

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: METALUX

Report Number: P892716

Luminaire Tested: 2MB-4HL-AOL-UNV-L950

Issue Date: 11/11/2024

**Test Information**

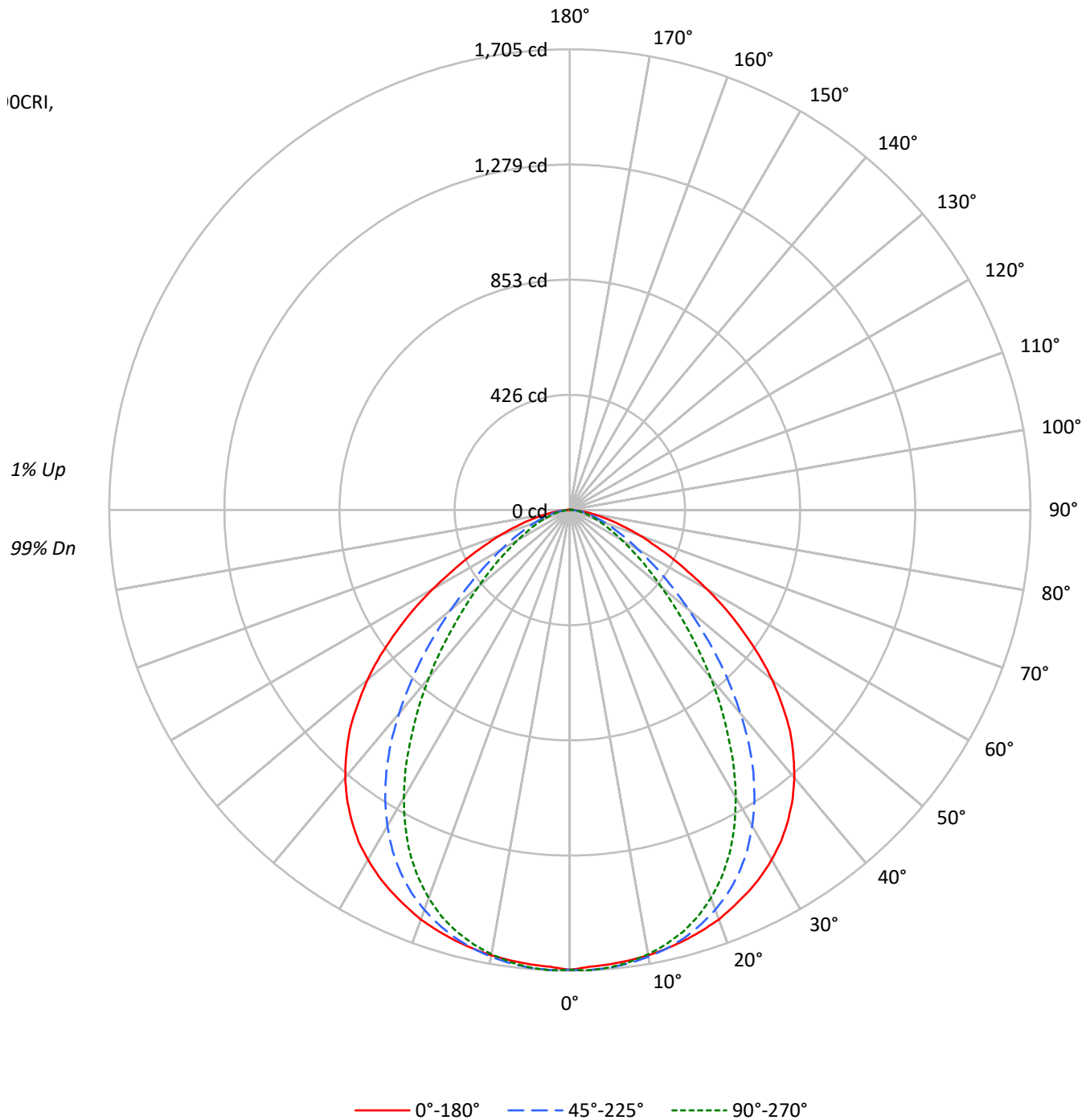
Test Method: LM-79-2019  
Report Number: P892716  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2404-077-6)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/11/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: METALUX  
Catalog Number: 2MB-4HL-AOL-UNV-L950  
Description: 4000 Lumen 2FT MICROBAY LINEAR BAY with AISLE OPTICS WITH CLEAR LENS NO UPLIGHT, 9  
5000K CCT  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3527.1 lumens  
Efficiency: N/A  
Efficacy: 127.8 lumens/watt  
Spacing Criteria (0/90/45): 1.3 / 1.1 / 1.2  
Luminous Opening: Rectangular (W 0.27' x L: 1.98' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 27.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 6.5  
Total Harmonic Distortion (THDi): 0.99  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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CATALOG NUMBER: 2MB-4HL-AOL-UNV-L950

### Luminous Intensity Polar Plot





TEST NUMBER: P892716

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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20  |     |     |     | 20  |     |     |     | 20  |    |    |    | 20 |    |
| RC  | 80  |     |     |     | 70  |     |     |     | 50  |     |     |     | 30  |     |     |     | 10  |    |    |    | 0  |    |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50 | 30 | 10 | 0  |    |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 101 | 101 | 101 | 99 |    |    |    | 99 |
| 1   | 110 | 106 | 103 | 100 | 108 | 104 | 101 | 98  | 100 | 97  | 95  | 96  | 94  | 92  | 92  | 91  | 89  | 87 |    |    |    | 87 |
| 2   | 102 | 95  | 89  | 84  | 99  | 93  | 88  | 83  | 89  | 85  | 81  | 86  | 83  | 79  | 83  | 80  | 77  | 75 |    |    |    | 75 |
| 3   | 94  | 85  | 78  | 72  | 92  | 83  | 77  | 72  | 80  | 75  | 70  | 78  | 73  | 69  | 75  | 71  | 68  | 66 |    |    |    | 66 |
| 4   | 87  | 76  | 69  | 63  | 85  | 75  | 68  | 62  | 73  | 66  | 61  | 70  | 65  | 61  | 68  | 64  | 60  | 58 |    |    |    | 58 |
| 5   | 81  | 69  | 61  | 55  | 79  | 68  | 61  | 55  | 66  | 59  | 54  | 64  | 58  | 54  | 62  | 57  | 53  | 51 |    |    |    | 51 |
| 6   | 75  | 63  | 55  | 49  | 73  | 62  | 54  | 49  | 60  | 53  | 48  | 59  | 53  | 48  | 57  | 52  | 48  | 46 |    |    |    | 46 |
| 7   | 70  | 58  | 50  | 44  | 68  | 57  | 49  | 44  | 55  | 48  | 43  | 54  | 48  | 43  | 53  | 47  | 43  | 41 |    |    |    | 41 |
| 8   | 65  | 53  | 45  | 40  | 64  | 52  | 45  | 40  | 51  | 44  | 39  | 50  | 44  | 39  | 49  | 43  | 39  | 37 |    |    |    | 37 |
| 9   | 61  | 49  | 41  | 36  | 60  | 48  | 41  | 36  | 47  | 40  | 36  | 46  | 40  | 36  | 45  | 40  | 35  | 34 |    |    |    | 34 |
| 10  | 58  | 45  | 38  | 33  | 56  | 45  | 38  | 33  | 44  | 37  | 33  | 43  | 37  | 33  | 42  | 36  | 32  | 31 |    |    |    | 31 |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 34841 | 34841 | 34841 |
| 5°  | 34688 | 34945 | 34931 |
| 10° | 34800 | 34902 | 34715 |
| 15° | 34936 | 34745 | 34259 |
| 20° | 35140 | 34307 | 33294 |
| 25° | 35257 | 33470 | 31649 |
| 30° | 35339 | 31922 | 29049 |
| 35° | 35156 | 29599 | 25555 |
| 40° | 34567 | 26268 | 21702 |
| 45° | 33366 | 22385 | 17659 |
| 50° | 31149 | 18339 | 14048 |
| 55° | 27917 | 14851 | 11331 |
| 60° | 24007 | 11975 | 9100  |
| 65° | 19986 | 9894  | 7573  |
| 70° | 16590 | 8442  | 6442  |
| 75° | 13355 | 7255  | 5601  |
| 80° | 10566 | 6474  | 4917  |
| 85° | 9304  | 6367  | 4887  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 33366 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 161.4  | 4.6       |
| 10°-20°   | 461.2  | 13.1      |
| 20°-30°   | 680.2  | 19.3      |
| 30°-40°   | 746.9  | 21.2      |
| 40°-50°   | 635.7  | 18.0      |
| 50°-60°   | 431.3  | 12.2      |
| 60°-70°   | 243.1  | 6.9       |
| 70°-80°   | 113.3  | 3.2       |
| 80°-90°   | 33.1   | 0.9       |
| 90°-100°  | 7.9    | 0.2       |
| 100°-110° | 5.1    | 0.1       |
| 110°-120° | 3.1    | 0.1       |
| 120°-130° | 1.7    | 0.0       |
| 130°-140° | 1.0    | 0.0       |
| 140°-150° | 0.8    | 0.0       |
| 150°-160° | 0.6    | 0.0       |
| 160°-170° | 0.5    | 0.0       |
| 170°-180° | 0.2    | 0.0       |
| 0°-30°    | 1302.7 | 36.9      |
| 0°-40°    | 2049.6 | 58.1      |
| 0°-60°    | 3116.7 | 88.4      |
| 0°-90°    | 3506.1 | 99.4      |
| 90°-120°  | 16.1   | 0.5       |
| 90°-150°  | 19.7   | 0.6       |
| 90°-180°  | 21.0   | 0.6       |
| 0°-180°   | 3527.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1702 | 1702  | 1702 | 1702  | 1702 |      |
| 5°   | 1688 | 1696  | 1700 | 1702  | 1699 | 161  |
| 15°  | 1648 | 1650  | 1639 | 1625  | 1616 | 466  |
| 25°  | 1560 | 1541  | 1481 | 1426  | 1401 | 719  |
| 35°  | 1406 | 1335  | 1184 | 1069  | 1022 | 878  |
| 45°  | 1152 | 1004  | 773  | 645   | 610  | 883  |
| 55°  | 782  | 613   | 416  | 336   | 317  | 699  |
| 65°  | 412  | 311   | 204  | 166   | 156  | 413  |
| 75°  | 169  | 132   | 92   | 75    | 71   | 183  |
| 85°  | 40   | 35    | 27   | 22    | 21   | 43   |
| 90°  | 7    | 8     | 8    | 6     | 6    | 6    |
| 95°  | 12   | 9     | 7    | 6     | 6    | 9    |
| 105° | 4    | 7     | 5    | 4     | 4    | 4    |
| 115° | 2    | 4     | 3    | 3     | 3    | 2    |
| 125° | 1    | 2     | 2    | 2     | 2    | 1    |
| 135° | 1    | 1     | 1    | 1     | 1    | 1    |
| 145° | 1    | 1     | 1    | 1     | 1    | 0    |
| 155° | 1    | 1     | 1    | 1     | 1    | 0    |
| 165° | 1    | 1     | 1    | 2     | 2    | 0    |
| 175° | 1    | 1     | 2    | 2     | 2    | 0    |
| 180° | 2    | 2     | 2    | 2     | 2    |      |



TEST NUMBER: P892716

CATALOG NUMBER: 2MB-4HL-AOL-UNV-L950

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1701.5 | 1701.5 | 1701.5 | 1701.5 | 1701.5 |
| 2.5°   | 1691.8 | 1698.7 | 1703.6 | 1706.4 | 1705.0 |
| 5°     | 1687.6 | 1696.0 | 1700.1 | 1701.5 | 1699.4 |
| 7.5°   | 1681.4 | 1689.7 | 1691.8 | 1691.1 | 1687.6 |
| 10°    | 1673.7 | 1680.0 | 1678.6 | 1675.1 | 1669.6 |
| 12.5°  | 1661.9 | 1666.8 | 1661.9 | 1652.9 | 1646.0 |
| 15°    | 1648.0 | 1650.1 | 1639.0 | 1625.1 | 1616.1 |
| 17.5°  | 1631.4 | 1630.0 | 1609.8 | 1589.7 | 1577.2 |
| 20°    | 1612.6 | 1605.0 | 1574.4 | 1543.9 | 1527.9 |
| 22.5°  | 1586.9 | 1575.1 | 1532.8 | 1489.0 | 1469.6 |
| 25°    | 1560.5 | 1541.1 | 1481.4 | 1425.8 | 1400.8 |
| 27.5°  | 1530.0 | 1498.7 | 1421.6 | 1350.8 | 1319.5 |
| 30°    | 1494.6 | 1452.9 | 1350.1 | 1266.1 | 1228.6 |
| 32.5°  | 1455.0 | 1398.0 | 1272.3 | 1170.9 | 1130.6 |
| 35°    | 1406.4 | 1334.8 | 1184.1 | 1068.8 | 1022.3 |
| 37.5°  | 1353.6 | 1262.6 | 1088.3 | 957.7  | 918.8  |
| 40°    | 1293.2 | 1182.0 | 982.7  | 850.1  | 811.9  |
| 42.5°  | 1224.4 | 1095.2 | 877.8  | 743.1  | 709.1  |
| 45°    | 1152.2 | 1004.2 | 773.0  | 645.2  | 609.8  |
| 47.5°  | 1065.4 | 903.5  | 668.8  | 552.1  | 520.9  |
| 50°    | 977.8  | 802.8  | 575.7  | 469.5  | 441.0  |
| 52.5°  | 883.4  | 707.0  | 489.6  | 398.6  | 375.0  |
| 55°    | 782.0  | 613.2  | 416.0  | 336.1  | 317.4  |
| 57.5°  | 686.2  | 525.0  | 350.0  | 281.3  | 263.9  |
| 60°    | 586.2  | 443.1  | 292.4  | 236.8  | 222.2  |
| 62.5°  | 491.7  | 371.6  | 247.2  | 197.2  | 185.4  |
| 65°    | 412.5  | 311.1  | 204.2  | 166.0  | 156.3  |
| 67.5°  | 336.1  | 258.4  | 170.2  | 138.2  | 129.9  |
| 70°    | 277.1  | 209.0  | 141.0  | 113.9  | 107.6  |
| 72.5°  | 216.0  | 169.5  | 113.9  | 93.1   | 87.5   |
| 75°    | 168.8  | 132.0  | 91.7   | 75.0   | 70.8   |
| 77.5°  | 125.0  | 102.1  | 72.2   | 59.0   | 56.3   |
| 80°    | 89.6   | 75.7   | 54.9   | 45.1   | 41.7   |
| 82.5°  | 62.5   | 52.8   | 39.6   | 32.6   | 30.6   |
| 85°    | 39.6   | 34.7   | 27.1   | 22.2   | 20.8   |
| 87.5°  | 20.8   | 19.4   | 16.0   | 13.2   | 12.5   |
| 90°    | 6.9    | 8.3    | 7.6    | 6.3    | 6.3    |
| 92.5°  | 11.8   | 9.0    | 6.9    | 6.3    | 5.6    |
| 95°    | 11.8   | 9.0    | 6.9    | 5.6    | 5.6    |
| 97.5°  | 11.1   | 8.3    | 6.3    | 5.6    | 4.9    |
| 100°   | 5.6    | 8.3    | 5.6    | 4.9    | 4.2    |
| 102.5° | 3.5    | 7.6    | 5.6    | 4.2    | 4.2    |
| 105°   | 3.5    | 6.9    | 4.9    | 3.5    | 3.5    |
| 107.5° | 2.8    | 6.3    | 4.2    | 3.5    | 3.5    |
| 110°   | 2.8    | 5.6    | 4.2    | 3.5    | 2.8    |



TEST NUMBER: P892716

CATALOG NUMBER: 2MB-4HL-AOL-UNV-L950

**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|-----|-------|-----|
| 112.5° | 2.8 | 4.9   | 3.5 | 2.8   | 2.8 |
| 115°   | 2.1 | 4.2   | 2.8 | 2.8   | 2.8 |
| 117.5° | 2.1 | 3.5   | 2.8 | 2.8   | 2.8 |
| 120°   | 1.4 | 2.8   | 2.1 | 2.1   | 2.1 |
| 122.5° | 1.4 | 2.1   | 2.1 | 2.1   | 2.1 |
| 125°   | 1.4 | 2.1   | 2.1 | 2.1   | 2.1 |
| 127.5° | 1.4 | 1.4   | 2.1 | 2.1   | 2.1 |
| 130°   | 0.7 | 1.4   | 1.4 | 2.1   | 2.1 |
| 132.5° | 0.7 | 1.4   | 1.4 | 1.4   | 1.4 |
| 135°   | 0.7 | 1.4   | 1.4 | 1.4   | 1.4 |
| 137.5° | 0.7 | 1.4   | 1.4 | 1.4   | 1.4 |
| 140°   | 0.7 | 1.4   | 1.4 | 1.4   | 1.4 |
| 142.5° | 0.7 | 1.4   | 1.4 | 1.4   | 1.4 |
| 145°   | 0.7 | 1.4   | 1.4 | 1.4   | 1.4 |
| 147.5° | 0.7 | 1.4   | 1.4 | 1.4   | 1.4 |
| 150°   | 0.7 | 1.4   | 1.4 | 1.4   | 1.4 |
| 152.5° | 0.7 | 1.4   | 1.4 | 1.4   | 1.4 |
| 155°   | 0.7 | 1.4   | 1.4 | 1.4   | 1.4 |
| 157.5° | 1.4 | 1.4   | 1.4 | 1.4   | 2.1 |
| 160°   | 1.4 | 1.4   | 1.4 | 1.4   | 2.1 |
| 162.5° | 1.4 | 1.4   | 1.4 | 2.1   | 2.1 |
| 165°   | 1.4 | 1.4   | 1.4 | 2.1   | 2.1 |
| 167.5° | 1.4 | 1.4   | 1.4 | 2.1   | 2.1 |
| 170°   | 1.4 | 1.4   | 1.4 | 2.1   | 2.1 |
| 172.5° | 1.4 | 1.4   | 1.4 | 2.1   | 2.1 |
| 175°   | 1.4 | 1.4   | 2.1 | 2.1   | 2.1 |
| 177.5° | 1.4 | 1.4   | 2.1 | 2.1   | 2.1 |
| 180°   | 2.1 | 2.1   | 2.1 | 2.1   | 2.1 |



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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 | 22.77            | 24.21 | 23.14 | 24.54 | 24.87 | 17.98          | 19.42 | 18.35 | 19.74 | 20.07 |
|                 | 3H   | 23.99            | 25.28 | 24.38 | 25.62 | 26.00 | 18.99          | 20.27 | 19.38 | 20.62 | 20.99 |
|                 | 4H   | 24.39            | 25.60 | 24.80 | 25.96 | 26.35 | 19.34          | 20.54 | 19.75 | 20.90 | 21.30 |
|                 | 6H   | 24.65            | 25.76 | 25.07 | 26.14 | 26.55 | 19.60          | 20.70 | 20.02 | 21.08 | 21.49 |
|                 | 8H   | 24.72            | 25.78 | 25.16 | 26.18 | 26.60 | 19.68          | 20.73 | 20.12 | 21.13 | 21.55 |
|                 | 12H  | 24.77            | 25.78 | 25.21 | 26.17 | 26.62 | 19.74          | 20.75 | 20.18 | 21.14 | 21.59 |
| 4H              | 2H   | 22.79            | 23.99 | 23.20 | 24.35 | 24.75 | 18.60          | 19.80 | 19.01 | 20.17 | 20.56 |
|                 | 3H   | 24.19            | 25.18 | 24.61 | 25.59 | 26.01 | 19.80          | 20.79 | 20.22 | 21.21 | 21.62 |
|                 | 4H   | 24.69            | 25.58 | 25.14 | 26.01 | 26.46 | 20.24          | 21.13 | 20.68 | 21.56 | 22.01 |
|                 | 6H   | 25.07            | 25.84 | 25.53 | 26.29 | 26.77 | 20.59          | 21.36 | 21.06 | 21.81 | 22.29 |
|                 | 8H   | 25.18            | 25.90 | 25.66 | 26.36 | 26.84 | 20.70          | 21.42 | 21.18 | 21.88 | 22.36 |
|                 | 12H  | 25.27            | 25.91 | 25.77 | 26.41 | 26.89 | 20.80          | 21.44 | 21.29 | 21.93 | 22.42 |
| 8H              | 4H   | 24.69            | 25.41 | 25.17 | 25.87 | 26.35 | 20.58          | 21.30 | 21.05 | 21.75 | 22.24 |
|                 | 6H   | 25.13            | 25.73 | 25.64 | 26.23 | 26.72 | 21.02          | 21.61 | 21.53 | 22.12 | 22.61 |
|                 | 8H   | 25.30            | 25.83 | 25.83 | 26.36 | 26.86 | 21.19          | 21.72 | 21.72 | 22.25 | 22.75 |
|                 | 12H  | 25.45            | 25.93 | 25.98 | 26.43 | 27.01 | 21.35          | 21.82 | 21.87 | 22.33 | 22.91 |
| 12H             | 4H   | 24.67            | 25.31 | 25.16 | 25.80 | 26.29 | 20.62          | 21.27 | 21.12 | 21.76 | 22.24 |
|                 | 6H   | 25.11            | 25.64 | 25.63 | 26.16 | 26.67 | 21.09          | 21.63 | 21.62 | 22.15 | 22.65 |
|                 | 8H   | 25.31            | 25.78 | 25.83 | 26.29 | 26.87 | 21.32          | 21.79 | 21.84 | 22.30 | 22.88 |