

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: P998976

Luminaire Tested: SA2XXDIP-B865D1080UB27-4F0-XX-W2A-D1

Issue Date: 5/6/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P998976  
REPORT IS A COMBINATION OF REPORTS P984722 AND P1007351  
Test Lab: INNOVATION CENTER  
Issue Date: 5/6/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: SA2XXDIP-B865D1080UB27-4F0-XX-W2A-D1  
Description: Define 2 Direct/Indirect Pendant with 2700K BioUP LEDs {m-DER=0.473} {m-EER=0.52}  
Light Source: -  
Ballast/Driver: -

**Summary**

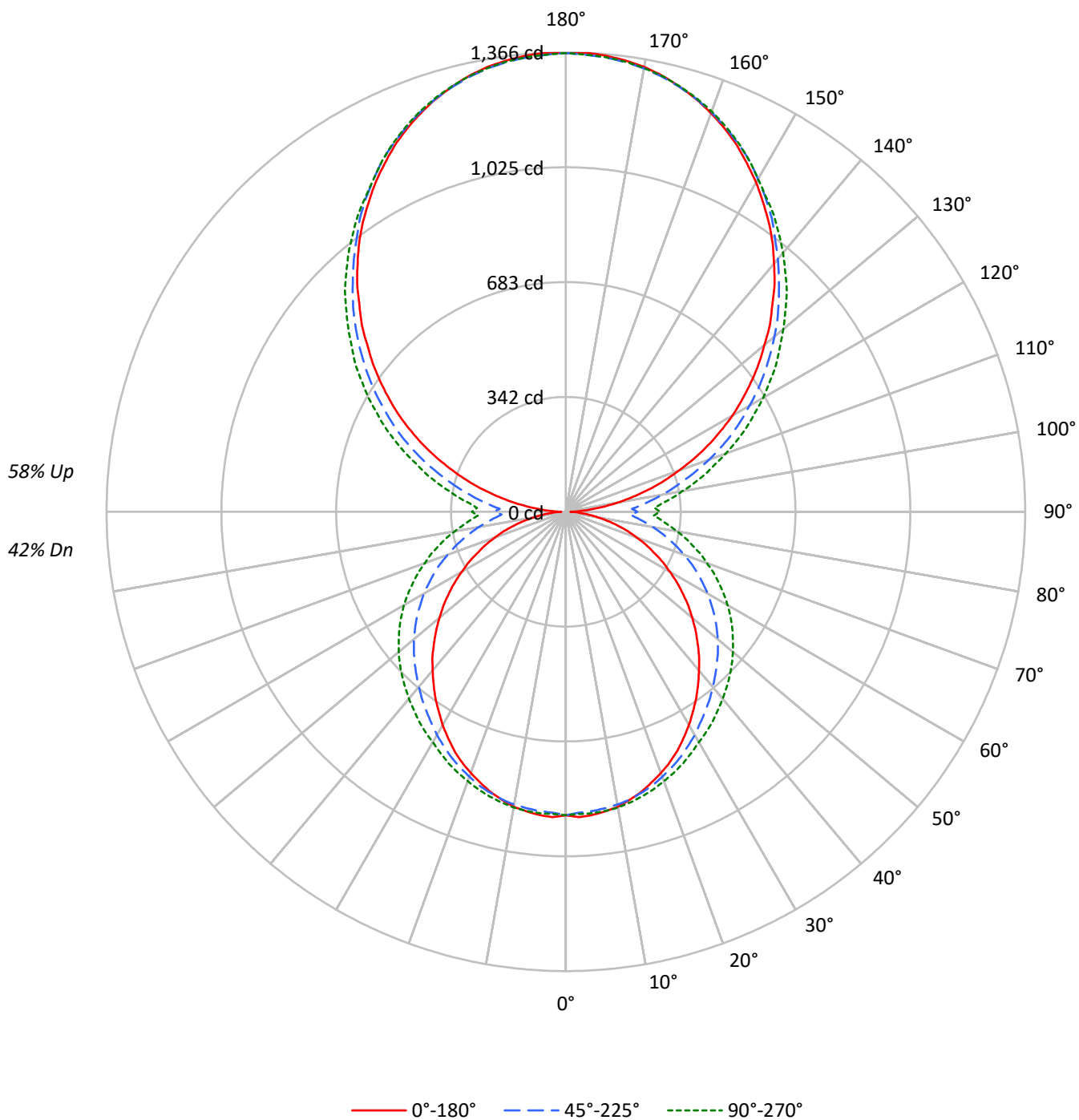
Lumens per Lamp: N/A  
Luminaire Lumens: 7260.0 lumens  
Efficiency: N/A  
Efficacy: 88.8 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.31 / 1.42  
Luminous Opening: Rectangular w/ Sides (W: 0.17' x L: 4' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 81.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
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   | 95  | 90  | 86  | 82  | 86 | 82 | 78 | 75 | 67 | 65 | 62 | 54 | 52 | 50 | 41 | 40 | 39 |
| 2   | 86  | 78  | 71  | 66  | 78 | 71 | 65 | 60 | 58 | 54 | 50 | 46 | 43 | 41 | 36 | 33 | 32 |
| 3   | 78  | 68  | 60  | 54  | 71 | 62 | 55 | 50 | 51 | 46 | 42 | 41 | 37 | 34 | 31 | 29 | 26 |
| 4   | 71  | 60  | 52  | 45  | 64 | 55 | 47 | 42 | 45 | 40 | 35 | 36 | 32 | 29 | 28 | 25 | 22 |
| 5   | 65  | 53  | 45  | 38  | 59 | 49 | 41 | 36 | 40 | 34 | 30 | 32 | 28 | 25 | 25 | 22 | 19 |
| 6   | 60  | 47  | 39  | 33  | 54 | 43 | 36 | 31 | 36 | 30 | 26 | 29 | 25 | 21 | 22 | 19 | 17 |
| 7   | 55  | 43  | 35  | 29  | 50 | 39 | 32 | 27 | 32 | 27 | 23 | 26 | 22 | 19 | 20 | 17 | 15 |
| 8   | 51  | 39  | 31  | 25  | 46 | 35 | 28 | 24 | 29 | 24 | 20 | 24 | 20 | 17 | 19 | 15 | 13 |
| 9   | 48  | 35  | 28  | 22  | 43 | 32 | 26 | 21 | 27 | 22 | 18 | 22 | 18 | 15 | 17 | 14 | 12 |
| 10  | 44  | 32  | 25  | 20  | 40 | 30 | 23 | 19 | 25 | 20 | 16 | 20 | 16 | 13 | 16 | 13 | 11 |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 14283 | 14283 | 14283 |
| 5°  | 14349 | 13674 | 13596 |
| 10° | 14252 | 13200 | 13008 |
| 15° | 14050 | 12710 | 12404 |
| 20° | 13797 | 12196 | 11829 |
| 25° | 13546 | 11704 | 11310 |
| 30° | 13195 | 11202 | 10795 |
| 35° | 12840 | 10720 | 10417 |
| 40° | 12465 | 10303 | 10041 |
| 45° | 12110 | 9925  | 9714  |
| 50° | 11727 | 9576  | 9390  |
| 55° | 11325 | 9205  | 9062  |
| 60° | 10833 | 8819  | 8716  |
| 65° | 10320 | 8376  | 8318  |
| 70° | 9740  | 7899  | 7888  |
| 75° | 9001  | 7423  | 7484  |
| 80° | 7832  | 6928  | 7066  |
| 85° | 6653  | 6461  | 6704  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 12110 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 85.5   | 1.2       |
| 10°-20°   | 245.3  | 3.4       |
| 20°-30°   | 371.7  | 5.1       |
| 30°-40°   | 452.7  | 6.2       |
| 40°-50°   | 487.0  | 6.7       |
| 50°-60°   | 473.0  | 6.5       |
| 60°-70°   | 413.1  | 5.7       |
| 70°-80°   | 317.9  | 4.4       |
| 80°-90°   | 216.8  | 3.0       |
| 90°-100°  | 231.3  | 3.2       |
| 100°-110° | 375.5  | 5.2       |
| 110°-120° | 529.8  | 7.3       |
| 120°-130° | 643.0  | 8.9       |
| 130°-140° | 694.1  | 9.6       |
| 140°-150° | 667.2  | 9.2       |
| 150°-160° | 557.3  | 7.7       |
| 160°-170° | 369.6  | 5.1       |
| 170°-180° | 129.2  | 1.8       |
| 0°-30°    | 702.6  | 9.7       |
| 0°-40°    | 1155.3 | 15.9      |
| 0°-60°    | 2115.3 | 29.1      |
| 0°-90°    | 3063.0 | 42.2      |
| 90°-120°  | 1136.5 | 15.7      |
| 90°-150°  | 3140.8 | 43.3      |
| 90°-180°  | 4197.0 | 57.8      |
| 0°-180°   | 7260.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 902  | 902   | 902  | 902   | 902  |      |
| 5°   | 905  | 901   | 893  | 901   | 900  | 86   |
| 15°  | 863  | 866   | 866  | 878   | 876  | 243  |
| 25°  | 785  | 794   | 806  | 821   | 825  | 361  |
| 35°  | 676  | 698   | 723  | 752   | 761  | 423  |
| 45°  | 554  | 590   | 636  | 676   | 689  | 428  |
| 55°  | 425  | 472   | 540  | 587   | 604  | 380  |
| 65°  | 290  | 354   | 432  | 485   | 502  | 288  |
| 75°  | 161  | 234   | 318  | 374   | 391  | 170  |
| 85°  | 47   | 128   | 212  | 267   | 285  | 50   |
| 90°  | 14   | 104   | 213  | 263   | 280  | 13   |
| 95°  | 70   | 143   | 224  | 274   | 287  | 75   |
| 105° | 254  | 295   | 366  | 414   | 428  | 269  |
| 115° | 466  | 487   | 544  | 582   | 592  | 460  |
| 125° | 672  | 683   | 721  | 753   | 764  | 601  |
| 135° | 868  | 881   | 896  | 922   | 929  | 671  |
| 145° | 1052 | 1060  | 1067 | 1076  | 1078 | 658  |
| 155° | 1203 | 1206  | 1210 | 1215  | 1212 | 554  |
| 165° | 1309 | 1308  | 1308 | 1316  | 1310 | 369  |
| 175° | 1362 | 1358  | 1356 | 1364  | 1357 | 129  |
| 180° | 1364 | 1364  | 1364 | 1364  | 1364 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 0°     | 902.3 | 902.3 | 902.3 | 902.3 | 902.3 |
| 2.5°   | 908.9 | 905.0 | 895.8 | 902.3 | 899.7 |
| 5°     | 905.0 | 901.0 | 893.2 | 901.0 | 899.7 |
| 7.5°   | 898.4 | 895.8 | 889.3 | 898.4 | 897.1 |
| 10°    | 890.6 | 888.0 | 884.0 | 894.5 | 893.2 |
| 12.5°  | 877.5 | 878.8 | 876.2 | 886.6 | 885.3 |
| 15°    | 863.1 | 865.7 | 865.7 | 877.5 | 876.2 |
| 17.5°  | 844.8 | 850.0 | 854.0 | 865.7 | 865.7 |
| 20°    | 826.5 | 833.0 | 838.3 | 852.6 | 852.6 |
| 22.5°  | 806.9 | 814.7 | 822.6 | 836.9 | 839.6 |
| 25°    | 784.6 | 793.8 | 805.6 | 821.3 | 825.2 |
| 27.5°  | 758.5 | 772.9 | 785.9 | 805.6 | 808.2 |
| 30°    | 732.3 | 749.3 | 766.3 | 787.3 | 791.2 |
| 32.5°  | 703.6 | 723.2 | 744.1 | 768.9 | 776.8 |
| 35°    | 676.1 | 698.3 | 723.2 | 751.9 | 761.1 |
| 37.5°  | 646.0 | 670.9 | 702.3 | 733.6 | 742.8 |
| 40°    | 615.9 | 644.7 | 680.0 | 714.0 | 725.8 |
| 42.5°  | 587.2 | 615.9 | 657.8 | 695.7 | 707.5 |
| 45°    | 554.5 | 589.8 | 635.6 | 676.1 | 689.2 |
| 47.5°  | 523.1 | 561.0 | 613.3 | 655.2 | 669.6 |
| 50°    | 490.4 | 530.9 | 589.8 | 634.3 | 648.6 |
| 52.5°  | 459.0 | 502.2 | 564.9 | 610.7 | 626.4 |
| 55°    | 425.0 | 472.1 | 540.1 | 587.2 | 604.2 |
| 57.5°  | 392.3 | 444.6 | 512.6 | 563.6 | 580.6 |
| 60°    | 357.0 | 413.2 | 487.8 | 537.5 | 555.8 |
| 62.5°  | 325.6 | 384.5 | 459.0 | 512.6 | 529.6 |
| 65°    | 290.3 | 354.4 | 431.6 | 485.2 | 502.2 |
| 67.5°  | 258.9 | 325.6 | 404.1 | 457.7 | 476.0 |
| 70°    | 224.9 | 292.9 | 374.0 | 430.2 | 445.9 |
| 72.5°  | 193.5 | 264.2 | 346.5 | 401.5 | 421.1 |
| 75°    | 160.9 | 234.1 | 317.8 | 374.0 | 391.0 |
| 77.5°  | 129.5 | 205.3 | 290.3 | 346.5 | 364.9 |
| 80°    | 98.1  | 177.9 | 262.9 | 317.8 | 336.1 |
| 82.5°  | 71.9  | 150.4 | 236.7 | 291.6 | 308.6 |
| 85°    | 47.1  | 128.2 | 211.9 | 266.8 | 285.1 |
| 87.5°  | 28.8  | 107.2 | 190.9 | 244.5 | 261.5 |
| 90°    | 14.3  | 103.9 | 212.9 | 262.9 | 279.7 |
| 92.5°  | 37.1  | 115.6 | 196.6 | 248.7 | 264.3 |
| 95°    | 70.3  | 143.3 | 224.1 | 273.8 | 287.2 |
| 97.5°  | 109.3 | 175.9 | 256.3 | 304.7 | 320.4 |
| 100°   | 155.4 | 212.9 | 289.6 | 338.0 | 351.2 |
| 102.5° | 202.3 | 252.4 | 327.6 | 375.9 | 389.1 |
| 105°   | 254.0 | 295.4 | 365.7 | 413.7 | 428.1 |
| 107.5° | 306.9 | 342.9 | 408.3 | 454.0 | 462.6 |
| 110°   | 356.2 | 389.3 | 453.4 | 495.2 | 506.2 |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 411.5  | 439.4  | 498.3  | 536.8  | 548.8  |
| 115°   | 465.6  | 486.9  | 543.5  | 581.5  | 592.5  |
| 117.5° | 518.4  | 538.1  | 587.2  | 623.0  | 632.6  |
| 120°   | 572.5  | 587.0  | 630.1  | 666.7  | 677.6  |
| 122.5° | 622.0  | 634.8  | 677.4  | 709.3  | 718.8  |
| 125°   | 672.4  | 682.8  | 721.3  | 753.1  | 763.7  |
| 127.5° | 723.1  | 734.5  | 765.1  | 793.2  | 801.6  |
| 130°   | 770.3  | 783.9  | 809.1  | 838.2  | 844.0  |
| 132.5° | 823.2  | 833.4  | 854.2  | 878.5  | 885.6  |
| 135°   | 868.0  | 880.6  | 896.0  | 922.3  | 929.3  |
| 137.5° | 918.6  | 929.0  | 937.8  | 961.5  | 966.0  |
| 140°   | 963.5  | 972.5  | 980.9  | 1001.8 | 1005.1 |
| 142.5° | 1009.5 | 1018.6 | 1022.0 | 1038.9 | 1040.8 |
| 145°   | 1052.0 | 1060.0 | 1066.9 | 1075.9 | 1077.9 |
| 147.5° | 1091.1 | 1101.5 | 1106.1 | 1109.7 | 1109.0 |
| 150°   | 1131.4 | 1138.3 | 1142.9 | 1146.3 | 1142.9 |
| 152.5° | 1167.1 | 1174.0 | 1179.7 | 1184.3 | 1179.7 |
| 155°   | 1202.7 | 1206.2 | 1209.6 | 1215.4 | 1211.9 |
| 157.5° | 1233.8 | 1236.1 | 1238.4 | 1246.5 | 1240.7 |
| 160°   | 1261.4 | 1263.7 | 1264.9 | 1271.8 | 1267.2 |
| 162.5° | 1286.8 | 1286.8 | 1287.9 | 1296.0 | 1290.2 |
| 165°   | 1308.6 | 1307.5 | 1307.5 | 1315.5 | 1309.8 |
| 167.5° | 1328.2 | 1324.7 | 1324.7 | 1332.8 | 1327.0 |
| 170°   | 1343.2 | 1339.7 | 1338.5 | 1346.6 | 1339.7 |
| 172.5° | 1353.5 | 1350.1 | 1348.9 | 1357.0 | 1350.1 |
| 175°   | 1361.6 | 1358.1 | 1355.8 | 1363.9 | 1357.0 |
| 177.5° | 1366.2 | 1362.7 | 1360.4 | 1367.3 | 1360.4 |
| 180°   | 1363.9 | 1363.9 | 1363.9 | 1363.9 | 1363.9 |

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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 | 13.69            | 14.52 | 14.70 | 15.55 | 16.93 | 16.77          | 17.60 | 17.78 | 18.63 | 20.00 |
|                 | 3H   | 15.15            | 15.90 | 16.17 | 16.94 | 18.33 | 19.35          | 20.11 | 20.37 | 21.14 | 22.54 |
|                 | 4H   | 15.62            | 16.34 | 16.66 | 17.38 | 18.78 | 20.60          | 21.32 | 21.64 | 22.36 | 23.76 |
|                 | 6H   | 15.91            | 16.57 | 16.95 | 17.61 | 19.03 | 21.90          | 22.56 | 22.94 | 23.61 | 25.02 |
|                 | 8H   | 15.96            | 16.60 | 17.01 | 17.66 | 19.07 | 22.56          | 23.19 | 23.61 | 24.25 | 25.66 |
|                 | 12H  | 15.98            | 16.58 | 17.03 | 17.64 | 19.07 | 23.28          | 23.89 | 24.34 | 24.94 | 26.38 |
| 4H              | 2H   | 14.74            | 15.46 | 15.78 | 16.50 | 17.90 | 17.09          | 17.81 | 18.13 | 18.85 | 20.25 |
|                 | 3H   | 16.44            | 17.05 | 17.49 | 18.12 | 19.53 | 19.88          | 20.49 | 20.93 | 21.56 | 22.97 |
|                 | 4H   | 17.06            | 17.63 | 18.12 | 18.68 | 20.12 | 21.30          | 21.86 | 22.35 | 22.92 | 24.35 |
|                 | 6H   | 17.48            | 17.97 | 18.54 | 19.05 | 20.48 | 22.76          | 23.25 | 23.83 | 24.33 | 25.76 |
|                 | 8H   | 17.59            | 18.04 | 18.65 | 19.12 | 20.56 | 23.52          | 23.98 | 24.58 | 25.05 | 26.50 |
|                 | 12H  | 17.63            | 18.04 | 18.71 | 19.13 | 20.58 | 24.35          | 24.76 | 25.43 | 25.85 | 27.30 |
| 8H              | 4H   | 17.85            | 18.31 | 18.92 | 19.38 | 20.83 | 21.44          | 21.90 | 22.50 | 22.97 | 24.42 |
|                 | 6H   | 18.48            | 18.87 | 19.57 | 19.98 | 21.42 | 23.07          | 23.45 | 24.15 | 24.56 | 26.01 |
|                 | 8H   | 18.71            | 19.05 | 19.80 | 20.14 | 21.60 | 23.96          | 24.30 | 25.05 | 25.39 | 26.85 |
|                 | 12H  | 18.84            | 19.14 | 19.94 | 20.23 | 21.73 | 24.95          | 25.25 | 26.05 | 26.34 | 27.84 |
| 12H             | 4H   | 18.05            | 18.46 | 19.13 | 19.55 | 21.00 | 21.41          | 21.83 | 22.49 | 22.91 | 24.37 |
|                 | 6H   | 18.82            | 19.16 | 19.91 | 20.25 | 21.72 | 23.09          | 23.43 | 24.18 | 24.53 | 25.99 |
|                 | 8H   | 19.12            | 19.42 | 20.22 | 20.52 | 22.02 | 24.02          | 24.32 | 25.12 | 25.41 | 26.91 |