

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: P922074

Luminaire Tested: DFN2DIP-PN3F0-040D030US940-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P922074  
REPORT IS A COMBINATION OF REPORTS P899514 AND P896399  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-040D030US940-RLLFLL  
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

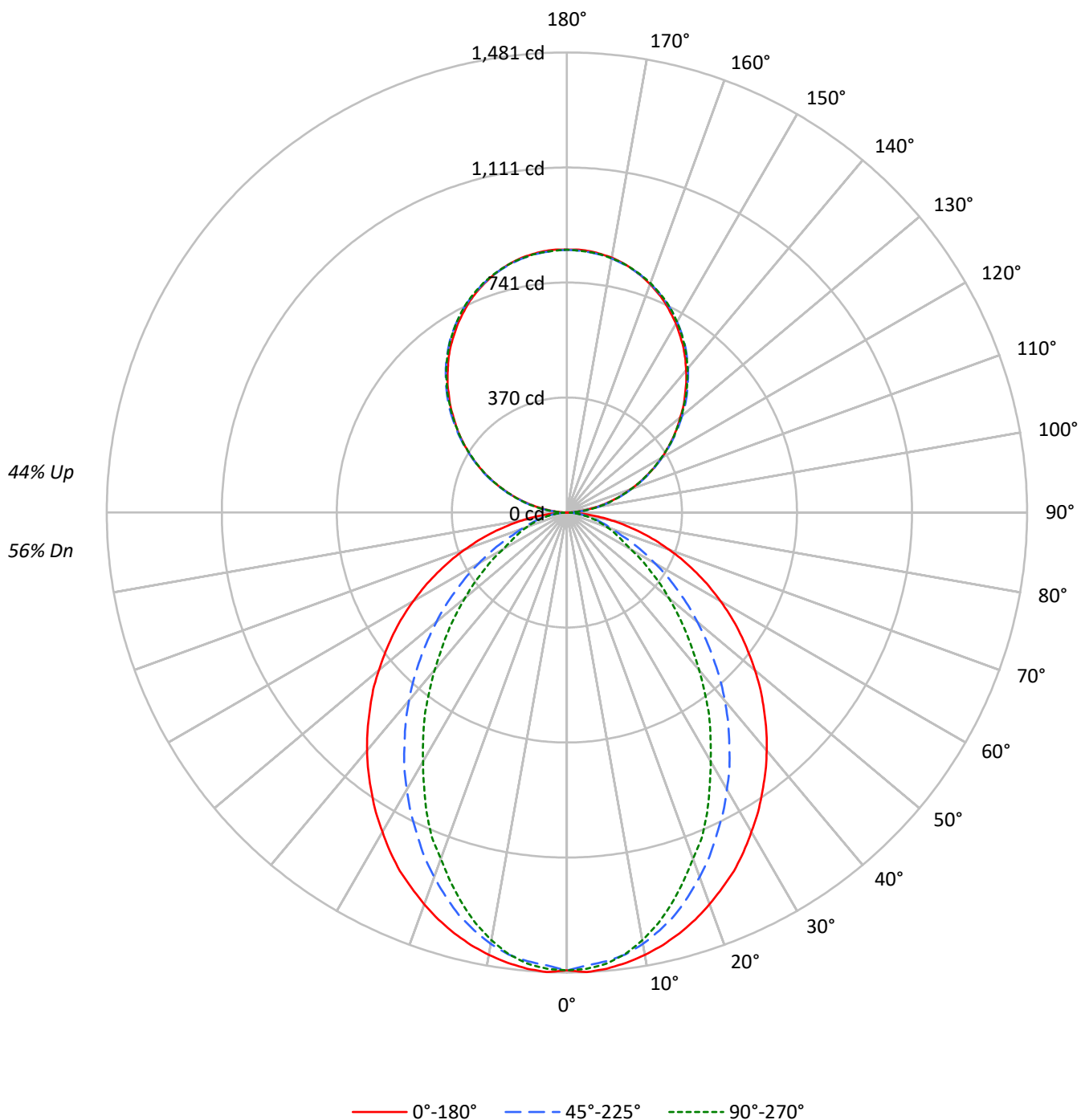
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5399.3 lumens  
Efficiency: N/A  
Efficacy: 93.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 58  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9972  
Total Harmonic Distortion (THDi): 0.128  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P922074

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### Luminous Intensity Polar Plot



TEST NUMBER: P922074

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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   | 109 | 109 | 109 | 109 | 101 | 101 | 101 | 101 | 87 | 87 | 87 | 74 | 74 | 74 | 62 | 62 | 62 |
| 1   | 100 | 96  | 92  | 88  | 93  | 89  | 86  | 83  | 77 | 75 | 72 | 66 | 64 | 63 | 55 | 54 | 53 |
| 2   | 91  | 84  | 78  | 73  | 85  | 79  | 73  | 69  | 68 | 64 | 61 | 58 | 56 | 53 | 49 | 47 | 46 |
| 3   | 84  | 74  | 67  | 62  | 78  | 70  | 63  | 58  | 61 | 56 | 52 | 52 | 49 | 46 | 44 | 42 | 40 |
| 4   | 77  | 66  | 59  | 53  | 71  | 62  | 55  | 50  | 54 | 49 | 45 | 47 | 43 | 40 | 40 | 37 | 35 |
| 5   | 71  | 59  | 51  | 46  | 66  | 56  | 49  | 43  | 49 | 43 | 39 | 42 | 38 | 35 | 36 | 33 | 30 |
| 6   | 65  | 53  | 46  | 40  | 61  | 50  | 43  | 38  | 44 | 38 | 34 | 38 | 34 | 31 | 33 | 30 | 27 |
| 7   | 61  | 48  | 41  | 35  | 56  | 46  | 39  | 34  | 40 | 35 | 30 | 35 | 31 | 27 | 30 | 27 | 24 |
| 8   | 56  | 44  | 37  | 31  | 52  | 42  | 35  | 30  | 37 | 31 | 27 | 32 | 28 | 25 | 28 | 25 | 22 |
| 9   | 53  | 41  | 33  | 28  | 49  | 38  | 32  | 27  | 34 | 28 | 25 | 30 | 25 | 22 | 26 | 23 | 20 |
| 10  | 49  | 37  | 30  | 25  | 46  | 35  | 29  | 24  | 31 | 26 | 22 | 28 | 23 | 20 | 24 | 21 | 18 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1723 | 1723 | 1723 |
| 5°  | 1725 | 1695 | 1706 |
| 10° | 1707 | 1660 | 1650 |
| 15° | 1682 | 1604 | 1563 |
| 20° | 1650 | 1527 | 1457 |
| 25° | 1617 | 1442 | 1355 |
| 30° | 1574 | 1354 | 1226 |
| 35° | 1531 | 1259 | 1112 |
| 40° | 1487 | 1162 | 982  |
| 45° | 1436 | 1054 | 864  |
| 50° | 1383 | 945  | 749  |
| 55° | 1328 | 828  | 638  |
| 60° | 1265 | 707  | 525  |
| 65° | 1191 | 584  | 471  |
| 70° | 1102 | 469  | 425  |
| 75° | 990  | 410  | 385  |
| 80° | 827  | 340  | 332  |
| 85° | 562  | 221  | 245  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1436 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 138.2  | 2.6       |
| 10°-20°   | 379.3  | 7.0       |
| 20°-30°   | 532.5  | 9.9       |
| 30°-40°   | 580.5  | 10.8      |
| 40°-50°   | 533.5  | 9.9       |
| 50°-60°   | 419.0  | 7.8       |
| 60°-70°   | 272.7  | 5.1       |
| 70°-80°   | 140.4  | 2.6       |
| 80°-90°   | 38.2   | 0.7       |
| 90°-100°  | 52.3   | 1.0       |
| 100°-110° | 166.3  | 3.1       |
| 110°-120° | 284.7  | 5.3       |
| 120°-130° | 374.4  | 6.9       |
| 130°-140° | 420.2  | 7.8       |
| 140°-150° | 412.1  | 7.6       |
| 150°-160° | 345.7  | 6.4       |
| 160°-170° | 229.2  | 4.2       |
| 170°-180° | 80.1   | 1.5       |
| 0°-30°    | 1049.9 | 19.4      |
| 0°-40°    | 1630.4 | 30.2      |
| 0°-60°    | 2582.9 | 47.8      |
| 0°-90°    | 3034.2 | 56.2      |
| 90°-120°  | 503.4  | 9.3       |
| 90°-150°  | 1710.0 | 31.7      |
| 90°-180°  | 2365.0 | 43.8      |
| 0°-180°   | 5399.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1474 | 1474  | 1474 | 1474  | 1474 |      |
| 5°   | 1474 | 1468  | 1450 | 1462  | 1458 | 140  |
| 15°  | 1402 | 1387  | 1342 | 1317  | 1304 | 395  |
| 25°  | 1273 | 1230  | 1142 | 1087  | 1067 | 585  |
| 35°  | 1097 | 1029  | 911  | 827   | 798  | 686  |
| 45°  | 896  | 807   | 667  | 572   | 540  | 692  |
| 55°  | 682  | 578   | 434  | 354   | 328  | 609  |
| 65°  | 460  | 352   | 232  | 187   | 183  | 456  |
| 75°  | 245  | 152   | 107  | 97    | 96   | 260  |
| 85°  | 57   | 29    | 25   | 25    | 25   | 66   |
| 90°  | 1    | 9     | 25   | 24    | 24   | 5    |
| 95°  | 37   | 44    | 46   | 46    | 44   | 41   |
| 105° | 154  | 156   | 157  | 158   | 158  | 162  |
| 115° | 286  | 290   | 288  | 288   | 286  | 283  |
| 125° | 416  | 422   | 420  | 418   | 417  | 371  |
| 135° | 537  | 545   | 547  | 546   | 544  | 415  |
| 145° | 652  | 658   | 662  | 662   | 660  | 408  |
| 155° | 746  | 748   | 750  | 754   | 752  | 343  |
| 165° | 812  | 811   | 811  | 816   | 812  | 229  |
| 175° | 844  | 842   | 841  | 846   | 842  | 80   |
| 180° | 846  | 846   | 846  | 846   | 846  |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1474.2 | 1474.2 | 1474.2 | 1474.2 | 1474.2 |
| 2.5°   | 1480.9 | 1474.2 | 1459.5 | 1472.9 | 1470.2 |
| 5°     | 1474.2 | 1467.5 | 1450.1 | 1462.1 | 1458.2 |
| 7.5°   | 1462.1 | 1454.2 | 1435.6 | 1440.7 | 1434.1 |
| 10°    | 1446.2 | 1436.8 | 1410.2 | 1406.0 | 1398.2 |
| 12.5°  | 1426.2 | 1414.2 | 1378.0 | 1370.1 | 1355.4 |
| 15°    | 1402.1 | 1387.4 | 1342.1 | 1316.8 | 1303.5 |
| 17.5°  | 1374.1 | 1352.7 | 1296.6 | 1267.4 | 1246.0 |
| 20°    | 1342.1 | 1315.4 | 1248.7 | 1215.4 | 1186.0 |
| 22.5°  | 1307.4 | 1276.8 | 1199.3 | 1154.0 | 1134.1 |
| 25°    | 1272.7 | 1230.0 | 1141.9 | 1087.4 | 1067.2 |
| 27.5°  | 1231.5 | 1186.0 | 1088.6 | 1025.9 | 995.1  |
| 30°    | 1187.4 | 1136.6 | 1029.8 | 961.9  | 925.9  |
| 32.5°  | 1144.7 | 1083.2 | 973.9  | 893.9  | 860.4  |
| 35°    | 1096.7 | 1028.6 | 911.2  | 827.2  | 797.7  |
| 37.5°  | 1050.0 | 976.5  | 852.5  | 760.4  | 727.1  |
| 40°    | 1000.6 | 920.6  | 791.1  | 696.4  | 661.7  |
| 42.5°  | 949.8  | 864.5  | 729.8  | 631.0  | 597.7  |
| 45°    | 896.5  | 807.1  | 667.1  | 572.3  | 540.3  |
| 47.5°  | 845.9  | 751.2  | 607.1  | 512.3  | 483.0  |
| 50°    | 789.8  | 695.1  | 548.3  | 456.2  | 428.3  |
| 52.5°  | 735.0  | 635.0  | 492.3  | 404.2  | 378.9  |
| 55°    | 681.7  | 577.6  | 433.5  | 353.6  | 328.2  |
| 57.5°  | 627.1  | 520.3  | 381.6  | 306.8  | 285.5  |
| 60°    | 571.0  | 464.2  | 326.8  | 258.9  | 237.6  |
| 62.5°  | 516.4  | 409.7  | 280.1  | 216.2  | 205.5  |
| 65°    | 460.3  | 352.1  | 232.1  | 186.8  | 182.7  |
| 67.5°  | 407.0  | 298.8  | 186.8  | 164.1  | 160.1  |
| 70°    | 350.9  | 246.8  | 154.7  | 141.4  | 136.0  |
| 72.5°  | 297.6  | 198.8  | 129.4  | 118.8  | 116.1  |
| 75°    | 245.4  | 152.0  | 106.7  | 97.4   | 96.1   |
| 77.5°  | 193.5  | 108.0  | 84.1   | 78.7   | 76.0   |
| 80°    | 145.3  | 77.4   | 63.9   | 58.8   | 58.8   |
| 82.5°  | 101.4  | 52.1   | 44.1   | 41.3   | 41.3   |
| 85°    | 57.3   | 29.3   | 25.3   | 25.3   | 25.3   |
| 87.5°  | 21.4   | 10.6   | 10.6   | 9.4    | 9.4    |
| 90°    | 0.8    | 9.2    | 25.0   | 23.5   | 24.3   |
| 92.5°  | 15.8   | 21.4   | 22.2   | 22.9   | 22.9   |
| 95°    | 37.3   | 44.4   | 45.7   | 45.7   | 44.4   |
| 97.5°  | 62.0   | 68.6   | 71.4   | 71.4   | 71.4   |
| 100°   | 90.5   | 96.4   | 98.4   | 98.4   | 97.7   |
| 102.5° | 120.6  | 125.0  | 127.8  | 128.6  | 127.8  |
| 105°   | 153.6  | 155.6  | 157.1  | 158.4  | 158.4  |
| 107.5° | 186.2  | 189.2  | 189.2  | 189.8  | 186.2  |
| 110°   | 217.8  | 221.9  | 221.9  | 221.9  | 219.9  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 112.5° | 252.0 | 256.4 | 255.6 | 253.5 | 252.0 |
| 115°   | 285.7 | 289.7 | 288.5 | 287.8 | 285.7 |
| 117.5° | 319.1 | 324.7 | 321.1 | 319.1 | 317.0 |
| 120°   | 352.8 | 358.4 | 352.8 | 352.8 | 350.4 |
| 122.5° | 383.3 | 390.5 | 386.9 | 384.9 | 383.3 |
| 125°   | 415.5 | 421.9 | 419.8 | 417.5 | 416.8 |
| 127.5° | 446.8 | 454.8 | 452.0 | 448.9 | 446.8 |
| 130°   | 476.2 | 485.4 | 484.1 | 482.6 | 479.7 |
| 132.5° | 509.1 | 516.2 | 516.7 | 513.2 | 511.1 |
| 135°   | 537.4 | 545.3 | 546.9 | 546.1 | 544.0 |
| 137.5° | 569.0 | 575.4 | 576.7 | 576.2 | 573.1 |
| 140°   | 596.8 | 603.2 | 606.8 | 606.8 | 604.0 |
| 142.5° | 625.4 | 631.8 | 633.8 | 634.6 | 631.8 |
| 145°   | 652.5 | 657.5 | 661.6 | 662.4 | 659.6 |
| 147.5° | 676.7 | 683.1 | 686.1 | 687.4 | 684.6 |
| 150°   | 701.7 | 706.1 | 708.8 | 711.1 | 708.8 |
| 152.5° | 723.9 | 728.2 | 731.7 | 734.6 | 731.7 |
| 155°   | 746.1 | 748.1 | 750.4 | 753.9 | 751.7 |
| 157.5° | 765.2 | 766.7 | 768.0 | 773.1 | 769.5 |
| 160°   | 782.3 | 783.8 | 784.6 | 788.9 | 785.9 |
| 162.5° | 798.1 | 798.1 | 798.9 | 803.7 | 800.1 |
| 165°   | 811.6 | 810.8 | 810.8 | 815.9 | 812.3 |
| 167.5° | 823.9 | 821.5 | 821.5 | 826.6 | 823.0 |
| 170°   | 833.0 | 831.0 | 830.3 | 835.4 | 831.0 |
| 172.5° | 839.4 | 837.4 | 836.6 | 841.7 | 837.4 |
| 175°   | 844.5 | 842.5 | 841.0 | 846.1 | 841.7 |
| 177.5° | 847.3 | 845.3 | 843.7 | 848.1 | 843.7 |
| 180°   | 846.1 | 846.1 | 846.1 | 846.1 | 846.1 |

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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 | 9.56             | 10.44 | 10.47 | 11.36 | 12.55 | 5.52           | 6.41 | 6.43  | 7.33  | 8.51  |
|                 | 3H   | 11.23            | 12.02 | 12.15 | 12.96 | 14.16 | 6.71           | 7.50 | 7.63  | 8.43  | 9.64  |
|                 | 4H   | 11.84            | 12.59 | 12.78 | 13.52 | 14.74 | 7.16           | 7.91 | 8.10  | 8.84  | 10.06 |
|                 | 6H   | 12.26            | 12.95 | 13.21 | 13.89 | 15.12 | 7.48           | 8.16 | 8.42  | 9.11  | 10.34 |
|                 | 8H   | 12.39            | 13.04 | 13.34 | 14.00 | 15.23 | 7.57           | 8.22 | 8.52  | 9.18  | 10.41 |
|                 | 12H  | 12.45            | 13.07 | 13.41 | 14.02 | 15.27 | 7.61           | 8.23 | 8.57  | 9.18  | 10.44 |
| 4H              | 2H   | 9.58             | 10.33 | 10.52 | 11.26 | 12.48 | 6.12           | 6.87 | 7.06  | 7.81  | 9.02  |
|                 | 3H   | 11.41            | 12.03 | 12.36 | 13.00 | 14.23 | 7.47           | 8.09 | 8.42  | 9.06  | 10.29 |
|                 | 4H   | 12.10            | 12.66 | 13.06 | 13.63 | 14.88 | 8.02           | 8.58 | 8.98  | 9.54  | 10.80 |
|                 | 6H   | 12.61            | 13.10 | 13.58 | 14.08 | 15.34 | 8.43           | 8.92 | 9.41  | 9.90  | 11.16 |
|                 | 8H   | 12.78            | 13.24 | 13.76 | 14.22 | 15.49 | 8.56           | 9.01 | 9.53  | 9.99  | 11.26 |
|                 | 12H  | 12.88            | 13.29 | 13.87 | 14.28 | 15.56 | 8.62           | 9.03 | 9.62  | 10.03 | 11.30 |
| 8H              | 4H   | 12.07            | 12.52 | 13.04 | 13.50 | 14.77 | 8.30           | 8.75 | 9.27  | 9.73  | 11.00 |
|                 | 6H   | 12.63            | 13.00 | 13.63 | 14.03 | 15.29 | 8.81           | 9.18 | 9.81  | 10.21 | 11.47 |
|                 | 8H   | 12.84            | 13.17 | 13.85 | 14.18 | 15.47 | 8.99           | 9.33 | 10.00 | 10.34 | 11.62 |
|                 | 12H  | 12.98            | 13.27 | 13.99 | 14.27 | 15.60 | 9.11           | 9.40 | 10.12 | 10.40 | 11.74 |
| 12H             | 4H   | 12.02            | 12.43 | 13.02 | 13.43 | 14.70 | 8.30           | 8.71 | 9.30  | 9.71  | 10.98 |
|                 | 6H   | 12.60            | 12.93 | 13.61 | 13.94 | 15.23 | 8.86           | 9.19 | 9.87  | 10.20 | 11.48 |
|                 | 8H   | 12.82            | 13.11 | 13.83 | 14.12 | 15.45 | 9.06           | 9.35 | 10.08 | 10.36 | 11.69 |