

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: P998133

Luminaire Tested: SA2XXDIP-B290D1080UB50-4F0-XX-W2A-D1

Issue Date: 5/6/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P998133  
REPORT IS A COMBINATION OF REPORTS P983873 AND P1007351  
Test Lab: INNOVATION CENTER  
Issue Date: 5/6/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: SA2XXDIP-B290D1080UB50-4F0-XX-W2A-D1  
Description: Define 2 Direct/Indirect Pendant with 5000K BioUP LEDs {m-DER=1.015} {m-EER=1.115}  
Light Source: -  
Ballast/Driver: -

**Summary**

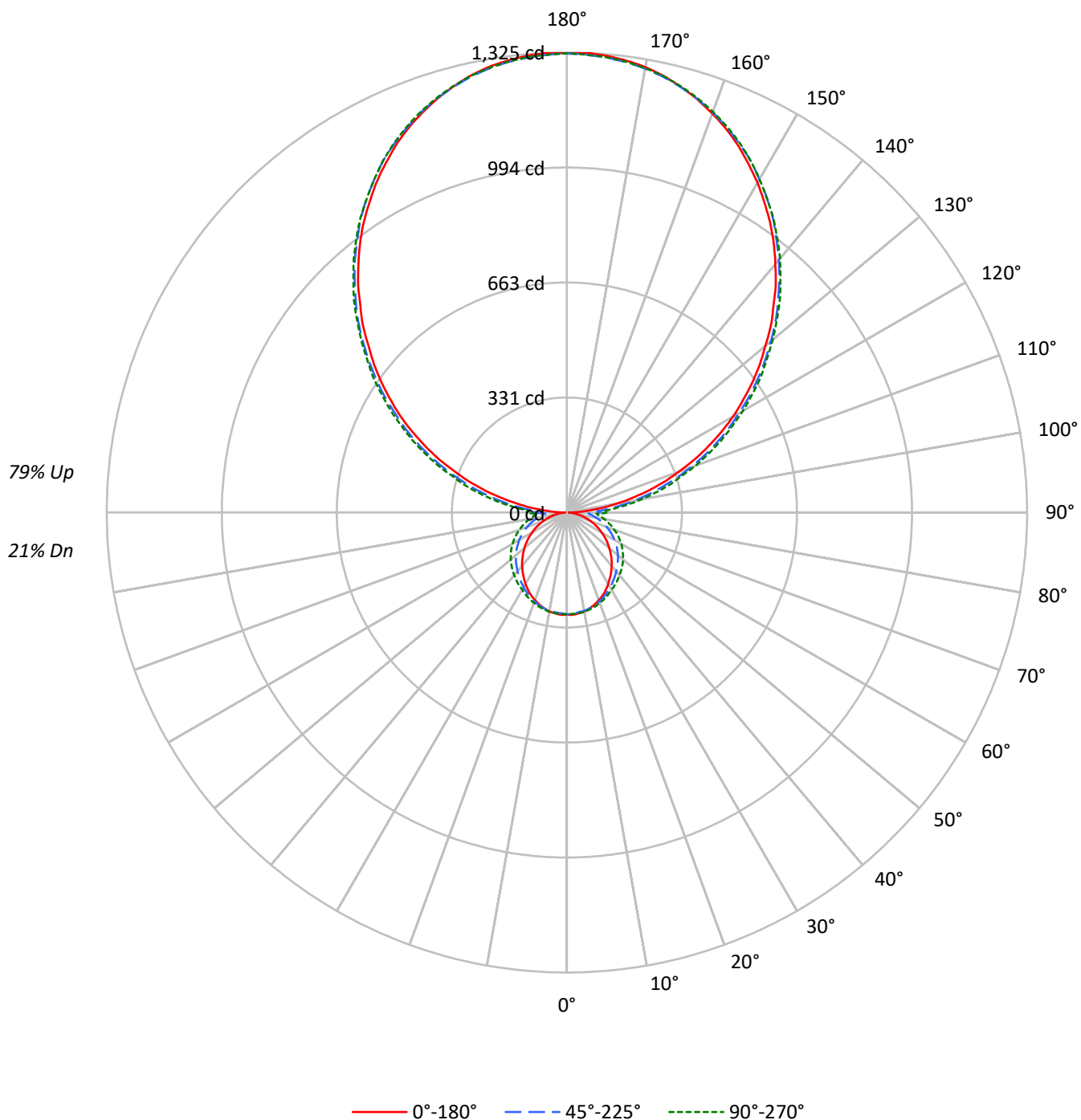
Lumens per Lamp: N/A  
Luminaire Lumens: 4821.0 lumens  
Efficiency: N/A  
Efficacy: 100.4 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.31 / 1.42  
Luminous Opening: Rectangular w/ Sides (W: 0.17' x L: 4' x H: 0.1')  
CIE Type: Semi-Indirect

Input Watts (W): 48  
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 |
| RCR |     |     |     |     |    |    |    |    |    |    |    |  |    |    |    |  |    |
| 0   | 100 | 100 | 100 | 100 | 89 | 89 | 89 | 89 | 67 | 67 | 67 |  | 47 | 47 | 47 |  | 29 |
| 1   | 91  | 86  | 82  | 79  | 80 | 76 | 73 | 70 | 58 | 55 | 53 |  | 41 | 39 | 38 |  | 25 |
| 2   | 82  | 75  | 69  | 64  | 72 | 66 | 61 | 57 | 50 | 47 | 44 |  | 35 | 33 | 31 |  | 21 |
| 3   | 75  | 65  | 58  | 53  | 66 | 58 | 52 | 47 | 44 | 40 | 36 |  | 31 | 28 | 26 |  | 19 |
| 4   | 68  | 58  | 50  | 44  | 60 | 51 | 45 | 40 | 39 | 34 | 31 |  | 27 | 24 | 22 |  | 17 |
| 5   | 62  | 51  | 43  | 37  | 55 | 45 | 39 | 34 | 34 | 30 | 26 |  | 24 | 21 | 19 |  | 15 |
| 6   | 57  | 46  | 38  | 32  | 50 | 40 | 34 | 29 | 31 | 26 | 23 |  | 22 | 19 | 16 |  | 13 |
| 7   | 53  | 41  | 33  | 28  | 46 | 36 | 30 | 25 | 28 | 23 | 20 |  | 20 | 17 | 14 |  | 12 |
| 8   | 49  | 37  | 29  | 24  | 43 | 33 | 26 | 22 | 25 | 20 | 17 |  | 18 | 15 | 13 |  | 11 |
| 9   | 45  | 33  | 26  | 21  | 40 | 30 | 24 | 19 | 23 | 18 | 15 |  | 16 | 13 | 11 |  | 10 |
| 10  | 42  | 31  | 24  | 19  | 37 | 27 | 21 | 17 | 21 | 17 | 13 |  | 15 | 12 | 10 |  | 9  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4643 | 4643 | 4643 |
| 5°  | 4663 | 4444 | 4419 |
| 10° | 4631 | 4290 | 4228 |
| 15° | 4566 | 4131 | 4032 |
| 20° | 4484 | 3963 | 3845 |
| 25° | 4402 | 3803 | 3676 |
| 30° | 4288 | 3641 | 3508 |
| 35° | 4172 | 3483 | 3386 |
| 40° | 4052 | 3348 | 3264 |
| 45° | 3936 | 3226 | 3157 |
| 50° | 3812 | 3112 | 3052 |
| 55° | 3680 | 2991 | 2946 |
| 60° | 3520 | 2866 | 2832 |
| 65° | 3356 | 2723 | 2703 |
| 70° | 3166 | 2568 | 2563 |
| 75° | 2926 | 2413 | 2433 |
| 80° | 2547 | 2250 | 2296 |
| 85° | 2161 | 2101 | 2180 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3936 cd/sqm

TEST NUMBER: P998133

CATALOG NUMBER: SA2XXDIP-B290D1080UB50-4F0-XX-W2A-D1

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 27.8   | 0.6       |
| 10°-20°   | 79.7   | 1.7       |
| 20°-30°   | 120.8  | 2.5       |
| 30°-40°   | 147.1  | 3.1       |
| 40°-50°   | 158.3  | 3.3       |
| 50°-60°   | 153.7  | 3.2       |
| 60°-70°   | 134.3  | 2.8       |
| 70°-80°   | 103.3  | 2.1       |
| 80°-90°   | 73.0   | 1.5       |
| 90°-100°  | 129.6  | 2.7       |
| 100°-110° | 295.0  | 6.1       |
| 110°-120° | 468.2  | 9.7       |
| 120°-130° | 598.2  | 12.4      |
| 130°-140° | 662.5  | 13.7      |
| 140°-150° | 645.3  | 13.4      |
| 150°-160° | 540.5  | 11.2      |
| 160°-170° | 358.5  | 7.4       |
| 170°-180° | 125.3  | 2.6       |
| 0°-30°    | 228.3  | 4.7       |
| 0°-40°    | 375.5  | 7.8       |
| 0°-60°    | 687.5  | 14.3      |
| 0°-90°    | 998.0  | 20.7      |
| 90°-120°  | 892.7  | 18.5      |
| 90°-150°  | 2798.7 | 58.1      |
| 90°-180°  | 3823.0 | 79.3      |
| 0°-180°   | 4821.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 293  | 293   | 293  | 293   | 293  |      |
| 5°   | 294  | 293   | 290  | 293   | 292  | 28   |
| 15°  | 280  | 281   | 281  | 285   | 285  | 79   |
| 25°  | 255  | 258   | 262  | 267   | 268  | 117  |
| 35°  | 220  | 227   | 235  | 244   | 247  | 137  |
| 45°  | 180  | 192   | 207  | 220   | 224  | 139  |
| 55°  | 138  | 153   | 176  | 191   | 196  | 124  |
| 65°  | 94   | 115   | 140  | 158   | 163  | 94   |
| 75°  | 52   | 76    | 103  | 122   | 127  | 55   |
| 85°  | 15   | 42    | 69   | 87    | 93   | 16   |
| 90°  | 5    | 43    | 95   | 110   | 116  | 7    |
| 95°  | 61   | 93    | 120  | 136   | 139  | 67   |
| 105° | 242  | 258   | 282  | 299   | 304  | 256  |
| 115° | 448  | 460   | 476  | 488   | 489  | 443  |
| 125° | 651  | 661   | 671  | 679   | 682  | 582  |
| 135° | 841  | 853   | 860  | 868   | 868  | 650  |
| 145° | 1020 | 1028  | 1035 | 1038  | 1036 | 638  |
| 155° | 1166 | 1170  | 1173 | 1179  | 1175 | 537  |
| 165° | 1269 | 1268  | 1268 | 1276  | 1270 | 358  |
| 175° | 1320 | 1317  | 1315 | 1323  | 1316 | 125  |
| 180° | 1323 | 1323  | 1323 | 1323  | 1323 |      |

TEST NUMBER: P998133

CATALOG NUMBER: SA2XXDIP-B290D1080UB50-4F0-XX-W2A-D1

**CANDELA DISTRIBUTION (FULL):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 0°     | 293.3 | 293.3 | 293.3 | 293.3 | 293.3 |
| 2.5°   | 295.4 | 294.1 | 291.1 | 293.3 | 292.4 |
| 5°     | 294.1 | 292.8 | 290.3 | 292.8 | 292.4 |
| 7.5°   | 292.0 | 291.1 | 289.0 | 292.0 | 291.6 |
| 10°    | 289.4 | 288.6 | 287.3 | 290.7 | 290.3 |
| 12.5°  | 285.2 | 285.6 | 284.8 | 288.2 | 287.7 |
| 15°    | 280.5 | 281.4 | 281.4 | 285.2 | 284.8 |
| 17.5°  | 274.6 | 276.3 | 277.5 | 281.4 | 281.4 |
| 20°    | 268.6 | 270.7 | 272.4 | 277.1 | 277.1 |
| 22.5°  | 262.2 | 264.8 | 267.3 | 272.0 | 272.9 |
| 25°    | 255.0 | 258.0 | 261.8 | 266.9 | 268.2 |
| 27.5°  | 246.5 | 251.2 | 255.4 | 261.8 | 262.7 |
| 30°    | 238.0 | 243.5 | 249.1 | 255.9 | 257.1 |
| 32.5°  | 228.7 | 235.0 | 241.8 | 249.9 | 252.5 |
| 35°    | 219.7 | 227.0 | 235.0 | 244.4 | 247.4 |
| 37.5°  | 210.0 | 218.0 | 228.2 | 238.4 | 241.4 |
| 40°    | 200.2 | 209.5 | 221.0 | 232.1 | 235.9 |
| 42.5°  | 190.8 | 200.2 | 213.8 | 226.1 | 229.9 |
| 45°    | 180.2 | 191.7 | 206.6 | 219.7 | 224.0 |
| 47.5°  | 170.0 | 182.3 | 199.3 | 212.9 | 217.6 |
| 50°    | 159.4 | 172.6 | 191.7 | 206.1 | 210.8 |
| 52.5°  | 149.2 | 163.2 | 183.6 | 198.5 | 203.6 |
| 55°    | 138.1 | 153.4 | 175.5 | 190.8 | 196.4 |
| 57.5°  | 127.5 | 144.5 | 166.6 | 183.2 | 188.7 |
| 60°    | 116.0 | 134.3 | 158.5 | 174.7 | 180.6 |
| 62.5°  | 105.8 | 125.0 | 149.2 | 166.6 | 172.1 |
| 65°    | 94.4  | 115.2 | 140.3 | 157.7 | 163.2 |
| 67.5°  | 84.2  | 105.8 | 131.3 | 148.8 | 154.7 |
| 70°    | 73.1  | 95.2  | 121.6 | 139.8 | 144.9 |
| 72.5°  | 62.9  | 85.9  | 112.6 | 130.5 | 136.9 |
| 75°    | 52.3  | 76.1  | 103.3 | 121.6 | 127.1 |
| 77.5°  | 42.1  | 66.7  | 94.4  | 112.6 | 118.6 |
| 80°    | 31.9  | 57.8  | 85.4  | 103.3 | 109.2 |
| 82.5°  | 23.4  | 48.9  | 76.9  | 94.8  | 100.3 |
| 85°    | 15.3  | 41.7  | 68.9  | 86.7  | 92.7  |
| 87.5°  | 9.4   | 34.9  | 62.1  | 79.5  | 85.0  |
| 90°    | 5.4   | 43.4  | 95.2  | 109.9 | 116.2 |
| 92.5°  | 28.4  | 59.9  | 86.9  | 104.6 | 109.7 |
| 95°    | 61.4  | 92.6  | 120.3 | 136.4 | 139.3 |
| 97.5°  | 100.1 | 128.5 | 157.5 | 173.2 | 178.3 |
| 100°   | 144.8 | 169.4 | 196.5 | 212.2 | 215.8 |
| 102.5° | 191.2 | 211.9 | 239.3 | 255.7 | 259.3 |
| 105°   | 242.1 | 257.8 | 282.2 | 299.2 | 303.9 |
| 107.5° | 293.4 | 308.1 | 329.4 | 344.9 | 344.0 |
| 110°   | 342.2 | 357.4 | 378.2 | 391.8 | 393.1 |

TEST NUMBER: P998133

CATALOG NUMBER: SA2XXDIP-B290D1080UB50-4F0-XX-W2A-D1

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 395.7  | 409.2  | 427.7  | 438.0  | 440.3  |
| 115°   | 448.2  | 459.6  | 476.5  | 488.2  | 489.4  |
| 117.5° | 500.3  | 512.6  | 524.8  | 534.3  | 535.1  |
| 120°   | 552.7  | 563.4  | 571.4  | 583.3  | 584.7  |
| 122.5° | 600.7  | 612.3  | 622.4  | 630.6  | 632.1  |
| 125°   | 650.6  | 660.6  | 670.9  | 678.9  | 681.7  |
| 127.5° | 699.7  | 711.5  | 718.5  | 724.6  | 725.2  |
| 130°   | 745.5  | 759.5  | 766.2  | 774.2  | 773.1  |
| 132.5° | 796.8  | 807.5  | 815.0  | 819.2  | 819.2  |
| 135°   | 840.9  | 853.2  | 859.8  | 867.5  | 867.6  |
| 137.5° | 890.1  | 900.1  | 904.5  | 911.4  | 910.0  |
| 140°   | 933.6  | 943.2  | 949.7  | 956.5  | 954.6  |
| 142.5° | 978.3  | 987.9  | 991.2  | 997.5  | 995.1  |
| 145°   | 1020.3 | 1028.1 | 1034.8 | 1038.5 | 1036.1 |
| 147.5° | 1058.2 | 1068.3 | 1072.7 | 1075.4 | 1072.2 |
| 150°   | 1097.3 | 1104.0 | 1108.5 | 1111.8 | 1108.5 |
| 152.5° | 1131.9 | 1138.6 | 1144.2 | 1148.6 | 1144.2 |
| 155°   | 1166.5 | 1169.8 | 1173.2 | 1178.8 | 1175.4 |
| 157.5° | 1196.6 | 1198.9 | 1201.1 | 1208.9 | 1203.3 |
| 160°   | 1223.4 | 1225.7 | 1226.8 | 1233.5 | 1229.0 |
| 162.5° | 1248.0 | 1248.0 | 1249.1 | 1256.9 | 1251.3 |
| 165°   | 1269.2 | 1268.1 | 1268.1 | 1275.9 | 1270.3 |
| 167.5° | 1288.2 | 1284.8 | 1284.8 | 1292.6 | 1287.1 |
| 170°   | 1302.7 | 1299.3 | 1298.2 | 1306.0 | 1299.3 |
| 172.5° | 1312.7 | 1309.4 | 1308.3 | 1316.1 | 1309.4 |
| 175°   | 1320.5 | 1317.2 | 1315.0 | 1322.8 | 1316.1 |
| 177.5° | 1325.0 | 1321.7 | 1319.4 | 1326.1 | 1319.4 |
| 180°   | 1322.8 | 1322.8 | 1322.8 | 1322.8 | 1322.8 |

TEST NUMBER: P998133

CATALOG NUMBER: SA2XXDIP-B290D1080UB50-4F0-XX-W2A-D1

**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 | 6.88             | 7.55  | 8.05  | 8.71  | 10.34 | 9.96           | 10.63 | 11.13 | 11.78 | 13.42 |
|                 | 3H   | 8.33             | 8.93  | 9.51  | 10.10 | 11.74 | 12.54          | 13.14 | 13.71 | 14.30 | 15.95 |
|                 | 4H   | 8.80             | 9.37  | 9.98  | 10.54 | 12.19 | 13.78          | 14.35 | 14.97 | 15.52 | 17.17 |
|                 | 6H   | 9.08             | 9.60  | 10.27 | 10.77 | 12.43 | 15.07          | 15.60 | 16.26 | 16.76 | 18.42 |
|                 | 8H   | 9.13             | 9.63  | 10.32 | 10.81 | 12.47 | 15.72          | 16.22 | 16.92 | 17.41 | 19.06 |
|                 | 12H  | 9.14             | 9.61  | 10.34 | 10.79 | 12.47 | 16.44          | 16.92 | 17.64 | 18.09 | 19.77 |
| 4H              | 2H   | 7.92             | 8.49  | 9.11  | 9.65  | 11.30 | 10.27          | 10.84 | 11.46 | 12.01 | 13.66 |
|                 | 3H   | 9.61             | 10.09 | 10.80 | 11.28 | 12.94 | 13.05          | 13.53 | 14.24 | 14.71 | 16.38 |
|                 | 4H   | 10.22            | 10.67 | 11.42 | 11.84 | 13.53 | 14.46          | 14.90 | 15.65 | 16.08 | 17.76 |
|                 | 6H   | 10.63            | 11.01 | 11.83 | 12.21 | 13.88 | 15.91          | 16.29 | 17.11 | 17.49 | 19.16 |
|                 | 8H   | 10.73            | 11.09 | 11.93 | 12.28 | 13.97 | 16.67          | 17.02 | 17.86 | 18.21 | 19.90 |
|                 | 12H  | 10.77            | 11.09 | 11.98 | 12.29 | 13.98 | 17.48          | 17.81 | 18.70 | 19.01 | 20.70 |
| 8H              | 4H   | 11.00            | 11.35 | 12.20 | 12.54 | 14.23 | 14.58          | 14.94 | 15.78 | 16.13 | 17.82 |
|                 | 6H   | 11.62            | 11.92 | 12.84 | 13.15 | 14.84 | 16.21          | 16.50 | 17.42 | 17.73 | 19.42 |
|                 | 8H   | 11.84            | 12.10 | 13.06 | 13.31 | 15.01 | 17.09          | 17.35 | 18.31 | 18.56 | 20.26 |
|                 | 12H  | 11.97            | 12.19 | 13.19 | 13.40 | 15.14 | 18.08          | 18.31 | 19.30 | 19.51 | 21.25 |
| 12H             | 4H   | 11.19            | 11.51 | 12.40 | 12.71 | 14.40 | 14.55          | 14.87 | 15.76 | 16.07 | 17.77 |
|                 | 6H   | 11.95            | 12.21 | 13.18 | 13.42 | 15.13 | 16.23          | 16.49 | 17.45 | 17.70 | 19.40 |
|                 | 8H   | 12.25            | 12.48 | 13.47 | 13.68 | 15.42 | 17.15          | 17.38 | 18.37 | 18.58 | 20.32 |