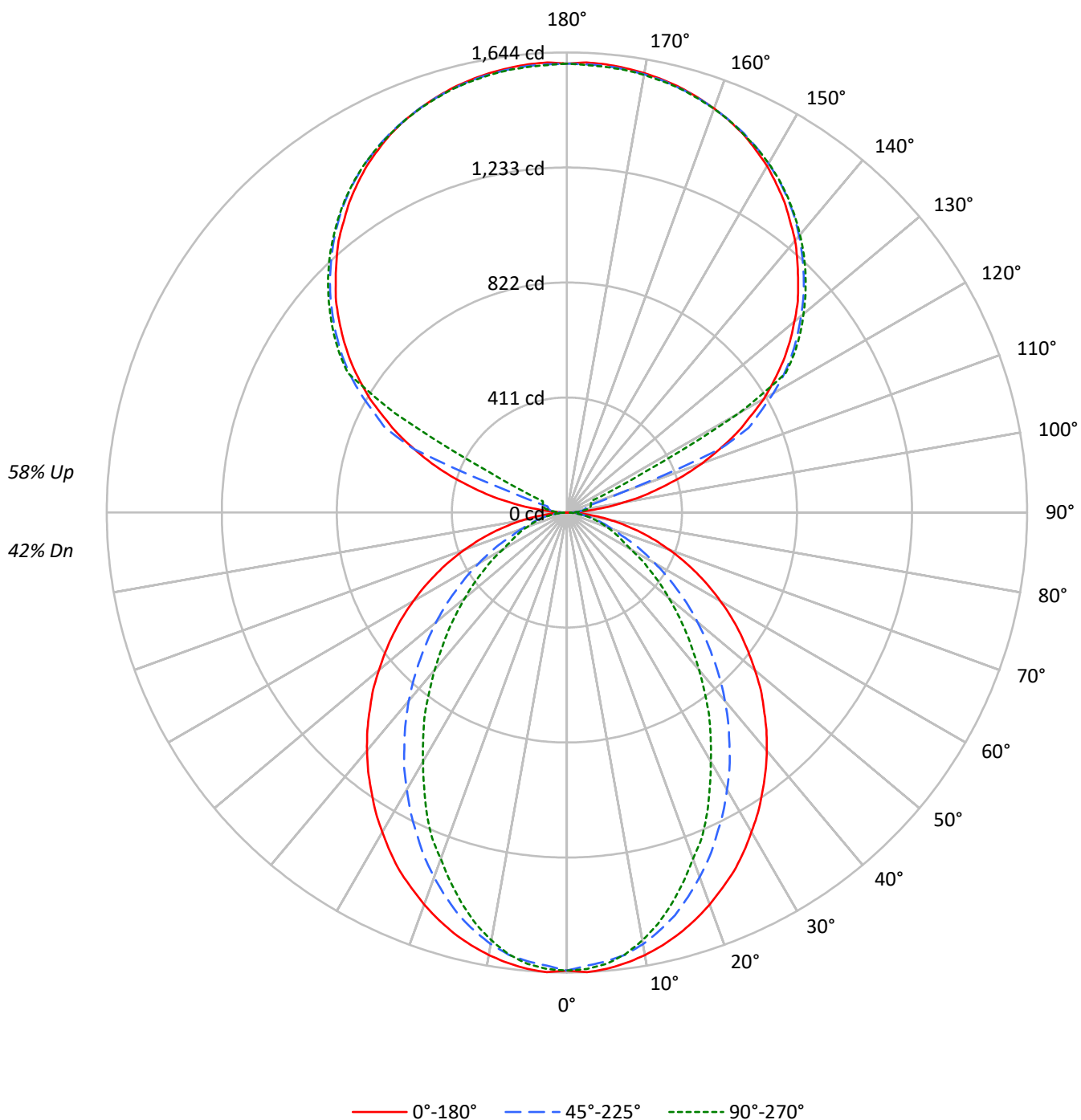
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8072.3 lumens  
Efficiency: N/A  
Efficacy: 92.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 87.3  
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



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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   | 105 | 105 | 105 | 105 | 96 | 96 | 96 | 96 | 79 | 79 | 79 | 63 | 63 | 63 | 49 | 49 | 49 |
| 1   | 96  | 92  | 89  | 85  | 88 | 84 | 81 | 78 | 70 | 67 | 65 | 56 | 55 | 53 | 43 | 43 | 42 |
| 2   | 88  | 81  | 75  | 70  | 80 | 74 | 69 | 65 | 61 | 58 | 55 | 50 | 47 | 45 | 39 | 37 | 36 |
| 3   | 81  | 72  | 65  | 59  | 73 | 66 | 60 | 55 | 55 | 50 | 46 | 44 | 41 | 39 | 35 | 33 | 31 |
| 4   | 74  | 64  | 56  | 50  | 67 | 58 | 52 | 47 | 49 | 44 | 40 | 40 | 36 | 33 | 31 | 29 | 27 |
| 5   | 68  | 57  | 49  | 43  | 62 | 52 | 45 | 40 | 44 | 39 | 35 | 36 | 32 | 29 | 28 | 26 | 24 |
| 6   | 63  | 51  | 43  | 38  | 57 | 47 | 40 | 35 | 39 | 34 | 30 | 32 | 29 | 26 | 26 | 23 | 21 |
| 7   | 58  | 46  | 38  | 33  | 53 | 43 | 36 | 31 | 36 | 31 | 27 | 30 | 26 | 23 | 24 | 21 | 19 |
| 8   | 54  | 42  | 34  | 29  | 49 | 39 | 32 | 27 | 33 | 28 | 24 | 27 | 23 | 20 | 22 | 19 | 17 |
| 9   | 50  | 38  | 31  | 26  | 46 | 35 | 29 | 25 | 30 | 25 | 22 | 25 | 21 | 18 | 20 | 17 | 15 |
| 10  | 47  | 35  | 28  | 23  | 43 | 33 | 26 | 22 | 28 | 23 | 19 | 23 | 19 | 17 | 19 | 16 | 14 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1876 | 1876 | 1876 |
| 5°  | 1877 | 1845 | 1857 |
| 10° | 1858 | 1807 | 1796 |
| 15° | 1831 | 1746 | 1702 |
| 20° | 1796 | 1663 | 1587 |
| 25° | 1760 | 1569 | 1476 |
| 30° | 1712 | 1474 | 1335 |
| 35° | 1665 | 1371 | 1211 |
| 40° | 1618 | 1265 | 1070 |
| 45° | 1562 | 1147 | 941  |
| 50° | 1505 | 1029 | 816  |
| 55° | 1445 | 902  | 696  |
| 60° | 1375 | 770  | 572  |
| 65° | 1295 | 636  | 514  |
| 70° | 1198 | 511  | 465  |
| 75° | 1076 | 448  | 421  |
| 80° | 899  | 372  | 363  |
| 85° | 610  | 242  | 269  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1562 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 153.4  | 1.9       |
| 10°-20°   | 421.2  | 5.2       |
| 20°-30°   | 591.3  | 7.3       |
| 30°-40°   | 644.6  | 8.0       |
| 40°-50°   | 592.4  | 7.3       |
| 50°-60°   | 465.3  | 5.8       |
| 60°-70°   | 302.9  | 3.8       |
| 70°-80°   | 155.9  | 1.9       |
| 80°-90°   | 42.6   | 0.5       |
| 90°-100°  | 52.9   | 0.7       |
| 100°-110° | 197.2  | 2.4       |
| 110°-120° | 523.0  | 6.5       |
| 120°-130° | 867.4  | 10.7      |
| 130°-140° | 921.3  | 11.4      |
| 140°-150° | 856.3  | 10.6      |
| 150°-160° | 688.4  | 8.5       |
| 160°-170° | 443.6  | 5.5       |
| 170°-180° | 152.7  | 1.9       |
| 0°-30°    | 1165.9 | 14.4      |
| 0°-40°    | 1810.5 | 22.4      |
| 0°-60°    | 2868.2 | 35.5      |
| 0°-90°    | 3369.6 | 41.7      |
| 90°-120°  | 773.0  | 9.6       |
| 90°-150°  | 3418.0 | 42.3      |
| 90°-180°  | 4703.0 | 58.3      |
| 0°-180°   | 8072.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1637 | 1637  | 1637 | 1637  | 1637 |      |
| 5°   | 1637 | 1630  | 1610 | 1624  | 1619 | 155  |
| 15°  | 1557 | 1541  | 1490 | 1462  | 1448 | 439  |
| 25°  | 1413 | 1366  | 1268 | 1207  | 1185 | 650  |
| 35°  | 1218 | 1142  | 1012 | 918   | 886  | 762  |
| 45°  | 996  | 896   | 741  | 636   | 600  | 769  |
| 55°  | 757  | 641   | 481  | 393   | 364  | 676  |
| 65°  | 511  | 391   | 258  | 208   | 203  | 507  |
| 75°  | 273  | 169   | 118  | 108   | 107  | 288  |
| 85°  | 64   | 33    | 28   | 28    | 28   | 73   |
| 90°  | 1    | 14    | 23   | 29    | 31   | 8    |
| 95°  | 75   | 37    | 45   | 51    | 50   | 89   |
| 105° | 353  | 388   | 71   | 84    | 88   | 377  |
| 115° | 667  | 687   | 716  | 179   | 95   | 657  |
| 125° | 944  | 959   | 981  | 989   | 992  | 842  |
| 135° | 1168 | 1186  | 1197 | 1208  | 1206 | 902  |
| 145° | 1355 | 1353  | 1373 | 1381  | 1376 | 847  |
| 155° | 1492 | 1481  | 1495 | 1502  | 1493 | 687  |
| 165° | 1572 | 1565  | 1568 | 1576  | 1568 | 444  |
| 175° | 1608 | 1599  | 1602 | 1610  | 1598 | 153  |
| 180° | 1604 | 1604  | 1604 | 1604  | 1604 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1637.0 | 1637.0 | 1637.0 | 1637.0 | 1637.0 |
| 2.5°   | 1644.4 | 1637.0 | 1620.7 | 1635.6 | 1632.6 |
| 5°     | 1637.0 | 1629.7 | 1610.3 | 1623.7 | 1619.3 |
| 7.5°   | 1623.7 | 1614.9 | 1594.1 | 1600.0 | 1592.5 |
| 10°    | 1605.9 | 1595.5 | 1566.0 | 1561.5 | 1552.6 |
| 12.5°  | 1583.7 | 1570.4 | 1530.3 | 1521.5 | 1505.1 |
| 15°    | 1557.0 | 1540.7 | 1490.4 | 1462.3 | 1447.5 |
| 17.5°  | 1525.9 | 1502.2 | 1439.9 | 1407.4 | 1383.6 |
| 20°    | 1490.4 | 1460.7 | 1386.6 | 1349.7 | 1317.0 |
| 22.5°  | 1451.9 | 1417.8 | 1331.8 | 1281.5 | 1259.3 |
| 25°    | 1413.3 | 1365.9 | 1268.1 | 1207.4 | 1185.1 |
| 27.5°  | 1367.5 | 1317.0 | 1208.9 | 1139.2 | 1105.2 |
| 30°    | 1318.6 | 1262.2 | 1143.7 | 1068.2 | 1028.1 |
| 32.5°  | 1271.1 | 1202.9 | 1081.6 | 992.6  | 955.5  |
| 35°    | 1217.8 | 1142.2 | 1011.9 | 918.5  | 885.9  |
| 37.5°  | 1165.9 | 1084.4 | 946.7  | 844.4  | 807.5  |
| 40°    | 1111.1 | 1022.3 | 878.4  | 773.3  | 734.8  |
| 42.5°  | 1054.9 | 960.0  | 810.4  | 700.7  | 663.8  |
| 45°    | 995.6  | 896.3  | 740.8  | 635.5  | 599.9  |
| 47.5°  | 939.3  | 834.2  | 674.1  | 568.9  | 536.3  |
| 50°    | 877.1  | 771.9  | 608.9  | 506.6  | 475.6  |
| 52.5°  | 816.3  | 705.1  | 546.7  | 448.9  | 420.8  |
| 55°    | 757.0  | 641.4  | 481.4  | 392.6  | 364.5  |
| 57.5°  | 696.3  | 577.8  | 423.7  | 340.8  | 317.0  |
| 60°    | 634.1  | 515.6  | 362.9  | 287.5  | 263.7  |
| 62.5°  | 573.4  | 454.9  | 311.1  | 240.0  | 228.2  |
| 65°    | 511.1  | 391.1  | 257.8  | 207.5  | 203.0  |
| 67.5°  | 451.9  | 331.8  | 207.5  | 182.2  | 177.8  |
| 70°    | 389.7  | 274.1  | 171.8  | 157.0  | 151.1  |
| 72.5°  | 330.4  | 220.7  | 143.7  | 131.9  | 128.9  |
| 75°    | 272.6  | 168.8  | 118.5  | 108.1  | 106.7  |
| 77.5°  | 214.8  | 119.9  | 93.4   | 87.4   | 84.4   |
| 80°    | 161.4  | 86.0   | 71.1   | 65.2   | 65.2   |
| 82.5°  | 112.6  | 57.8   | 48.9   | 45.9   | 45.9   |
| 85°    | 63.7   | 32.6   | 28.1   | 28.1   | 28.1   |
| 87.5°  | 23.8   | 11.8   | 11.8   | 10.4   | 10.4   |
| 90°    | 1.1    | 13.9   | 23.1   | 29.1   | 31.3   |
| 92.5°  | 29.1   | 24.4   | 27.8   | 30.2   | 31.3   |
| 95°    | 75.4   | 37.1   | 45.2   | 51.2   | 49.9   |
| 97.5°  | 135.8  | 40.6   | 59.1   | 62.7   | 63.8   |
| 100°   | 205.5  | 46.4   | 66.1   | 75.4   | 77.7   |
| 102.5° | 282.0  | 279.8  | 68.5   | 81.2   | 84.8   |
| 105°   | 352.8  | 387.7  | 70.8   | 83.5   | 88.2   |
| 107.5° | 435.3  | 464.2  | 73.2   | 85.9   | 90.5   |
| 110°   | 514.3  | 538.5  | 203.2  | 87.1   | 91.7   |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 588.5  | 609.3  | 589.6  | 89.3   | 92.9   |
| 115°   | 667.4  | 687.1  | 716.2  | 178.8  | 95.2   |
| 117.5° | 735.9  | 759.1  | 778.9  | 612.8  | 308.7  |
| 120°   | 812.5  | 829.9  | 850.9  | 864.7  | 708.1  |
| 122.5° | 877.4  | 896.0  | 919.3  | 926.2  | 927.5  |
| 125°   | 943.6  | 958.8  | 980.8  | 989.0  | 992.4  |
| 127.5° | 1004.0 | 1020.3 | 1037.8 | 1049.3 | 1050.4 |
| 130°   | 1060.9 | 1079.5 | 1092.2 | 1105.0 | 1103.9 |
| 132.5° | 1119.0 | 1134.1 | 1146.8 | 1157.2 | 1156.1 |
| 135°   | 1167.8 | 1186.4 | 1196.7 | 1208.4 | 1206.0 |
| 137.5° | 1218.7 | 1232.6 | 1244.4 | 1255.9 | 1252.5 |
| 140°   | 1268.6 | 1278.0 | 1290.7 | 1301.2 | 1295.4 |
| 142.5° | 1310.5 | 1318.7 | 1333.7 | 1342.9 | 1337.1 |
| 145°   | 1354.6 | 1353.4 | 1373.1 | 1381.2 | 1375.5 |
| 147.5° | 1392.8 | 1389.3 | 1409.1 | 1414.8 | 1410.3 |
| 150°   | 1430.0 | 1421.9 | 1440.5 | 1447.4 | 1441.6 |
| 152.5° | 1461.3 | 1452.1 | 1469.4 | 1476.5 | 1468.3 |
| 155°   | 1491.5 | 1481.1 | 1495.1 | 1502.0 | 1492.7 |
| 157.5° | 1515.9 | 1506.6 | 1517.1 | 1525.3 | 1515.9 |
| 160°   | 1536.8 | 1529.8 | 1536.8 | 1543.7 | 1535.6 |
| 162.5° | 1555.3 | 1548.4 | 1554.2 | 1562.3 | 1551.9 |
| 165°   | 1571.6 | 1564.7 | 1568.1 | 1576.3 | 1568.1 |
| 167.5° | 1584.4 | 1577.4 | 1581.0 | 1589.1 | 1578.6 |
| 170°   | 1594.9 | 1587.8 | 1590.2 | 1598.3 | 1587.8 |
| 172.5° | 1601.8 | 1594.9 | 1597.2 | 1605.4 | 1594.9 |
| 175°   | 1607.6 | 1599.4 | 1601.8 | 1609.9 | 1598.3 |
| 177.5° | 1609.9 | 1601.8 | 1603.0 | 1611.1 | 1600.7 |
| 180°   | 1604.1 | 1604.1 | 1604.1 | 1604.1 | 1604.1 |

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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 | 8.48             | 9.24  | 9.51  | 10.28 | 11.66 | 4.44           | 5.20 | 5.47 | 6.24 | 7.62  |
|                 | 3H   | 10.14            | 10.83 | 11.19 | 11.87 | 13.28 | 5.61           | 6.30 | 6.66 | 7.34 | 8.75  |
|                 | 4H   | 10.75            | 11.40 | 11.80 | 12.44 | 13.86 | 6.06           | 6.71 | 7.11 | 7.75 | 9.17  |
|                 | 6H   | 11.16            | 11.76 | 12.22 | 12.81 | 14.23 | 6.37           | 6.97 | 7.43 | 8.02 | 9.44  |
|                 | 8H   | 11.28            | 11.85 | 12.35 | 12.92 | 14.34 | 6.45           | 7.02 | 7.52 | 8.09 | 9.51  |
|                 | 12H  | 11.34            | 11.88 | 12.41 | 12.94 | 14.38 | 6.49           | 7.03 | 7.56 | 8.09 | 9.54  |
| 4H              | 2H   | 8.48             | 9.13  | 9.54  | 10.18 | 11.59 | 5.02           | 5.67 | 6.08 | 6.72 | 8.13  |
|                 | 3H   | 10.30            | 10.84 | 11.37 | 11.92 | 13.34 | 6.36           | 6.90 | 7.43 | 7.97 | 9.40  |
|                 | 4H   | 10.99            | 11.48 | 12.06 | 12.55 | 14.00 | 6.90           | 7.39 | 7.97 | 8.46 | 9.91  |
|                 | 6H   | 11.50            | 11.92 | 12.58 | 13.01 | 14.45 | 7.31           | 7.73 | 8.39 | 8.82 | 10.26 |
|                 | 8H   | 11.67            | 12.06 | 12.75 | 13.14 | 14.60 | 7.43           | 7.83 | 8.51 | 8.91 | 10.36 |
|                 | 12H  | 11.76            | 12.11 | 12.86 | 13.21 | 14.67 | 7.49           | 7.85 | 8.59 | 8.94 | 10.40 |
| 8H              | 4H   | 10.95            | 11.35 | 12.03 | 12.43 | 13.88 | 7.17           | 7.57 | 8.25 | 8.65 | 10.11 |
|                 | 6H   | 11.51            | 11.83 | 12.61 | 12.96 | 14.41 | 7.68           | 8.01 | 8.78 | 9.13 | 10.58 |
|                 | 8H   | 11.72            | 12.01 | 12.83 | 13.11 | 14.59 | 7.86           | 8.15 | 8.98 | 9.26 | 10.73 |
|                 | 12H  | 11.85            | 12.11 | 12.97 | 13.21 | 14.72 | 7.98           | 8.23 | 9.09 | 9.33 | 10.84 |
| 12H             | 4H   | 10.90            | 11.26 | 12.00 | 12.35 | 13.81 | 7.17           | 7.53 | 8.27 | 8.62 | 10.09 |
|                 | 6H   | 11.48            | 11.77 | 12.59 | 12.87 | 14.35 | 7.73           | 8.01 | 8.84 | 9.12 | 10.59 |
|                 | 8H   | 11.70            | 11.95 | 12.81 | 13.05 | 14.56 | 7.93           | 8.18 | 9.04 | 9.28 | 10.79 |