

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: P907090

Luminaire Tested: DFN2DIP-TR3F0-030D030US835-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P907090  
REPORT IS A COMBINATION OF REPORTS P900272 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-030D030US835-RLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

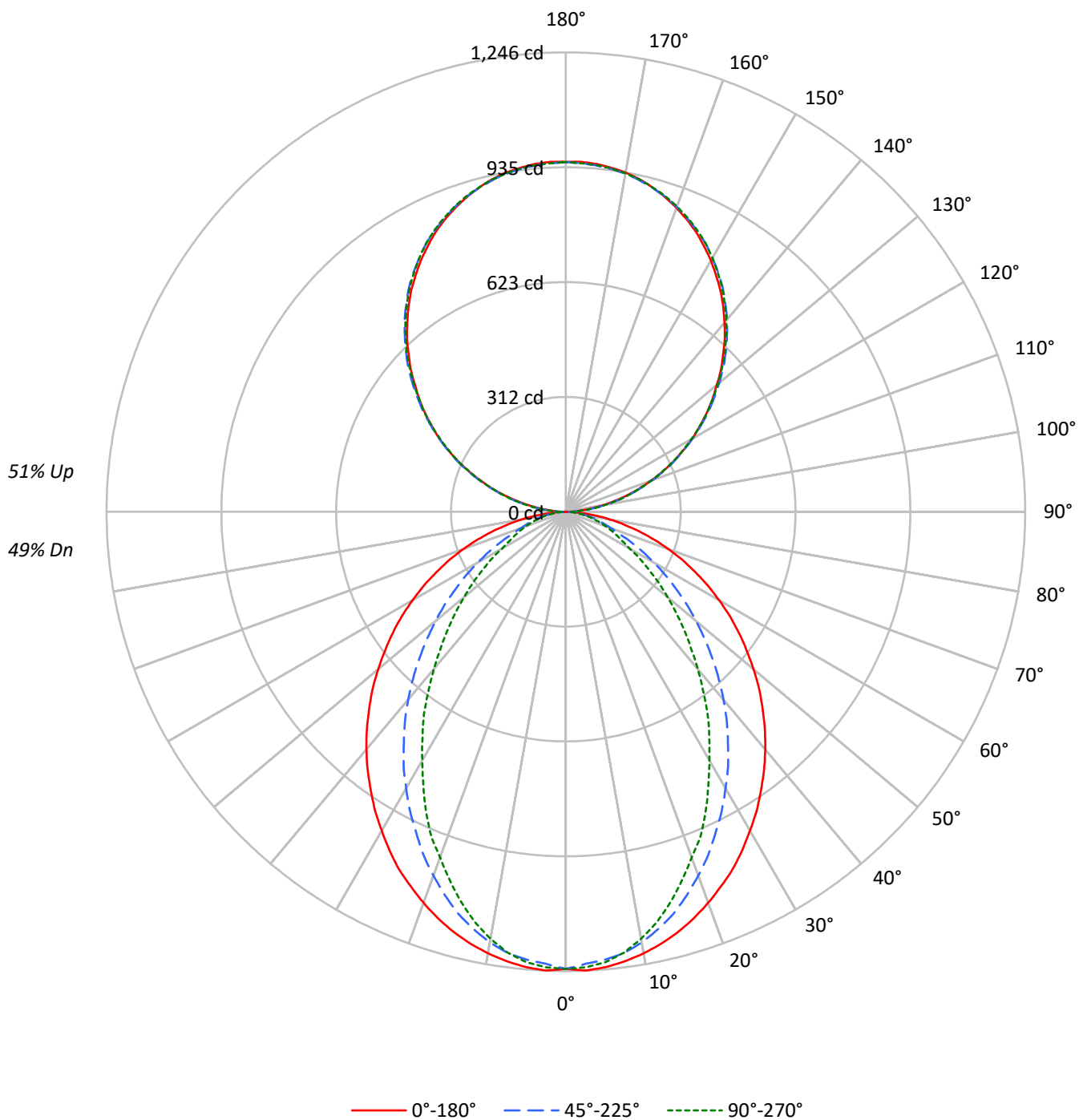
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5204.9 lumens  
Efficiency: N/A  
Efficacy: 111.5 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): 46.7  
Input Voltage (V):  
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

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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°  | 1545 | 1545 | 1545 |
| 5°  | 1547 | 1519 | 1529 |
| 10° | 1530 | 1488 | 1478 |
| 15° | 1509 | 1438 | 1401 |
| 20° | 1480 | 1369 | 1305 |
| 25° | 1450 | 1292 | 1213 |
| 30° | 1411 | 1213 | 1097 |
| 35° | 1373 | 1128 | 995  |
| 40° | 1334 | 1040 | 878  |
| 45° | 1288 | 943  | 773  |
| 50° | 1241 | 845  | 669  |
| 55° | 1192 | 741  | 570  |
| 60° | 1135 | 632  | 468  |
| 65° | 1069 | 522  | 420  |
| 70° | 989  | 419  | 379  |
| 75° | 889  | 366  | 342  |
| 80° | 744  | 303  | 294  |
| 85° | 506  | 196  | 215  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1288 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 116.2  | 2.2       |
| 10°-20°   | 319.0  | 6.1       |
| 20°-30°   | 447.9  | 8.6       |
| 30°-40°   | 488.2  | 9.4       |
| 40°-50°   | 448.7  | 8.6       |
| 50°-60°   | 352.4  | 6.8       |
| 60°-70°   | 229.4  | 4.4       |
| 70°-80°   | 118.1  | 2.3       |
| 80°-90°   | 32.8   | 0.6       |
| 90°-100°  | 58.7   | 1.1       |
| 100°-110° | 186.5  | 3.6       |
| 110°-120° | 319.2  | 6.1       |
| 120°-130° | 419.8  | 8.1       |
| 130°-140° | 471.2  | 9.1       |
| 140°-150° | 462.1  | 8.9       |
| 150°-160° | 387.7  | 7.4       |
| 160°-170° | 257.1  | 4.9       |
| 170°-180° | 89.9   | 1.7       |
| 0°-30°    | 883.1  | 17.0      |
| 0°-40°    | 1371.3 | 26.3      |
| 0°-60°    | 2172.4 | 41.7      |
| 0°-90°    | 2552.7 | 49.0      |
| 90°-120°  | 564.5  | 10.8      |
| 90°-150°  | 1917.7 | 36.8      |
| 90°-180°  | 2652.0 | 51.0      |
| 0°-180°   | 5204.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1240 | 1240  | 1240 | 1240  | 1240 |      |
| 5°   | 1240 | 1234  | 1220 | 1230  | 1226 | 118  |
| 15°  | 1179 | 1167  | 1129 | 1108  | 1096 | 332  |
| 25°  | 1070 | 1034  | 960  | 914   | 898  | 492  |
| 35°  | 922  | 865   | 766  | 696   | 671  | 577  |
| 45°  | 754  | 679   | 561  | 481   | 454  | 582  |
| 55°  | 573  | 486   | 365  | 297   | 276  | 512  |
| 65°  | 387  | 296   | 195  | 157   | 154  | 384  |
| 75°  | 206  | 128   | 90   | 82    | 81   | 218  |
| 85°  | 48   | 25    | 21   | 21    | 21   | 55   |
| 90°  | 1    | 10    | 28   | 26    | 27   | 5    |
| 95°  | 42   | 50    | 51   | 51    | 50   | 46   |
| 105° | 172  | 174   | 176  | 178   | 178  | 182  |
| 115° | 320  | 325   | 324  | 323   | 320  | 317  |
| 125° | 466  | 473   | 471  | 468   | 467  | 416  |
| 135° | 603  | 612   | 613  | 612   | 610  | 466  |
| 145° | 732  | 737   | 742  | 743   | 740  | 457  |
| 155° | 837  | 839   | 842  | 846   | 843  | 385  |
| 165° | 910  | 909   | 909  | 915   | 911  | 257  |
| 175° | 947  | 945   | 943  | 949   | 944  | 90   |
| 180° | 949  | 949   | 949  | 949   | 949  |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1239.9 | 1239.9 | 1239.9 | 1239.9 | 1239.9 |
| 2.5°   | 1245.5 | 1239.9 | 1227.5 | 1238.8 | 1236.6 |
| 5°     | 1239.9 | 1234.3 | 1219.7 | 1229.8 | 1226.4 |
| 7.5°   | 1229.8 | 1223.1 | 1207.4 | 1211.8 | 1206.2 |
| 10°    | 1216.3 | 1208.5 | 1186.1 | 1182.6 | 1176.0 |
| 12.5°  | 1199.5 | 1189.4 | 1159.1 | 1152.4 | 1140.0 |
| 15°    | 1179.3 | 1166.9 | 1128.8 | 1107.5 | 1096.3 |
| 17.5°  | 1155.7 | 1137.8 | 1090.6 | 1066.0 | 1048.0 |
| 20°    | 1128.8 | 1106.3 | 1050.2 | 1022.3 | 997.5  |
| 22.5°  | 1099.7 | 1073.8 | 1008.7 | 970.6  | 953.8  |
| 25°    | 1070.5 | 1034.5 | 960.5  | 914.5  | 897.6  |
| 27.5°  | 1035.7 | 997.5  | 915.6  | 862.9  | 837.0  |
| 30°    | 998.7  | 956.0  | 866.2  | 809.1  | 778.7  |
| 32.5°  | 962.7  | 911.1  | 819.2  | 751.8  | 723.7  |
| 35°    | 922.4  | 865.1  | 766.4  | 695.7  | 671.0  |
| 37.5°  | 883.1  | 821.3  | 717.0  | 639.5  | 611.6  |
| 40°    | 841.6  | 774.3  | 665.4  | 585.7  | 556.6  |
| 42.5°  | 798.9  | 727.2  | 613.8  | 530.7  | 502.7  |
| 45°    | 754.1  | 678.8  | 561.1  | 481.3  | 454.4  |
| 47.5°  | 711.4  | 631.8  | 510.6  | 430.8  | 406.2  |
| 50°    | 664.3  | 584.6  | 461.2  | 383.7  | 360.2  |
| 52.5°  | 618.2  | 534.1  | 414.1  | 340.0  | 318.7  |
| 55°    | 573.3  | 485.8  | 364.6  | 297.4  | 276.1  |
| 57.5°  | 527.4  | 437.6  | 321.0  | 258.1  | 240.1  |
| 60°    | 480.2  | 390.5  | 274.9  | 217.7  | 199.8  |
| 62.5°  | 434.3  | 344.5  | 235.6  | 181.8  | 172.9  |
| 65°    | 387.1  | 296.2  | 195.2  | 157.1  | 153.7  |
| 67.5°  | 342.3  | 251.3  | 157.1  | 138.0  | 134.6  |
| 70°    | 295.1  | 207.6  | 130.1  | 118.9  | 114.4  |
| 72.5°  | 250.2  | 167.1  | 108.8  | 99.9   | 97.6   |
| 75°    | 206.4  | 127.9  | 89.8   | 81.9   | 80.8   |
| 77.5°  | 162.7  | 90.8   | 70.7   | 66.2   | 63.9   |
| 80°    | 122.3  | 65.1   | 53.8   | 49.4   | 49.4   |
| 82.5°  | 85.2   | 43.8   | 37.0   | 34.8   | 34.8   |
| 85°    | 48.2   | 24.6   | 21.3   | 21.3   | 21.3   |
| 87.5°  | 18.0   | 8.9    | 8.9    | 7.9    | 7.9    |
| 90°    | 0.9    | 10.3   | 28.0   | 26.3   | 27.2   |
| 92.5°  | 17.7   | 24.0   | 24.9   | 25.7   | 25.7   |
| 95°    | 41.8   | 49.8   | 51.2   | 51.2   | 49.8   |
| 97.5°  | 69.5   | 76.9   | 80.1   | 80.1   | 80.1   |
| 100°   | 101.5  | 108.1  | 110.4  | 110.4  | 109.6  |
| 102.5° | 135.3  | 140.2  | 143.3  | 144.2  | 143.3  |
| 105°   | 172.2  | 174.5  | 176.2  | 177.6  | 177.6  |
| 107.5° | 208.8  | 212.2  | 212.2  | 212.8  | 208.8  |
| 110°   | 244.3  | 248.9  | 248.9  | 248.9  | 246.6  |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 112.5° | 282.6 | 287.5 | 286.6 | 284.3 | 282.6 |
| 115°   | 320.4 | 324.9 | 323.5 | 322.7 | 320.4 |
| 117.5° | 357.8 | 364.1 | 360.1 | 357.8 | 355.5 |
| 120°   | 395.6 | 401.9 | 395.6 | 395.6 | 393.0 |
| 122.5° | 429.9 | 437.9 | 433.9 | 431.6 | 429.9 |
| 125°   | 466.0 | 473.1 | 470.8 | 468.2 | 467.4 |
| 127.5° | 501.1 | 510.0 | 506.9 | 503.4 | 501.1 |
| 130°   | 534.0 | 544.3 | 542.9 | 541.2 | 538.0 |
| 132.5° | 570.9 | 578.9 | 579.5 | 575.5 | 573.2 |
| 135°   | 602.7 | 611.5 | 613.3 | 612.4 | 610.1 |
| 137.5° | 638.1 | 645.3 | 646.7 | 646.2 | 642.7 |
| 140°   | 669.3 | 676.5 | 680.5 | 680.5 | 677.3 |
| 142.5° | 701.4 | 708.5 | 710.8 | 711.7 | 708.5 |
| 145°   | 731.7 | 737.4 | 742.0 | 742.8 | 739.7 |
| 147.5° | 758.9 | 766.0 | 769.4 | 770.9 | 767.7 |
| 150°   | 786.9 | 791.8 | 794.9 | 797.5 | 794.9 |
| 152.5° | 811.8 | 816.6 | 820.6 | 823.8 | 820.6 |
| 155°   | 836.7 | 838.9 | 841.5 | 845.5 | 843.0 |
| 157.5° | 858.1 | 859.8 | 861.3 | 867.0 | 863.0 |
| 160°   | 877.3 | 879.0 | 879.9 | 884.7 | 881.3 |
| 162.5° | 895.0 | 895.0 | 895.9 | 901.3 | 897.3 |
| 165°   | 910.2 | 909.3 | 909.3 | 915.0 | 911.0 |
| 167.5° | 923.9 | 921.3 | 921.3 | 927.0 | 923.0 |
| 170°   | 934.2 | 931.9 | 931.1 | 936.8 | 931.9 |
| 172.5° | 941.3 | 939.1 | 938.2 | 943.9 | 939.1 |
| 175°   | 947.1 | 944.8 | 943.1 | 948.8 | 943.9 |
| 177.5° | 950.2 | 947.9 | 946.2 | 951.1 | 946.2 |
| 180°   | 948.8 | 948.8 | 948.8 | 948.8 | 948.8 |

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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 | 8.51             | 9.34  | 9.49  | 10.32 | 11.61 | 4.49           | 5.31 | 5.46 | 6.30 | 7.58  |
|                 | 3H   | 10.18            | 10.92 | 11.17 | 11.91 | 13.22 | 5.67           | 6.41 | 6.66 | 7.40 | 8.71  |
|                 | 4H   | 10.78            | 11.48 | 11.78 | 12.47 | 13.79 | 6.12           | 6.82 | 7.12 | 7.81 | 9.13  |
|                 | 6H   | 11.20            | 11.84 | 12.20 | 12.84 | 14.17 | 6.44           | 7.08 | 7.44 | 8.07 | 9.40  |
|                 | 8H   | 11.32            | 11.93 | 12.33 | 12.94 | 14.27 | 6.52           | 7.13 | 7.54 | 8.15 | 9.47  |
|                 | 12H  | 11.38            | 11.96 | 12.39 | 12.96 | 14.32 | 6.56           | 7.14 | 7.58 | 8.15 | 9.50  |
| 4H              | 2H   | 8.53             | 9.23  | 9.53  | 10.22 | 11.54 | 5.08           | 5.78 | 6.08 | 6.77 | 8.09  |
|                 | 3H   | 10.35            | 10.93 | 11.36 | 11.95 | 13.28 | 6.42           | 7.00 | 7.43 | 8.02 | 9.36  |
|                 | 4H   | 11.03            | 11.56 | 12.05 | 12.58 | 13.93 | 6.97           | 7.49 | 7.98 | 8.51 | 9.86  |
|                 | 6H   | 11.54            | 11.99 | 12.57 | 13.03 | 14.38 | 7.38           | 7.83 | 8.41 | 8.87 | 10.22 |
|                 | 8H   | 11.71            | 12.13 | 12.74 | 13.16 | 14.53 | 7.50           | 7.93 | 8.54 | 8.96 | 10.33 |
|                 | 12H  | 11.80            | 12.18 | 12.85 | 13.23 | 14.60 | 7.57           | 7.95 | 8.61 | 9.00 | 10.37 |
| 8H              | 4H   | 11.00            | 11.42 | 12.03 | 12.45 | 13.82 | 7.24           | 7.66 | 8.27 | 8.70 | 10.06 |
|                 | 6H   | 11.55            | 11.90 | 12.61 | 12.98 | 14.34 | 7.75           | 8.10 | 8.80 | 9.17 | 10.54 |
|                 | 8H   | 11.76            | 12.07 | 12.83 | 13.13 | 14.51 | 7.94           | 8.24 | 9.00 | 9.30 | 10.69 |
|                 | 12H  | 11.90            | 12.17 | 12.96 | 13.22 | 14.65 | 8.05           | 8.32 | 9.12 | 9.38 | 10.80 |
| 12H             | 4H   | 10.95            | 11.33 | 12.00 | 12.38 | 13.75 | 7.24           | 7.63 | 8.29 | 8.67 | 10.04 |
|                 | 6H   | 11.53            | 11.84 | 12.59 | 12.90 | 14.28 | 7.80           | 8.10 | 8.86 | 9.16 | 10.55 |
|                 | 8H   | 11.74            | 12.01 | 12.81 | 13.07 | 14.49 | 8.00           | 8.27 | 9.07 | 9.33 | 10.75 |