

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: P915334

Luminaire Tested: DFN2DIP-TR3F0-050D050US927-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P915334  
REPORT IS A COMBINATION OF REPORTS P900304 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-050D050US927-RLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

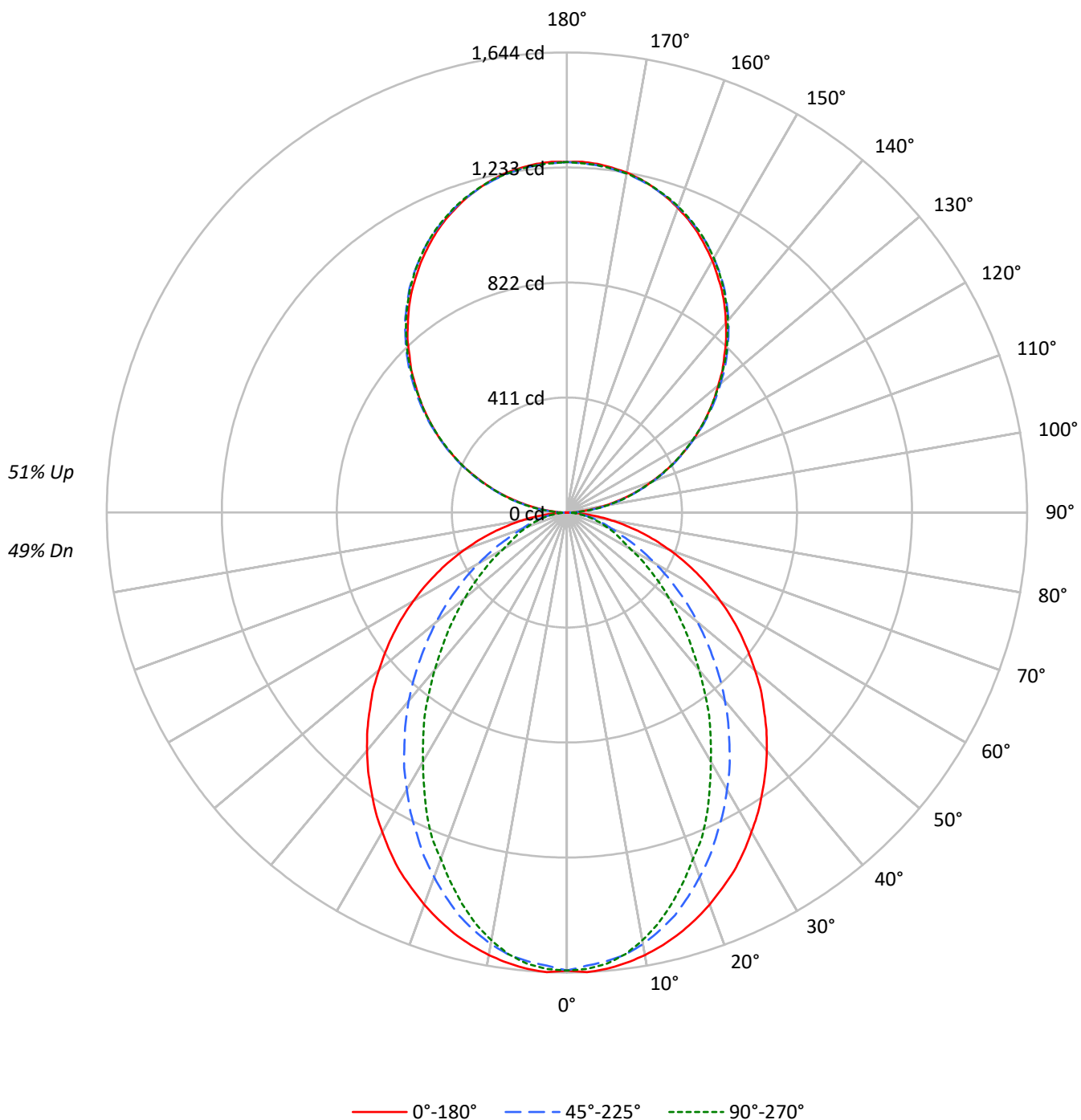
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6872.2 lumens  
Efficiency: N/A  
Efficacy: 83.3 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): 82.5  
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

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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 | 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°  | 2040 | 2040 | 2040 |
| 5°  | 2042 | 2006 | 2019 |
| 10° | 2021 | 1965 | 1952 |
| 15° | 1992 | 1898 | 1849 |
| 20° | 1954 | 1807 | 1724 |
| 25° | 1915 | 1705 | 1602 |
| 30° | 1863 | 1601 | 1449 |
| 35° | 1812 | 1489 | 1314 |
| 40° | 1761 | 1373 | 1160 |
| 45° | 1701 | 1245 | 1020 |
| 50° | 1639 | 1116 | 883  |
| 55° | 1573 | 978  | 753  |
| 60° | 1498 | 835  | 618  |
| 65° | 1411 | 689  | 555  |
| 70° | 1306 | 553  | 500  |
| 75° | 1174 | 483  | 452  |
| 80° | 982  | 401  | 388  |
| 85° | 669  | 259  | 283  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
Vertical Angle: 45°  
Luminance: 1701 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 153.4  | 2.2       |
| 10°-20°   | 421.2  | 6.1       |
| 20°-30°   | 591.3  | 8.6       |
| 30°-40°   | 644.6  | 9.4       |
| 40°-50°   | 592.4  | 8.6       |
| 50°-60°   | 465.3  | 6.8       |
| 60°-70°   | 302.9  | 4.4       |
| 70°-80°   | 155.9  | 2.3       |
| 80°-90°   | 43.4   | 0.6       |
| 90°-100°  | 77.5   | 1.1       |
| 100°-110° | 246.3  | 3.6       |
| 110°-120° | 421.5  | 6.1       |
| 120°-130° | 554.3  | 8.1       |
| 130°-140° | 622.2  | 9.1       |
| 140°-150° | 610.1  | 8.9       |
| 150°-160° | 511.8  | 7.4       |
| 160°-170° | 339.4  | 4.9       |
| 170°-180° | 118.6  | 1.7       |
| 0°-30°    | 1165.9 | 17.0      |
| 0°-40°    | 1810.5 | 26.3      |
| 0°-60°    | 2868.2 | 41.7      |
| 0°-90°    | 3370.3 | 49.0      |
| 90°-120°  | 745.3  | 10.8      |
| 90°-150°  | 2532.0 | 36.8      |
| 90°-180°  | 3502.0 | 51.0      |
| 0°-180°   | 6872.2 | 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    | 37   | 35    | 36   | 7    |
| 95°  | 55   | 66    | 68   | 68    | 66   | 61   |
| 105° | 227  | 230   | 233  | 234   | 234  | 240  |
| 115° | 423  | 429   | 427  | 426   | 423  | 418  |
| 125° | 615  | 625   | 622  | 618   | 617  | 550  |
| 135° | 796  | 807   | 810  | 809   | 806  | 615  |
| 145° | 966  | 974   | 980  | 981   | 977  | 604  |
| 155° | 1105 | 1108  | 1111 | 1116  | 1113 | 508  |
| 165° | 1202 | 1201  | 1201 | 1208  | 1203 | 339  |
| 175° | 1250 | 1247  | 1245 | 1253  | 1246 | 119  |
| 180° | 1253 | 1253  | 1253 | 1253  | 1253 |      |

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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    | 13.6   | 37.0   | 34.8   | 35.9   |
| 92.5°  | 23.4   | 31.7   | 32.9   | 34.0   | 34.0   |
| 95°    | 55.1   | 65.8   | 67.6   | 67.6   | 65.8   |
| 97.5°  | 91.7   | 101.6  | 105.8  | 105.8  | 105.8  |
| 100°   | 134.0  | 142.8  | 145.8  | 145.8  | 144.7  |
| 102.5° | 178.6  | 185.1  | 189.2  | 190.4  | 189.2  |
| 105°   | 227.4  | 230.4  | 232.7  | 234.5  | 234.5  |
| 107.5° | 275.7  | 280.2  | 280.2  | 281.0  | 275.7  |
| 110°   | 322.5  | 328.6  | 328.6  | 328.6  | 325.5  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 373.1  | 379.5  | 378.4  | 375.4  | 373.1  |
| 115°   | 422.9  | 429.0  | 427.1  | 426.0  | 422.9  |
| 117.5° | 472.5  | 480.8  | 475.5  | 472.5  | 469.4  |
| 120°   | 522.3  | 530.6  | 522.3  | 522.3  | 518.9  |
| 122.5° | 567.6  | 578.2  | 572.9  | 569.9  | 567.6  |
| 125°   | 615.2  | 624.6  | 621.6  | 618.2  | 617.1  |
| 127.5° | 661.6  | 673.4  | 669.2  | 664.6  | 661.6  |
| 130°   | 705.1  | 718.7  | 716.8  | 714.5  | 710.3  |
| 132.5° | 753.8  | 764.4  | 765.2  | 759.9  | 756.8  |
| 135°   | 795.7  | 807.4  | 809.7  | 808.6  | 805.6  |
| 137.5° | 842.6  | 852.0  | 853.9  | 853.1  | 848.6  |
| 140°   | 883.7  | 893.2  | 898.4  | 898.4  | 894.3  |
| 142.5° | 926.0  | 935.5  | 938.5  | 939.6  | 935.5  |
| 145°   | 966.1  | 973.6  | 979.6  | 980.8  | 976.6  |
| 147.5° | 1002.0 | 1011.4 | 1015.9 | 1017.8 | 1013.6 |
| 150°   | 1038.9 | 1045.4 | 1049.5 | 1052.9 | 1049.5 |
| 152.5° | 1071.8 | 1078.2 | 1083.5 | 1087.7 | 1083.5 |
| 155°   | 1104.6 | 1107.6 | 1111.0 | 1116.3 | 1112.9 |
| 157.5° | 1133.0 | 1135.2 | 1137.1 | 1144.7 | 1139.4 |
| 160°   | 1158.2 | 1160.5 | 1161.7 | 1168.1 | 1163.6 |
| 162.5° | 1181.7 | 1181.7 | 1182.8 | 1190.0 | 1184.7 |
| 165°   | 1201.7 | 1200.6 | 1200.6 | 1208.2 | 1202.8 |
| 167.5° | 1219.8 | 1216.4 | 1216.4 | 1224.0 | 1218.7 |
| 170°   | 1233.4 | 1230.4 | 1229.3 | 1236.8 | 1230.4 |
| 172.5° | 1242.9 | 1239.8 | 1238.7 | 1246.3 | 1239.8 |
| 175°   | 1250.5 | 1247.4 | 1245.2 | 1252.7 | 1246.3 |
| 177.5° | 1254.6 | 1251.6 | 1249.3 | 1255.7 | 1249.3 |
| 180°   | 1252.7 | 1252.7 | 1252.7 | 1252.7 | 1252.7 |



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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 | 9.48             | 10.30 | 10.45 | 11.28 | 12.57 | 5.46           | 6.28 | 6.43  | 7.26  | 8.55  |
|                 | 3H   | 11.15            | 11.88 | 12.13 | 12.87 | 14.18 | 6.64           | 7.38 | 7.62  | 8.37  | 9.68  |
|                 | 4H   | 11.75            | 12.45 | 12.75 | 13.44 | 14.76 | 7.09           | 7.78 | 8.08  | 8.78  | 10.09 |
|                 | 6H   | 12.16            | 12.80 | 13.17 | 13.80 | 15.13 | 7.40           | 8.04 | 8.41  | 9.04  | 10.37 |
|                 | 8H   | 12.29            | 12.89 | 13.30 | 13.91 | 15.24 | 7.49           | 8.10 | 8.50  | 9.11  | 10.44 |
|                 | 12H  | 12.34            | 12.92 | 13.36 | 13.93 | 15.28 | 7.53           | 8.11 | 8.55  | 9.12  | 10.47 |
| 4H              | 2H   | 9.50             | 10.19 | 10.50 | 11.19 | 12.50 | 6.05           | 6.74 | 7.05  | 7.74  | 9.05  |
|                 | 3H   | 11.31            | 11.89 | 12.33 | 12.92 | 14.25 | 7.39           | 7.97 | 8.40  | 8.99  | 10.32 |
|                 | 4H   | 12.00            | 12.53 | 13.02 | 13.54 | 14.90 | 7.93           | 8.46 | 8.95  | 9.48  | 10.83 |
|                 | 6H   | 12.50            | 12.96 | 13.53 | 14.00 | 15.35 | 8.34           | 8.80 | 9.37  | 9.84  | 11.19 |
|                 | 8H   | 12.67            | 13.10 | 13.70 | 14.13 | 15.50 | 8.47           | 8.89 | 9.50  | 9.93  | 11.29 |
|                 | 12H  | 12.76            | 13.15 | 13.81 | 14.19 | 15.56 | 8.53           | 8.91 | 9.58  | 9.96  | 11.33 |
| 8H              | 4H   | 11.96            | 12.39 | 13.00 | 13.42 | 14.79 | 8.21           | 8.63 | 9.24  | 9.66  | 11.03 |
|                 | 6H   | 12.52            | 12.87 | 13.57 | 13.94 | 15.31 | 8.72           | 9.07 | 9.77  | 10.14 | 11.50 |
|                 | 8H   | 12.73            | 13.04 | 13.79 | 14.10 | 15.48 | 8.90           | 9.21 | 9.96  | 10.27 | 11.65 |
|                 | 12H  | 12.86            | 13.13 | 13.93 | 14.19 | 15.61 | 9.02           | 9.29 | 10.08 | 10.34 | 11.77 |
| 12H             | 4H   | 11.92            | 12.30 | 12.96 | 13.35 | 14.72 | 8.21           | 8.59 | 9.26  | 9.64  | 11.01 |
|                 | 6H   | 12.49            | 12.80 | 13.56 | 13.86 | 15.24 | 8.76           | 9.07 | 9.82  | 10.13 | 11.51 |
|                 | 8H   | 12.71            | 12.98 | 13.77 | 14.03 | 15.46 | 8.97           | 9.24 | 10.03 | 10.29 | 11.72 |