

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: P921972

Luminaire Tested: DFN2DIP-PN2F0-030D040US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921972
REPORT IS A COMBINATION OF REPORTS P899483 AND P896349
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN2F0-030D040US940-FLLFLL
Description: 2 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

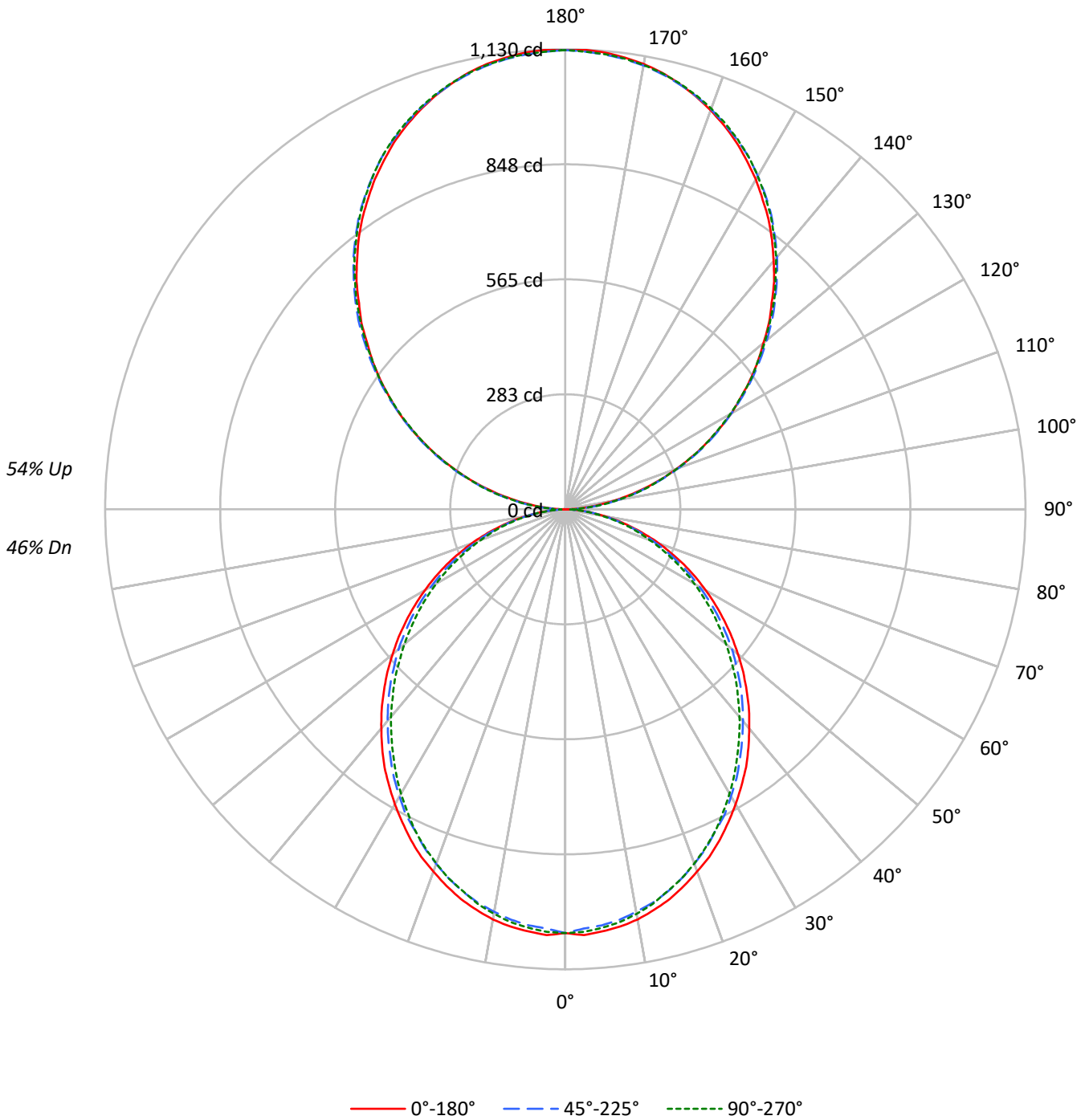
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5805.0 lumens
Efficiency: N/A
Efficacy: 98.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.17' x L: 2.29' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 58.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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





TEST NUMBER: P921972
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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 |
| RCR | | | | | | | | | | | | | | | | | | | | |
| 0 | 106 | 106 | 106 | 106 | 97 | 97 | 97 | 97 | 81 | 81 | 81 | 66 | 66 | 66 | 52 | 52 | 52 | 46 | 46 | 46 |
| 1 | 97 | 93 | 89 | 85 | 89 | 85 | 82 | 79 | 71 | 69 | 66 | 58 | 56 | 55 | 46 | 45 | 44 | 38 | 38 | 38 |
| 2 | 88 | 81 | 75 | 70 | 81 | 74 | 69 | 65 | 62 | 58 | 55 | 51 | 48 | 46 | 41 | 39 | 37 | 32 | 32 | 32 |
| 3 | 80 | 71 | 64 | 58 | 73 | 65 | 59 | 54 | 55 | 50 | 46 | 45 | 42 | 39 | 36 | 34 | 32 | 27 | 27 | 27 |
| 4 | 74 | 63 | 55 | 49 | 67 | 58 | 51 | 46 | 49 | 43 | 39 | 40 | 36 | 33 | 32 | 29 | 27 | 23 | 23 | 23 |
| 5 | 67 | 56 | 48 | 42 | 62 | 52 | 45 | 39 | 44 | 38 | 34 | 36 | 32 | 29 | 29 | 26 | 24 | 20 | 20 | 20 |
| 6 | 62 | 50 | 42 | 36 | 57 | 46 | 39 | 34 | 39 | 34 | 30 | 33 | 28 | 25 | 26 | 23 | 21 | 18 | 18 | 18 |
| 7 | 57 | 45 | 37 | 32 | 53 | 42 | 35 | 30 | 36 | 30 | 26 | 30 | 25 | 22 | 24 | 21 | 19 | 16 | 16 | 16 |
| 8 | 53 | 41 | 33 | 28 | 49 | 38 | 31 | 26 | 32 | 27 | 23 | 27 | 23 | 20 | 22 | 19 | 17 | 14 | 14 | 14 |
| 9 | 50 | 37 | 30 | 25 | 45 | 35 | 28 | 24 | 30 | 24 | 21 | 25 | 21 | 18 | 20 | 17 | 15 | 13 | 13 | 13 |
| 10 | 46 | 34 | 27 | 22 | 42 | 32 | 25 | 21 | 27 | 22 | 19 | 23 | 19 | 16 | 19 | 16 | 14 | 12 | 12 | 12 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2254 | 2254 | 2254 |
| 5° | 2254 | 2218 | 2235 |
| 10° | 2233 | 2184 | 2201 |
| 15° | 2196 | 2143 | 2151 |
| 20° | 2148 | 2088 | 2099 |
| 25° | 2100 | 2024 | 2040 |
| 30° | 2041 | 1963 | 1965 |
| 35° | 1985 | 1893 | 1887 |
| 40° | 1916 | 1822 | 1812 |
| 45° | 1848 | 1750 | 1735 |
| 50° | 1773 | 1674 | 1647 |
| 55° | 1693 | 1587 | 1564 |
| 60° | 1604 | 1485 | 1470 |
| 65° | 1506 | 1377 | 1359 |
| 70° | 1380 | 1247 | 1239 |
| 75° | 1209 | 1090 | 1123 |
| 80° | 1000 | 890 | 911 |
| 85° | 679 | 563 | 570 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1848 cd/sqm



TEST NUMBER: P921972

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 98.0 | 1.7 |
| 10°-20° | 275.6 | 4.7 |
| 20°-30° | 405.1 | 7.0 |
| 30°-40° | 470.5 | 8.1 |
| 40°-50° | 469.9 | 8.1 |
| 50°-60° | 409.8 | 7.1 |
| 60°-70° | 302.9 | 5.2 |
| 70°-80° | 171.4 | 3.0 |
| 80°-90° | 48.4 | 0.8 |
| 90°-100° | 69.8 | 1.2 |
| 100°-110° | 221.8 | 3.8 |
| 110°-120° | 379.5 | 6.5 |
| 120°-130° | 499.2 | 8.6 |
| 130°-140° | 560.3 | 9.7 |
| 140°-150° | 549.4 | 9.5 |
| 150°-160° | 460.9 | 7.9 |
| 160°-170° | 305.7 | 5.3 |
| 170°-180° | 106.8 | 1.8 |
| 0°-30° | 778.7 | 13.4 |
| 0°-40° | 1249.2 | 21.5 |
| 0°-60° | 2128.9 | 36.7 |
| 0°-90° | 2651.6 | 45.7 |
| 90°-120° | 671.2 | 11.6 |
| 90°-150° | 2280.1 | 39.3 |
| 90°-180° | 3153.0 | 54.3 |
| 0°-180° | 5805.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1041 | 1041 | 1041 | 1041 | 1041 | |
| 5° | 1041 | 1037 | 1026 | 1034 | 1032 | 99 |
| 15° | 991 | 985 | 972 | 976 | 971 | 279 |
| 25° | 897 | 889 | 872 | 874 | 872 | 413 |
| 35° | 774 | 764 | 748 | 742 | 737 | 483 |
| 45° | 630 | 623 | 608 | 597 | 592 | 486 |
| 55° | 476 | 470 | 458 | 446 | 442 | 426 |
| 65° | 321 | 315 | 305 | 296 | 291 | 318 |
| 75° | 168 | 166 | 161 | 155 | 157 | 179 |
| 85° | 41 | 40 | 39 | 36 | 35 | 46 |
| 90° | 1 | 12 | 33 | 31 | 32 | 6 |
| 95° | 50 | 59 | 61 | 61 | 59 | 55 |
| 105° | 205 | 207 | 210 | 211 | 211 | 216 |
| 115° | 381 | 386 | 385 | 384 | 381 | 377 |
| 125° | 554 | 562 | 560 | 557 | 556 | 495 |
| 135° | 717 | 727 | 729 | 728 | 725 | 554 |
| 145° | 870 | 877 | 882 | 883 | 880 | 544 |
| 155° | 995 | 998 | 1000 | 1005 | 1002 | 458 |
| 165° | 1082 | 1081 | 1081 | 1088 | 1083 | 305 |
| 175° | 1126 | 1123 | 1121 | 1128 | 1122 | 107 |
| 180° | 1128 | 1128 | 1128 | 1128 | 1128 | |



TEST NUMBER: P921972

CATALOG NUMBER: DFN2DIP-PN2F0-030D040US940-FLLFLL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1040.9 | 1040.9 | 1040.9 | 1040.9 | 1040.9 |
| 2.5° | 1047.0 | 1042.0 | 1030.9 | 1040.9 | 1039.0 |
| 5° | 1040.9 | 1037.0 | 1025.9 | 1033.9 | 1032.0 |
| 7.5° | 1033.9 | 1028.0 | 1016.9 | 1025.0 | 1023.0 |
| 10° | 1023.0 | 1015.9 | 1004.0 | 1011.9 | 1009.0 |
| 12.5° | 1007.9 | 1001.9 | 990.0 | 994.9 | 992.9 |
| 15° | 990.9 | 985.0 | 971.9 | 975.9 | 970.9 |
| 17.5° | 969.8 | 963.9 | 950.8 | 955.8 | 950.8 |
| 20° | 946.8 | 940.8 | 926.8 | 929.8 | 925.9 |
| 22.5° | 923.9 | 914.9 | 901.8 | 901.8 | 899.7 |
| 25° | 896.8 | 888.9 | 871.8 | 873.8 | 871.8 |
| 27.5° | 866.7 | 859.7 | 846.8 | 843.8 | 838.8 |
| 30° | 836.8 | 828.8 | 813.8 | 810.7 | 806.7 |
| 32.5° | 804.8 | 798.8 | 782.7 | 776.7 | 772.7 |
| 35° | 773.7 | 763.7 | 747.7 | 741.6 | 736.6 |
| 37.5° | 738.7 | 729.7 | 713.6 | 706.6 | 701.6 |
| 40° | 702.7 | 694.6 | 678.6 | 669.7 | 665.7 |
| 42.5° | 667.6 | 659.6 | 643.6 | 633.6 | 627.6 |
| 45° | 629.6 | 622.6 | 607.5 | 596.6 | 592.5 |
| 47.5° | 592.5 | 585.6 | 569.5 | 558.5 | 552.5 |
| 50° | 553.5 | 548.5 | 534.5 | 520.5 | 515.5 |
| 52.5° | 515.5 | 508.5 | 495.5 | 484.5 | 477.4 |
| 55° | 476.5 | 470.5 | 458.4 | 446.5 | 441.5 |
| 57.5° | 437.4 | 432.4 | 419.4 | 407.3 | 403.3 |
| 60° | 398.3 | 394.4 | 380.4 | 369.3 | 366.4 |
| 62.5° | 360.3 | 353.3 | 343.3 | 333.3 | 329.3 |
| 65° | 321.4 | 315.3 | 305.3 | 296.3 | 291.3 |
| 67.5° | 281.3 | 276.3 | 267.2 | 260.3 | 256.3 |
| 70° | 244.2 | 240.2 | 231.2 | 224.2 | 220.3 |
| 72.5° | 206.3 | 202.2 | 197.2 | 190.2 | 187.3 |
| 75° | 168.1 | 166.2 | 161.1 | 155.2 | 157.2 |
| 77.5° | 134.1 | 130.1 | 128.0 | 125.1 | 122.2 |
| 80° | 100.1 | 99.1 | 97.0 | 94.1 | 92.1 |
| 82.5° | 68.0 | 68.0 | 67.1 | 63.0 | 63.0 |
| 85° | 41.0 | 40.0 | 39.1 | 36.0 | 35.0 |
| 87.5° | 18.0 | 16.1 | 14.0 | 11.1 | 10.0 |
| 90° | 1.0 | 12.2 | 33.3 | 31.3 | 32.3 |
| 92.5° | 21.0 | 28.5 | 29.6 | 30.6 | 30.6 |
| 95° | 49.7 | 59.2 | 60.9 | 60.9 | 59.2 |
| 97.5° | 82.7 | 91.5 | 95.2 | 95.2 | 95.2 |
| 100° | 120.7 | 128.6 | 131.3 | 131.3 | 130.3 |
| 102.5° | 160.9 | 166.7 | 170.4 | 171.4 | 170.4 |
| 105° | 204.7 | 207.4 | 209.5 | 211.2 | 211.2 |
| 107.5° | 248.3 | 252.4 | 252.4 | 253.0 | 248.3 |
| 110° | 290.4 | 295.9 | 295.9 | 295.9 | 293.2 |



TEST NUMBER: P921972

CATALOG NUMBER: DFN2DIP-PN2F0-030D040US940-FLLFLL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 336.0 | 341.8 | 340.7 | 338.0 | 336.0 |
| 115° | 380.8 | 386.4 | 384.6 | 383.6 | 380.8 |
| 117.5° | 425.4 | 432.9 | 428.2 | 425.4 | 422.8 |
| 120° | 470.4 | 477.8 | 470.4 | 470.4 | 467.3 |
| 122.5° | 511.1 | 520.7 | 515.9 | 513.2 | 511.1 |
| 125° | 554.0 | 562.5 | 559.8 | 556.7 | 555.7 |
| 127.5° | 595.8 | 606.4 | 602.6 | 598.5 | 595.8 |
| 130° | 634.9 | 647.2 | 645.5 | 643.5 | 639.7 |
| 132.5° | 678.8 | 688.3 | 689.0 | 684.2 | 681.5 |
| 135° | 716.6 | 727.1 | 729.2 | 728.1 | 725.4 |
| 137.5° | 758.8 | 767.2 | 768.9 | 768.2 | 764.2 |
| 140° | 795.8 | 804.3 | 809.0 | 809.0 | 805.3 |
| 142.5° | 833.9 | 842.4 | 845.1 | 846.1 | 842.4 |
| 145° | 870.0 | 876.7 | 882.2 | 883.2 | 879.5 |
| 147.5° | 902.2 | 910.7 | 914.8 | 916.5 | 912.8 |
| 150° | 935.6 | 941.4 | 945.1 | 948.2 | 945.1 |
| 152.5° | 965.2 | 970.9 | 975.7 | 979.5 | 975.7 |
| 155° | 994.7 | 997.5 | 1000.5 | 1005.3 | 1002.2 |
| 157.5° | 1020.3 | 1022.3 | 1024.0 | 1030.8 | 1026.0 |
| 160° | 1043.0 | 1045.1 | 1046.1 | 1051.9 | 1047.8 |
| 162.5° | 1064.1 | 1064.1 | 1065.1 | 1071.6 | 1066.8 |
| 165° | 1082.2 | 1081.1 | 1081.1 | 1087.9 | 1083.2 |
| 167.5° | 1098.5 | 1095.4 | 1095.4 | 1102.2 | 1097.4 |
| 170° | 1110.7 | 1108.0 | 1107.0 | 1113.7 | 1108.0 |
| 172.5° | 1119.2 | 1116.5 | 1115.4 | 1122.3 | 1116.5 |
| 175° | 1126.1 | 1123.3 | 1121.2 | 1128.0 | 1122.3 |
| 177.5° | 1129.8 | 1127.0 | 1125.0 | 1130.8 | 1125.0 |
| 180° | 1128.0 | 1128.0 | 1128.0 | 1128.0 | 1128.0 |



TEST NUMBER: P921972
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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 | 9.56 | 10.39 | 10.56 | 11.39 | 12.72 | 9.13 | 9.95 | 10.12 | 10.96 | 12.29 |
| | 3H | 11.20 | 11.94 | 12.21 | 12.95 | 14.31 | 10.72 | 11.46 | 11.73 | 12.47 | 13.83 |
| | 4H | 11.77 | 12.47 | 12.79 | 13.49 | 14.85 | 11.29 | 11.99 | 12.31 | 13.01 | 14.37 |
| | 6H | 12.16 | 12.80 | 13.18 | 13.82 | 15.20 | 11.67 | 12.32 | 12.70 | 13.34 | 14.71 |
| | 8H | 12.25 | 12.87 | 13.28 | 13.90 | 15.27 | 11.77 | 12.38 | 12.80 | 13.42 | 14.79 |
| | 12H | 12.29 | 12.87 | 13.33 | 13.91 | 15.30 | 11.80 | 12.38 | 12.84 | 13.41 | 14.81 |
| 4H | 2H | 10.01 | 10.71 | 11.03 | 11.73 | 13.09 | 9.66 | 10.36 | 10.68 | 11.38 | 12.74 |
| | 3H | 11.85 | 12.43 | 12.88 | 13.48 | 14.85 | 11.45 | 12.03 | 12.48 | 13.08 | 14.45 |
| | 4H | 12.55 | 13.08 | 13.59 | 14.12 | 15.51 | 12.13 | 12.67 | 13.17 | 13.70 | 15.10 |
| | 6H | 13.04 | 13.50 | 14.09 | 14.56 | 15.95 | 12.62 | 13.08 | 13.67 | 14.14 | 15.53 |
| | 8H | 13.18 | 13.61 | 14.23 | 14.66 | 16.07 | 12.76 | 13.19 | 13.81 | 14.24 | 15.65 |
| | 12H | 13.24 | 13.63 | 14.31 | 14.70 | 16.11 | 12.81 | 13.20 | 13.88 | 14.26 | 15.68 |
| 8H | 4H | 12.73 | 13.16 | 13.78 | 14.21 | 15.62 | 12.36 | 12.79 | 13.41 | 13.84 | 15.25 |
| | 6H | 13.33 | 13.69 | 14.41 | 14.78 | 16.19 | 12.96 | 13.32 | 14.03 | 14.41 | 15.82 |
| | 8H | 13.54 | 13.85 | 14.62 | 14.93 | 16.36 | 13.16 | 13.47 | 14.24 | 14.55 | 15.98 |
| | 12H | 13.66 | 13.93 | 14.74 | 15.01 | 16.47 | 13.26 | 13.54 | 14.34 | 14.61 | 16.07 |
| 12H | 4H | 12.71 | 13.10 | 13.78 | 14.17 | 15.58 | 12.35 | 12.74 | 13.42 | 13.81 | 15.22 |
| | 6H | 13.36 | 13.67 | 14.44 | 14.75 | 16.17 | 13.00 | 13.31 | 14.08 | 14.39 | 15.81 |
| | 8H | 13.58 | 13.86 | 14.67 | 14.93 | 16.40 | 13.21 | 13.49 | 14.30 | 14.56 | 16.03 |