

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P1439905

Luminaire Tested: S124DR-H290D835-X4F0-XX-UDD-FLB-W

Issue Date: 4/2/2026

**Test Information**

Test Method: LM-79-2024  
Report Number: P1439905  
TEST IS SCALED FROM IESNA LM-79-24 TEST DATA (G2-2509-563-1)  
Test Lab: INNOVATION CENTER  
Issue Date: 4/2/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S124DR-H290D835-X4F0-XX-UDD-FLB-W  
Description: DEFINE 4, DIRECT RECESSED WITH BATWING FLUSH OPTIC  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

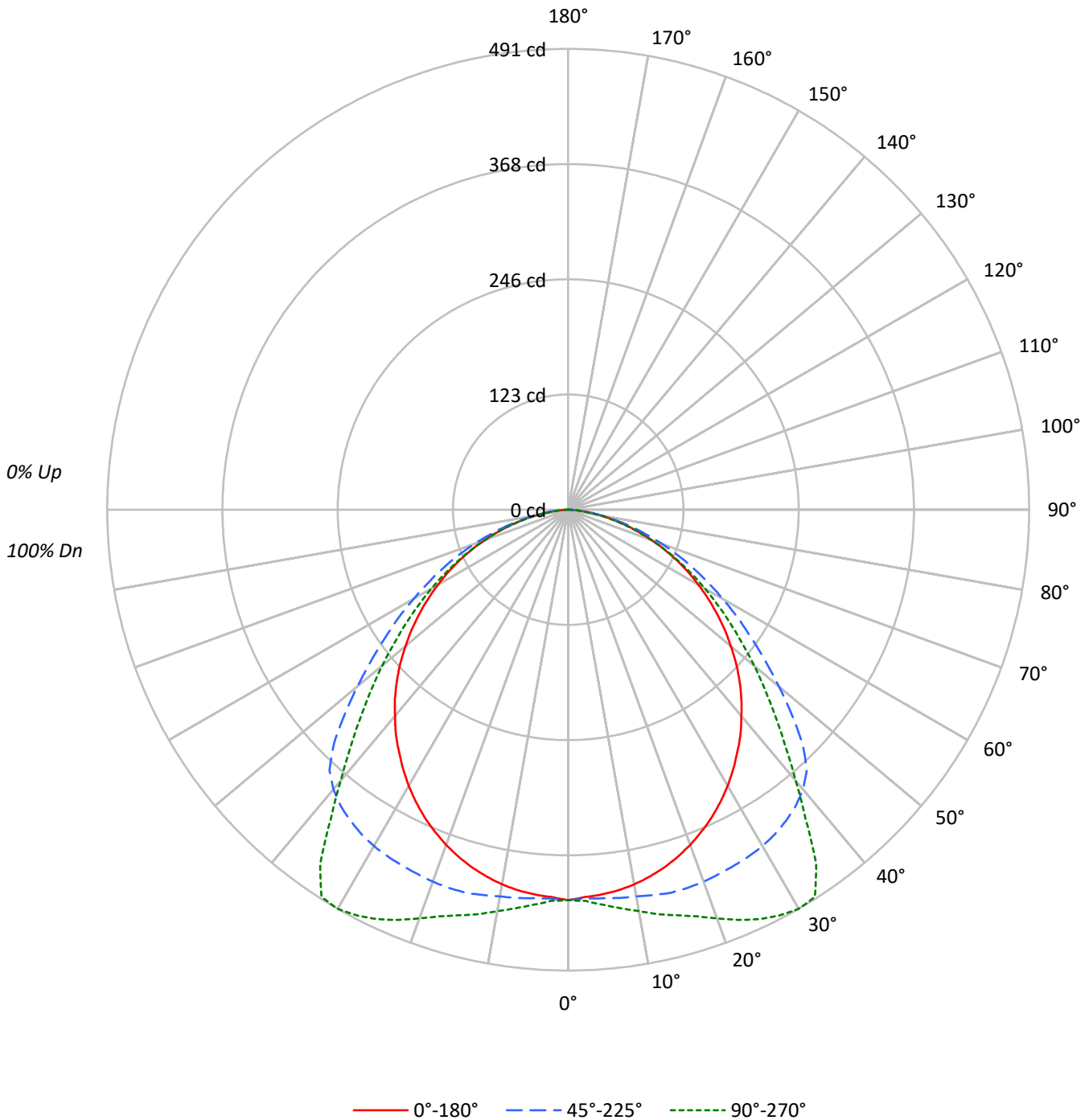
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1264.1 lumens  
Efficiency: N/A  
Efficacy: 108.0 lumens/watt  
Spacing Criteria (0/90/45): 1.22 / 1.53 / 1.51  
Luminous Opening: Rectangular (W 0.31' x L: 3.9' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 11.7  
Input Voltage (V): 120  
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 |  |  |  |  |  |  |  |  | 0 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 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 | 102 | 102 | 102 | 100 |    |    |    |    |    |    |    |    |    |    |    |   | 100 |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 1   | 109 | 105 | 101 | 97  | 107 | 103 | 99  | 95  | 98  | 95  | 92  | 94  | 92  | 90  | 91  | 89  | 87  | 85  |    |    |    |    |    |    |    |    |    |    |    |   | 85  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 100 | 92  | 85  | 80  | 97  | 90  | 84  | 79  | 86  | 81  | 77  | 83  | 79  | 75  | 80  | 77  | 73  | 71  |    |    |    |    |    |    |    |    |    |    |    |   | 71  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 91  | 81  | 73  | 67  | 89  | 79  | 72  | 66  | 76  | 70  | 65  | 74  | 68  | 64  | 71  | 66  | 63  | 60  |    |    |    |    |    |    |    |    |    |    |    |   | 60  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 83  | 72  | 63  | 57  | 81  | 70  | 62  | 56  | 68  | 61  | 55  | 66  | 60  | 55  | 63  | 58  | 54  | 52  |    |    |    |    |    |    |    |    |    |    |    |   | 52  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 77  | 64  | 55  | 49  | 75  | 63  | 55  | 49  | 61  | 54  | 48  | 59  | 53  | 47  | 57  | 52  | 47  | 45  |    |    |    |    |    |    |    |    |    |    |    |   | 45  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 71  | 58  | 49  | 43  | 69  | 57  | 48  | 42  | 55  | 48  | 42  | 53  | 47  | 42  | 52  | 46  | 41  | 39  |    |    |    |    |    |    |    |    |    |    |    |   | 39  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 66  | 52  | 44  | 38  | 64  | 52  | 43  | 37  | 50  | 43  | 37  | 49  | 42  | 37  | 47  | 41  | 37  | 35  |    |    |    |    |    |    |    |    |    |    |    |   | 35  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 61  | 48  | 39  | 34  | 60  | 47  | 39  | 33  | 46  | 38  | 33  | 44  | 38  | 33  | 43  | 37  | 33  | 31  |    |    |    |    |    |    |    |    |    |    |    |   | 31  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 57  | 44  | 36  | 30  | 56  | 43  | 35  | 30  | 42  | 35  | 30  | 41  | 34  | 30  | 40  | 34  | 30  | 28  |    |    |    |    |    |    |    |    |    |    |    |   | 28  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 53  | 40  | 32  | 27  | 52  | 40  | 32  | 27  | 39  | 32  | 27  | 38  | 31  | 27  | 37  | 31  | 27  | 25  |    |    |    |    |    |    |    |    |    |    |    |   | 25  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3678 | 3678 | 3678 |
| 5°  | 3652 | 3689 | 3750 |
| 10° | 3640 | 3756 | 3899 |
| 15° | 3613 | 3867 | 4095 |
| 20° | 3575 | 3968 | 4359 |
| 25° | 3529 | 4082 | 4695 |
| 30° | 3467 | 4226 | 5014 |
| 35° | 3392 | 4366 | 4970 |
| 40° | 3312 | 4490 | 4349 |
| 45° | 3226 | 4415 | 3910 |
| 50° | 3110 | 4032 | 3554 |
| 55° | 2983 | 3669 | 3246 |
| 60° | 2836 | 3363 | 2974 |
| 65° | 2665 | 3065 | 2715 |
| 70° | 2438 | 2743 | 2427 |
| 75° | 2149 | 2357 | 2104 |
| 80° | 1767 | 1889 | 1706 |
| 85° | 1238 | 1288 | 1156 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 4415 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 39.9   | 3.2       |
| 10°-20°   | 119.6  | 9.5       |
| 20°-30°   | 194.7  | 15.4      |
| 30°-40°   | 247.2  | 19.6      |
| 40°-50°   | 240.9  | 19.1      |
| 50°-60°   | 197.5  | 15.6      |
| 60°-70°   | 137.8  | 10.9      |
| 70°-80°   | 70.7   | 5.6       |
| 80°-90°   | 15.7   | 1.2       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 354.2  | 28.0      |
| 0°-40°    | 601.5  | 47.6      |
| 0°-60°    | 1039.9 | 82.3      |
| 0°-90°    | 1264.1 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1264.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 416 | 416   | 416 | 416   | 416 |      |
| 5°  | 412 | 418   | 416 | 418   | 422 | 39   |
| 15° | 395 | 407   | 422 | 439   | 447 | 111  |
| 25° | 362 | 385   | 418 | 462   | 481 | 167  |
| 35° | 314 | 345   | 404 | 463   | 460 | 197  |
| 45° | 258 | 290   | 353 | 324   | 313 | 199  |
| 55° | 194 | 223   | 238 | 218   | 211 | 173  |
| 65° | 127 | 146   | 146 | 135   | 130 | 126  |
| 75° | 63  | 70    | 69  | 64    | 62  | 67   |
| 85° | 12  | 13    | 13  | 12    | 11  | 15   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 416.0 | 416.0 | 416.0 | 416.0 | 416.0 |
| 2.5°  | 413.1 | 418.4 | 414.7 | 416.4 | 417.2 |
| 5°    | 411.5 | 417.6 | 415.6 | 418.4 | 422.5 |
| 7.5°  | 409.0 | 416.0 | 417.2 | 422.9 | 428.2 |
| 10°   | 405.4 | 413.5 | 418.4 | 428.2 | 434.3 |
| 12.5° | 400.5 | 410.7 | 420.5 | 433.9 | 441.3 |
| 15°   | 394.7 | 407.0 | 422.5 | 439.2 | 447.4 |
| 17.5° | 387.8 | 402.5 | 422.5 | 443.3 | 454.3 |
| 20°   | 380.0 | 397.2 | 421.7 | 448.6 | 463.3 |
| 22.5° | 371.1 | 391.5 | 420.0 | 454.7 | 473.1 |
| 25°   | 361.7 | 384.9 | 418.4 | 461.7 | 481.3 |
| 27.5° | 351.1 | 377.2 | 416.4 | 467.0 | 487.4 |
| 30°   | 339.6 | 367.8 | 413.9 | 469.4 | 491.1 |
| 32.5° | 327.4 | 356.8 | 409.8 | 469.4 | 489.0 |
| 35°   | 314.3 | 344.9 | 404.5 | 463.3 | 460.5 |
| 37.5° | 301.7 | 332.3 | 398.0 | 433.5 | 415.6 |
| 40°   | 287.0 | 318.8 | 389.0 | 391.5 | 376.8 |
| 42.5° | 273.1 | 304.5 | 376.4 | 356.0 | 342.9 |
| 45°   | 258.0 | 289.8 | 353.1 | 323.7 | 312.7 |
| 47.5° | 242.5 | 273.9 | 322.9 | 294.7 | 284.5 |
| 50°   | 226.1 | 258.0 | 293.1 | 267.4 | 258.4 |
| 52.5° | 210.2 | 240.8 | 264.5 | 242.1 | 233.5 |
| 55°   | 193.5 | 223.3 | 238.0 | 218.0 | 210.6 |
| 57.5° | 176.8 | 205.3 | 213.9 | 195.5 | 188.6 |
| 60°   | 160.4 | 186.1 | 190.2 | 174.3 | 168.2 |
| 62.5° | 144.1 | 166.1 | 167.8 | 153.9 | 148.6 |
| 65°   | 127.4 | 145.7 | 146.5 | 134.7 | 129.8 |
| 67.5° | 111.0 | 126.1 | 126.1 | 115.9 | 111.8 |
| 70°   | 94.3  | 107.0 | 106.1 | 98.0  | 93.9  |
| 72.5° | 78.4  | 87.4  | 86.5  | 80.4  | 77.6  |
| 75°   | 62.9  | 69.8  | 69.0  | 64.1  | 61.6  |
| 77.5° | 48.2  | 53.1  | 52.3  | 49.0  | 46.9  |
| 80°   | 34.7  | 37.6  | 37.1  | 34.7  | 33.5  |
| 82.5° | 22.9  | 24.5  | 23.7  | 22.0  | 21.2  |
| 85°   | 12.2  | 12.7  | 12.7  | 11.8  | 11.4  |
| 87.5° | 4.5   | 4.5   | 4.5   | 4.5   | 4.1   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



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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 | 16.21            | 17.81 | 16.57 | 18.12 | 18.44 | 15.99          | 17.59 | 16.36 | 17.91 | 18.22 |
|                 | 3H   | 17.71            | 19.15 | 18.09 | 19.48 | 19.84 | 17.46          | 18.90 | 17.84 | 19.23 | 19.59 |
|                 | 4H   | 18.21            | 19.57 | 18.61 | 19.92 | 20.29 | 17.96          | 19.31 | 18.36 | 19.66 | 20.04 |
|                 | 6H   | 18.54            | 19.79 | 18.95 | 20.15 | 20.54 | 18.28          | 19.53 | 18.69 | 19.89 | 20.28 |
|                 | 8H   | 18.62            | 19.81 | 19.04 | 20.20 | 20.60 | 18.35          | 19.55 | 18.78 | 19.94 | 20.33 |
|                 | 12H  | 18.66            | 19.80 | 19.09 | 20.18 | 20.61 | 18.39          | 19.53 | 18.82 | 19.91 | 20.34 |
| 4H              | 2H   | 16.83            | 18.18 | 17.23 | 18.53 | 18.91 | 16.66          | 18.01 | 17.06 | 18.36 | 18.74 |
|                 | 3H   | 18.56            | 19.69 | 18.97 | 20.09 | 20.49 | 18.33          | 19.46 | 18.74 | 19.85 | 20.25 |
|                 | 4H   | 19.19            | 20.20 | 19.62 | 20.62 | 21.06 | 18.93          | 19.94 | 19.36 | 20.36 | 20.79 |
|                 | 6H   | 19.62            | 20.50 | 20.07 | 20.94 | 21.40 | 19.34          | 20.22 | 19.79 | 20.66 | 21.12 |
|                 | 8H   | 19.73            | 20.56 | 20.19 | 21.00 | 21.47 | 19.44          | 20.27 | 19.90 | 20.71 | 21.18 |
|                 | 12H  | 19.79            | 20.54 | 20.27 | 21.01 | 21.48 | 19.50          | 20.24 | 19.98 | 20.72 | 21.19 |
| 8H              | 4H   | 19.43            | 20.26 | 19.89 | 20.70 | 21.17 | 19.20          | 20.03 | 19.66 | 20.47 | 20.93 |
|                 | 6H   | 19.95            | 20.64 | 20.45 | 21.13 | 21.61 | 19.70          | 20.38 | 20.19 | 20.87 | 21.35 |
|                 | 8H   | 20.12            | 20.73 | 20.63 | 21.24 | 21.73 | 19.85          | 20.46 | 20.36 | 20.97 | 21.46 |
|                 | 12H  | 20.23            | 20.77 | 20.74 | 21.26 | 21.83 | 19.94          | 20.49 | 20.45 | 20.98 | 21.54 |
| 12H             | 4H   | 19.44            | 20.18 | 19.92 | 20.66 | 21.13 | 19.22          | 19.96 | 19.70 | 20.43 | 20.90 |
|                 | 6H   | 19.98            | 20.59 | 20.49 | 21.10 | 21.59 | 19.73          | 20.34 | 20.24 | 20.85 | 21.34 |
|                 | 8H   | 20.19            | 20.73 | 20.69 | 21.22 | 21.78 | 19.92          | 20.46 | 20.43 | 20.96 | 21.52 |