

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: P926092

Luminaire Tested: DFN2DIP-TR2F0-020D040US950-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P926092  
REPORT IS A COMBINATION OF REPORTS P900241 AND P897145  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR2F0-020D040US950-FLLFLL  
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

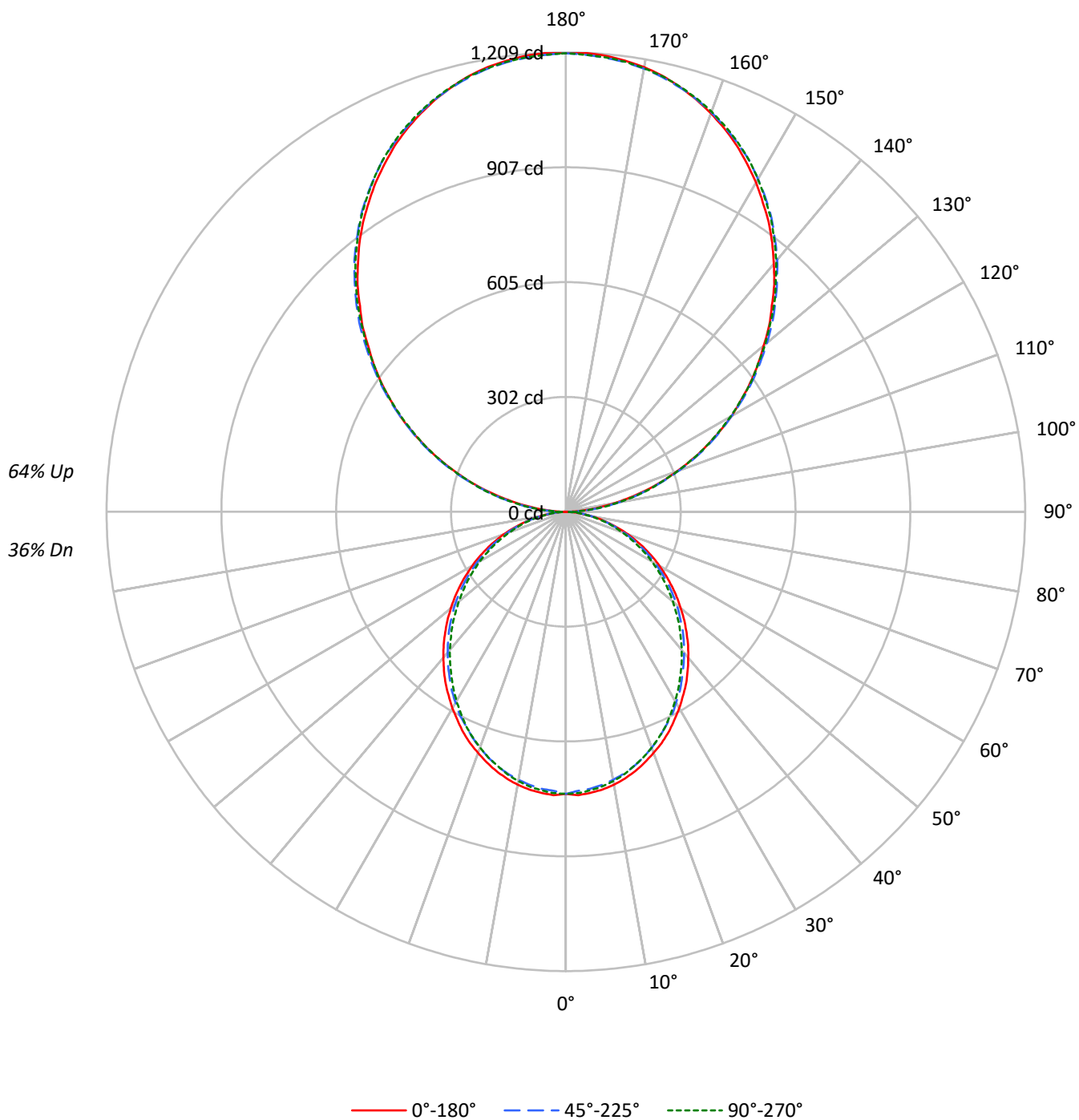
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5266.1 lumens  
Efficiency: N/A  
Efficacy: 118.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 44.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P926092

CATALOG NUMBER: DFN2DIP-TR2F0-020D040US950-FLLFLL

### Luminous Intensity Polar Plot



TEST NUMBER: P926092

CATALOG NUMBER: DFN2DIP-TR2F0-020D040US950-FLLFLL

**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   | 104 | 104 | 104 | 104 | 94 | 94 | 94 | 94 | 76 | 76 | 76 | 59 | 59 | 59 | 43 | 43 | 43 |
| 1   | 95  | 90  | 87  | 83  | 85 | 82 | 79 | 76 | 66 | 64 | 62 | 52 | 50 | 49 | 38 | 37 | 36 |
| 2   | 86  | 79  | 73  | 68  | 78 | 72 | 66 | 62 | 58 | 54 | 51 | 45 | 43 | 41 | 34 | 32 | 31 |
| 3   | 79  | 69  | 62  | 56  | 71 | 63 | 57 | 52 | 51 | 47 | 43 | 40 | 37 | 34 | 30 | 28 | 26 |
| 4   | 72  | 61  | 54  | 48  | 65 | 56 | 49 | 44 | 45 | 40 | 37 | 36 | 32 | 29 | 27 | 24 | 22 |
| 5   | 66  | 54  | 47  | 41  | 59 | 50 | 43 | 38 | 40 | 35 | 31 | 32 | 28 | 25 | 24 | 22 | 20 |
| 6   | 61  | 49  | 41  | 35  | 55 | 45 | 38 | 33 | 36 | 31 | 27 | 29 | 25 | 22 | 22 | 19 | 17 |
| 7   | 56  | 44  | 36  | 31  | 50 | 40 | 33 | 28 | 33 | 28 | 24 | 26 | 22 | 20 | 20 | 17 | 15 |
| 8   | 52  | 40  | 32  | 27  | 47 | 36 | 30 | 25 | 30 | 25 | 21 | 24 | 20 | 17 | 18 | 16 | 14 |
| 9   | 48  | 36  | 29  | 24  | 44 | 33 | 27 | 22 | 27 | 22 | 19 | 22 | 18 | 16 | 17 | 14 | 12 |
| 10  | 45  | 33  | 26  | 21  | 41 | 30 | 24 | 20 | 25 | 20 | 17 | 20 | 17 | 14 | 16 | 13 | 11 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1656 | 1656 | 1656 |
| 5°  | 1656 | 1629 | 1641 |
| 10° | 1640 | 1604 | 1616 |
| 15° | 1614 | 1573 | 1578 |
| 20° | 1579 | 1533 | 1540 |
| 25° | 1544 | 1486 | 1496 |
| 30° | 1500 | 1441 | 1441 |
| 35° | 1459 | 1389 | 1383 |
| 40° | 1409 | 1337 | 1328 |
| 45° | 1359 | 1284 | 1271 |
| 50° | 1304 | 1228 | 1206 |
| 55° | 1246 | 1164 | 1144 |
| 60° | 1181 | 1089 | 1075 |
| 65° | 1109 | 1010 | 993  |
| 70° | 1018 | 913  | 903  |
| 75° | 892  | 798  | 817  |
| 80° | 740  | 652  | 660  |
| 85° | 503  | 411  | 410  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1573 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 69.9   | 1.3       |
| 10°-20°   | 196.6  | 3.7       |
| 20°-30°   | 288.9  | 5.5       |
| 30°-40°   | 335.6  | 6.4       |
| 40°-50°   | 335.2  | 6.4       |
| 50°-60°   | 292.2  | 5.5       |
| 60°-70°   | 216.0  | 4.1       |
| 70°-80°   | 122.2  | 2.3       |
| 80°-90°   | 35.7   | 0.7       |
| 90°-100°  | 74.7   | 1.4       |
| 100°-110° | 237.3  | 4.5       |
| 110°-120° | 406.1  | 7.7       |
| 120°-130° | 534.0  | 10.1      |
| 130°-140° | 599.4  | 11.4      |
| 140°-150° | 587.8  | 11.2      |
| 150°-160° | 493.1  | 9.4       |
| 160°-170° | 327.0  | 6.2       |
| 170°-180° | 114.3  | 2.2       |
| 0°-30°    | 555.4  | 10.5      |
| 0°-40°    | 891.0  | 16.9      |
| 0°-60°    | 1518.4 | 28.8      |
| 0°-90°    | 1892.4 | 35.9      |
| 90°-120°  | 718.0  | 13.6      |
| 90°-150°  | 2439.3 | 46.3      |
| 90°-180°  | 3374.0 | 64.1      |
| 0°-180°   | 5266.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 742  | 742   | 742  | 742   | 742  |      |
| 5°   | 742  | 740   | 732  | 737   | 736  | 70   |
| 15°  | 707  | 702   | 693  | 696   | 692  | 199  |
| 25°  | 640  | 634   | 622  | 623   | 622  | 294  |
| 35°  | 552  | 545   | 533  | 529   | 525  | 345  |
| 45°  | 449  | 444   | 433  | 426   | 423  | 347  |
| 55°  | 340  | 336   | 327  | 318   | 315  | 304  |
| 65°  | 229  | 225   | 218  | 211   | 208  | 227  |
| 75°  | 120  | 119   | 115  | 111   | 112  | 128  |
| 85°  | 29   | 28    | 28   | 26    | 25   | 33   |
| 90°  | 1    | 13    | 36   | 34    | 34   | 5    |
| 95°  | 53   | 63    | 65   | 65    | 63   | 59   |
| 105° | 219  | 222   | 224  | 226   | 226  | 231  |
| 115° | 408  | 413   | 412  | 410   | 408  | 403  |
| 125° | 593  | 602   | 599  | 596   | 594  | 530  |
| 135° | 767  | 778   | 780  | 779   | 776  | 593  |
| 145° | 931  | 938   | 944  | 945   | 941  | 582  |
| 155° | 1064 | 1067  | 1070 | 1076  | 1072 | 490  |
| 165° | 1158 | 1157  | 1157 | 1164  | 1159 | 327  |
| 175° | 1205 | 1202  | 1200 | 1207  | 1201 | 114  |
| 180° | 1207 | 1207  | 1207 | 1207  | 1207 |      |

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CATALOG NUMBER: DFN2DIP-TR2F0-020D040US950-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 0°     | 742.4 | 742.4 | 742.4 | 742.4 | 742.4 |
| 2.5°   | 746.7 | 743.2 | 735.2 | 742.4 | 741.1 |
| 5°     | 742.4 | 739.6 | 731.7 | 737.4 | 736.0 |
| 7.5°   | 737.4 | 733.1 | 725.3 | 731.1 | 729.6 |
| 10°    | 729.6 | 724.7 | 716.1 | 721.7 | 719.6 |
| 12.5°  | 718.8 | 714.6 | 706.1 | 709.6 | 708.2 |
| 15°    | 706.7 | 702.5 | 693.2 | 696.0 | 692.5 |
| 17.5°  | 691.7 | 687.5 | 678.2 | 681.7 | 678.2 |
| 20°    | 675.3 | 671.0 | 661.0 | 663.2 | 660.4 |
| 22.5°  | 658.9 | 652.5 | 643.2 | 643.2 | 641.8 |
| 25°    | 639.7 | 633.9 | 621.8 | 623.2 | 621.8 |
| 27.5°  | 618.2 | 613.2 | 604.0 | 601.9 | 598.3 |
| 30°    | 596.8 | 591.1 | 580.4 | 578.3 | 575.4 |
| 32.5°  | 573.9 | 569.7 | 558.3 | 554.0 | 551.1 |
| 35°    | 551.9 | 544.7 | 533.3 | 529.0 | 525.4 |
| 37.5°  | 526.9 | 520.4 | 509.0 | 504.0 | 500.4 |
| 40°    | 501.1 | 495.4 | 484.0 | 477.7 | 474.7 |
| 42.5°  | 476.1 | 470.4 | 459.1 | 451.9 | 447.6 |
| 45°    | 449.0 | 444.1 | 433.3 | 425.5 | 422.6 |
| 47.5°  | 422.6 | 417.7 | 406.2 | 398.3 | 394.1 |
| 50°    | 394.8 | 391.2 | 381.2 | 371.2 | 367.7 |
| 52.5°  | 367.7 | 362.6 | 353.4 | 345.5 | 340.6 |
| 55°    | 339.8 | 335.5 | 326.9 | 318.4 | 314.8 |
| 57.5°  | 312.0 | 308.4 | 299.1 | 290.6 | 287.6 |
| 60°    | 284.1 | 281.3 | 271.3 | 263.4 | 261.3 |
| 62.5°  | 257.0 | 252.0 | 244.9 | 237.7 | 234.9 |
| 65°    | 229.2 | 224.9 | 217.8 | 211.3 | 207.8 |
| 67.5°  | 200.6 | 197.0 | 190.6 | 185.6 | 182.8 |
| 70°    | 174.2 | 171.3 | 164.9 | 159.9 | 157.1 |
| 72.5°  | 147.1 | 144.2 | 140.6 | 135.7 | 133.6 |
| 75°    | 119.9 | 118.6 | 114.9 | 110.7 | 112.1 |
| 77.5°  | 95.7  | 92.8  | 91.3  | 89.2  | 87.1  |
| 80°    | 71.5  | 70.7  | 69.3  | 67.1  | 65.6  |
| 82.5°  | 48.6  | 48.6  | 47.9  | 45.0  | 45.0  |
| 85°    | 29.2  | 28.5  | 27.9  | 25.7  | 25.0  |
| 87.5°  | 12.9  | 11.4  | 10.0  | 7.9   | 7.2   |
| 90°    | 1.0   | 13.1  | 35.7  | 33.5  | 34.5  |
| 92.5°  | 22.5  | 30.5  | 31.7  | 32.7  | 32.7  |
| 95°    | 53.1  | 63.3  | 65.2  | 65.2  | 63.3  |
| 97.5°  | 88.4  | 97.9  | 101.9 | 101.9 | 101.9 |
| 100°   | 129.2 | 137.6 | 140.4 | 140.4 | 139.4 |
| 102.5° | 172.1 | 178.3 | 182.3 | 183.4 | 182.3 |
| 105°   | 219.0 | 221.9 | 224.1 | 225.9 | 225.9 |
| 107.5° | 265.6 | 270.0 | 270.0 | 270.6 | 265.6 |
| 110°   | 310.7 | 316.5 | 316.5 | 316.5 | 313.7 |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 359.5  | 365.7  | 364.5  | 361.7  | 359.5  |
| 115°   | 407.5  | 413.4  | 411.5  | 410.4  | 407.5  |
| 117.5° | 455.2  | 463.2  | 458.1  | 455.2  | 452.3  |
| 120°   | 503.2  | 511.2  | 503.2  | 503.2  | 499.9  |
| 122.5° | 546.8  | 557.0  | 552.0  | 549.0  | 546.8  |
| 125°   | 592.7  | 601.8  | 598.9  | 595.6  | 594.5  |
| 127.5° | 637.5  | 648.7  | 644.7  | 640.3  | 637.5  |
| 130°   | 679.2  | 692.4  | 690.6  | 688.4  | 684.4  |
| 132.5° | 726.2  | 736.4  | 737.2  | 732.0  | 729.1  |
| 135°   | 766.6  | 777.9  | 780.1  | 778.9  | 776.1  |
| 137.5° | 811.8  | 820.8  | 822.6  | 821.9  | 817.6  |
| 140°   | 851.3  | 860.5  | 865.6  | 865.6  | 861.6  |
| 142.5° | 892.2  | 901.2  | 904.1  | 905.3  | 901.2  |
| 145°   | 930.7  | 938.0  | 943.8  | 944.9  | 940.9  |
| 147.5° | 965.3  | 974.3  | 978.7  | 980.5  | 976.5  |
| 150°   | 1000.9 | 1007.1 | 1011.1 | 1014.4 | 1011.1 |
| 152.5° | 1032.6 | 1038.7 | 1043.9 | 1047.9 | 1043.9 |
| 155°   | 1064.2 | 1067.1 | 1070.4 | 1075.5 | 1072.2 |
| 157.5° | 1091.6 | 1093.7 | 1095.5 | 1102.8 | 1097.7 |
| 160°   | 1115.9 | 1118.1 | 1119.1 | 1125.3 | 1121.0 |
| 162.5° | 1138.4 | 1138.4 | 1139.6 | 1146.4 | 1141.4 |
| 165°   | 1157.8 | 1156.6 | 1156.6 | 1163.9 | 1158.8 |
| 167.5° | 1175.2 | 1171.9 | 1171.9 | 1179.2 | 1174.1 |
| 170°   | 1188.3 | 1185.3 | 1184.3 | 1191.5 | 1185.3 |
| 172.5° | 1197.4 | 1194.5 | 1193.4 | 1200.7 | 1194.5 |
| 175°   | 1204.7 | 1201.8 | 1199.6 | 1206.8 | 1200.7 |
| 177.5° | 1208.7 | 1205.8 | 1203.6 | 1209.8 | 1203.6 |
| 180°   | 1206.8 | 1206.8 | 1206.8 | 1206.8 | 1206.8 |

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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 | 7.43             | 8.18  | 8.50  | 9.25  | 10.71 | 7.01           | 7.76  | 8.08  | 8.83  | 10.29 |
|                 | 3H   | 9.06             | 9.73  | 10.14 | 10.81 | 12.29 | 8.60           | 9.27  | 9.68  | 10.35 | 11.83 |
|                 | 4H   | 9.63             | 10.26 | 10.72 | 11.34 | 12.83 | 9.17           | 9.80  | 10.26 | 10.88 | 12.37 |
|                 | 6H   | 10.00            | 10.59 | 11.10 | 11.67 | 13.17 | 9.54           | 10.13 | 10.64 | 11.21 | 12.71 |
|                 | 8H   | 10.09            | 10.65 | 11.20 | 11.75 | 13.24 | 9.64           | 10.19 | 10.74 | 11.29 | 12.78 |
|                 | 12H  | 10.13            | 10.66 | 11.24 | 11.75 | 13.27 | 9.67           | 10.20 | 10.77 | 11.29 | 12.80 |
| 4H              | 2H   | 7.87             | 8.51  | 8.97  | 9.59  | 11.07 | 7.53           | 8.17  | 8.63  | 9.25  | 10.73 |
|                 | 3H   | 9.70             | 10.23 | 10.80 | 11.34 | 12.83 | 9.31           | 9.85  | 10.42 | 10.95 | 12.45 |
|                 | 4H   | 10.39            | 10.88 | 11.50 | 11.97 | 13.49 | 10.00          | 10.48 | 11.10 | 11.58 | 13.10 |
|                 | 6H   | 10.88            | 11.29 | 11.99 | 12.41 | 13.92 | 10.48          | 10.90 | 11.59 | 12.02 | 13.53 |
|                 | 8H   | 11.01            | 11.40 | 12.13 | 12.51 | 14.04 | 10.61          | 11.00 | 11.73 | 12.12 | 13.64 |
|                 | 12H  | 11.07            | 11.42 | 12.20 | 12.55 | 14.08 | 10.66          | 11.02 | 11.79 | 12.14 | 13.67 |
| 8H              | 4H   | 10.57            | 10.96 | 11.68 | 12.07 | 13.59 | 10.21          | 10.61 | 11.33 | 11.72 | 13.24 |
|                 | 6H   | 11.17            | 11.49 | 12.30 | 12.64 | 14.16 | 10.81          | 11.14 | 11.95 | 12.29 | 13.81 |
|                 | 8H   | 11.37            | 11.65 | 12.51 | 12.79 | 14.33 | 11.01          | 11.29 | 12.16 | 12.43 | 13.97 |
|                 | 12H  | 11.48            | 11.73 | 12.63 | 12.86 | 14.44 | 11.11          | 11.36 | 12.26 | 12.49 | 14.07 |
| 12H             | 4H   | 10.54            | 10.90 | 11.68 | 12.02 | 13.55 | 10.20          | 10.55 | 11.33 | 11.68 | 13.21 |
|                 | 6H   | 11.19            | 11.47 | 12.33 | 12.61 | 14.15 | 10.85          | 11.13 | 11.99 | 12.27 | 13.81 |
|                 | 8H   | 11.41            | 11.66 | 12.56 | 12.79 | 14.37 | 11.06          | 11.31 | 12.21 | 12.44 | 14.02 |