

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: P906995

Luminaire Tested: DFN2DIP-TR2F0-020D030US835-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906995
REPORT IS A COMBINATION OF REPORTS P901752 AND P897145
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR2F0-020D030US835-RLLONL
Description: 2 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

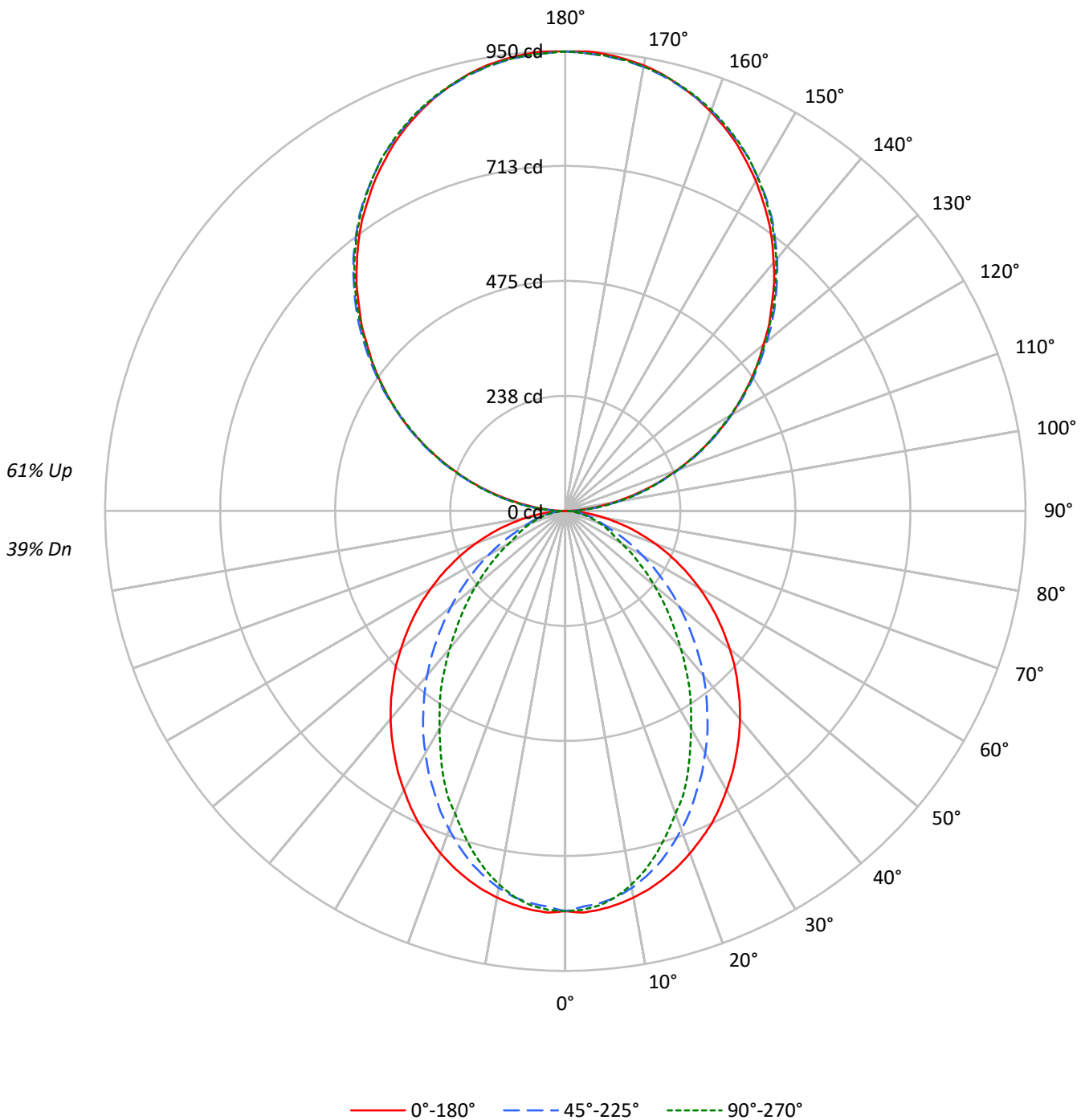
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4355.0 lumens
Efficiency: N/A
Efficacy: 117.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 37
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 | | | | 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 | 105 | 105 | 105 | 105 | 95 | 95 | 95 | 95 | 77 | 77 | 77 | 61 | 61 | 61 | 46 | 46 | 46 | 39 | | | |
| 1 | 96 | 92 | 88 | 85 | 87 | 83 | 80 | 78 | 68 | 66 | 64 | 54 | 53 | 51 | 41 | 40 | 40 | 34 | | | |
| 2 | 87 | 80 | 75 | 70 | 79 | 73 | 68 | 64 | 60 | 57 | 54 | 48 | 46 | 44 | 37 | 35 | 34 | 29 | | | |
| 3 | 80 | 71 | 64 | 58 | 73 | 65 | 59 | 54 | 53 | 49 | 46 | 43 | 40 | 37 | 33 | 31 | 29 | 25 | | | |
| 4 | 73 | 63 | 55 | 50 | 66 | 58 | 51 | 46 | 48 | 43 | 39 | 38 | 35 | 32 | 30 | 27 | 26 | 22 | | | |
| 5 | 67 | 56 | 48 | 43 | 61 | 52 | 45 | 40 | 43 | 38 | 34 | 35 | 31 | 28 | 27 | 24 | 22 | 19 | | | |
| 6 | 62 | 51 | 43 | 37 | 56 | 46 | 40 | 35 | 39 | 33 | 30 | 31 | 28 | 25 | 25 | 22 | 20 | 17 | | | |
| 7 | 57 | 46 | 38 | 33 | 52 | 42 | 35 | 30 | 35 | 30 | 26 | 29 | 25 | 22 | 22 | 20 | 18 | 15 | | | |
| 8 | 53 | 41 | 34 | 29 | 49 | 38 | 32 | 27 | 32 | 27 | 23 | 26 | 22 | 20 | 21 | 18 | 16 | 14 | | | |
| 9 | 50 | 38 | 31 | 26 | 45 | 35 | 29 | 24 | 29 | 24 | 21 | 24 | 20 | 18 | 19 | 17 | 15 | 12 | | | |
| 10 | 46 | 35 | 28 | 23 | 42 | 32 | 26 | 22 | 27 | 22 | 19 | 22 | 19 | 16 | 18 | 15 | 13 | 11 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 1844 | 1844 | 1844 |
| 5° | 1844 | 1810 | 1823 |
| 10° | 1823 | 1771 | 1760 |
| 15° | 1795 | 1708 | 1666 |
| 20° | 1759 | 1624 | 1551 |
| 25° | 1722 | 1530 | 1440 |
| 30° | 1674 | 1434 | 1300 |
| 35° | 1626 | 1331 | 1178 |
| 40° | 1577 | 1225 | 1038 |
| 45° | 1521 | 1108 | 911 |
| 50° | 1463 | 991 | 788 |
| 55° | 1401 | 866 | 669 |
| 60° | 1331 | 735 | 548 |
| 65° | 1249 | 604 | 490 |
| 70° | 1149 | 480 | 439 |
| 75° | 1024 | 415 | 393 |
| 80° | 844 | 338 | 331 |
| 85° | 554 | 209 | 233 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1521 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 77.5 | 1.8 |
| 10°-20° | 212.7 | 4.9 |
| 20°-30° | 298.6 | 6.9 |
| 30°-40° | 325.5 | 7.5 |
| 40°-50° | 299.1 | 6.9 |
| 50°-60° | 234.9 | 5.4 |
| 60°-70° | 152.9 | 3.5 |
| 70°-80° | 78.7 | 1.8 |
| 80°-90° | 22.8 | 0.5 |
| 90°-100° | 58.7 | 1.3 |
| 100°-110° | 186.5 | 4.3 |
| 110°-120° | 319.2 | 7.3 |
| 120°-130° | 419.8 | 9.6 |
| 130°-140° | 471.2 | 10.8 |
| 140°-150° | 462.1 | 10.6 |
| 150°-160° | 387.7 | 8.9 |
| 160°-170° | 257.1 | 5.9 |
| 170°-180° | 89.9 | 2.1 |
| 0°-30° | 588.7 | 13.5 |
| 0°-40° | 914.2 | 21.0 |
| 0°-60° | 1448.3 | 33.3 |
| 0°-90° | 1702.7 | 39.1 |
| 90°-120° | 564.5 | 13.0 |
| 90°-150° | 1917.7 | 44.0 |
| 90°-180° | 2652.0 | 60.9 |
| 0°-180° | 4355.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-----|-------|-----|-------|-----|------|
| 0° | 827 | 827 | 827 | 827 | 827 | |
| 5° | 827 | 823 | 813 | 820 | 818 | 78 |
| 15° | 786 | 778 | 752 | 738 | 731 | 222 |
| 25° | 714 | 690 | 640 | 610 | 598 | 328 |
| 35° | 615 | 577 | 511 | 464 | 447 | 385 |
| 45° | 503 | 452 | 374 | 321 | 303 | 388 |
| 55° | 382 | 324 | 243 | 198 | 184 | 342 |
| 65° | 258 | 198 | 130 | 105 | 102 | 256 |
| 75° | 138 | 85 | 60 | 55 | 54 | 146 |
| 85° | 32 | 16 | 14 | 14 | 14 | 37 |
| 90° | 1 | 10 | 28 | 26 | 27 | 4 |
| 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° | 826.6 | 826.6 | 826.6 | 826.6 | 826.6 |
| 2.5° | 830.3 | 826.6 | 818.3 | 825.9 | 824.4 |
| 5° | 826.6 | 822.9 | 813.1 | 819.9 | 817.6 |
| 7.5° | 819.9 | 815.4 | 804.9 | 807.9 | 804.1 |
| 10° | 810.9 | 805.6 | 790.7 | 788.4 | 784.0 |
| 12.5° | 799.7 | 792.9 | 772.7 | 768.3 | 760.0 |
| 15° | 786.2 | 777.9 | 752.5 | 738.3 | 730.9 |
| 17.5° | 770.5 | 758.5 | 727.1 | 710.6 | 698.7 |
| 20° | 752.5 | 737.5 | 700.2 | 681.5 | 665.0 |
| 22.5° | 733.1 | 715.9 | 672.5 | 647.1 | 635.9 |
| 25° | 713.7 | 689.7 | 640.3 | 609.7 | 598.4 |
| 27.5° | 690.5 | 665.0 | 610.4 | 575.2 | 558.0 |
| 30° | 665.8 | 637.3 | 577.5 | 539.4 | 519.1 |
| 32.5° | 641.8 | 607.4 | 546.1 | 501.2 | 482.5 |
| 35° | 614.9 | 576.8 | 511.0 | 463.8 | 447.3 |
| 37.5° | 588.7 | 547.5 | 478.0 | 426.4 | 407.7 |
| 40° | 561.0 | 516.2 | 443.6 | 390.5 | 371.0 |
| 42.5° | 532.6 | 484.8 | 409.2 | 353.8 | 335.2 |
| 45° | 502.7 | 452.5 | 374.1 | 320.9 | 302.9 |
| 47.5° | 474.3 | 421.2 | 340.4 | 287.2 | 270.8 |
| 50° | 442.9 | 389.8 | 307.5 | 255.8 | 240.2 |
| 52.5° | 412.1 | 356.0 | 276.0 | 226.7 | 212.5 |
| 55° | 382.2 | 323.9 | 243.1 | 198.3 | 184.0 |
| 57.5° | 351.6 | 291.7 | 214.0 | 172.1 | 160.1 |
| 60° | 320.2 | 260.3 | 183.3 | 145.2 | 133.2 |
| 62.5° | 289.5 | 229.7 | 157.1 | 121.2 | 115.2 |
| 65° | 258.1 | 197.5 | 130.2 | 104.8 | 102.5 |
| 67.5° | 228.2 | 167.5 | 104.8 | 92.0 | 89.8 |
| 70° | 196.7 | 138.4 | 86.7 | 79.3 | 76.3 |
| 72.5° | 166.8 | 111.4 | 72.5 | 66.6 | 65.1 |
| 75° | 137.6 | 85.2 | 59.8 | 54.6 | 53.9 |
| 77.5° | 108.5 | 60.6 | 47.1 | 44.1 | 42.6 |
| 80° | 81.5 | 43.4 | 35.9 | 32.9 | 32.9 |
| 82.5° | 56.8 | 29.2 | 24.7 | 23.2 | 23.2 |
| 85° | 32.1 | 16.4 | 14.2 | 14.2 | 14.2 |
| 87.5° | 12.0 | 6.0 | 6.0 | 5.2 | 5.2 |
| 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 | 8.03 | 8.78 | 9.08 | 9.83 | 11.25 | 4.01 | 4.76 | 5.07 | 5.81 | 7.24 |
| | 3H | 9.68 | 10.35 | 10.74 | 11.41 | 12.85 | 5.18 | 5.85 | 6.24 | 6.91 | 8.35 |
| | 4H | 10.27 | 10.90 | 11.34 | 11.96 | 13.41 | 5.62 | 6.25 | 6.69 | 7.31 | 8.76 |
| | 6H | 10.66 | 11.25 | 11.75 | 12.31 | 13.77 | 5.92 | 6.50 | 7.00 | 7.57 | 9.03 |
| | 8H | 10.78 | 11.33 | 11.86 | 12.41 | 13.87 | 6.00 | 6.55 | 7.09 | 7.64 | 9.09 |
| | 12H | 10.83 | 11.35 | 11.92 | 12.43 | 13.91 | 6.03 | 6.56 | 7.12 | 7.64 | 9.11 |
| 4H | 2H | 8.03 | 8.67 | 9.11 | 9.73 | 11.18 | 4.59 | 5.22 | 5.67 | 6.28 | 7.73 |
| | 3H | 9.83 | 10.36 | 10.92 | 11.45 | 12.91 | 5.91 | 6.44 | 7.00 | 7.53 | 8.99 |
| | 4H | 10.50 | 10.98 | 11.59 | 12.06 | 13.54 | 6.44 | 6.92 | 7.53 | 8.01 | 9.49 |
| | 6H | 10.99 | 11.40 | 12.09 | 12.51 | 13.98 | 6.84 | 7.25 | 7.94 | 8.36 | 9.83 |
| | 8H | 11.15 | 11.54 | 12.25 | 12.63 | 14.12 | 6.96 | 7.34 | 8.06 | 8.44 | 9.93 |
| | 12H | 11.23 | 11.58 | 12.34 | 12.68 | 14.18 | 7.01 | 7.36 | 8.12 | 8.47 | 9.96 |
| 8H | 4H | 10.46 | 10.84 | 11.56 | 11.94 | 13.43 | 6.70 | 7.09 | 7.80 | 8.18 | 9.67 |
| | 6H | 11.00 | 11.31 | 12.12 | 12.45 | 13.94 | 7.19 | 7.51 | 8.31 | 8.65 | 10.14 |
| | 8H | 11.20 | 11.48 | 12.32 | 12.59 | 14.10 | 7.37 | 7.65 | 8.50 | 8.77 | 10.28 |
| | 12H | 11.31 | 11.56 | 12.44 | 12.68 | 14.22 | 7.47 | 7.72 | 8.61 | 8.84 | 10.38 |
| 12H | 4H | 10.40 | 10.75 | 11.52 | 11.86 | 13.36 | 6.70 | 7.05 | 7.81 | 8.16 | 9.65 |
| | 6H | 10.97 | 11.25 | 12.10 | 12.37 | 13.87 | 7.24 | 7.52 | 8.36 | 8.64 | 10.14 |
| | 8H | 11.17 | 11.41 | 12.30 | 12.53 | 14.07 | 7.43 | 7.67 | 8.56 | 8.79 | 10.33 |