

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: P913398

Luminaire Tested: DFN2DIP-HX2F0-050D040US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913398
REPORT IS A COMBINATION OF REPORTS P899177 AND P896039
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-050D040US927-FLLFL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

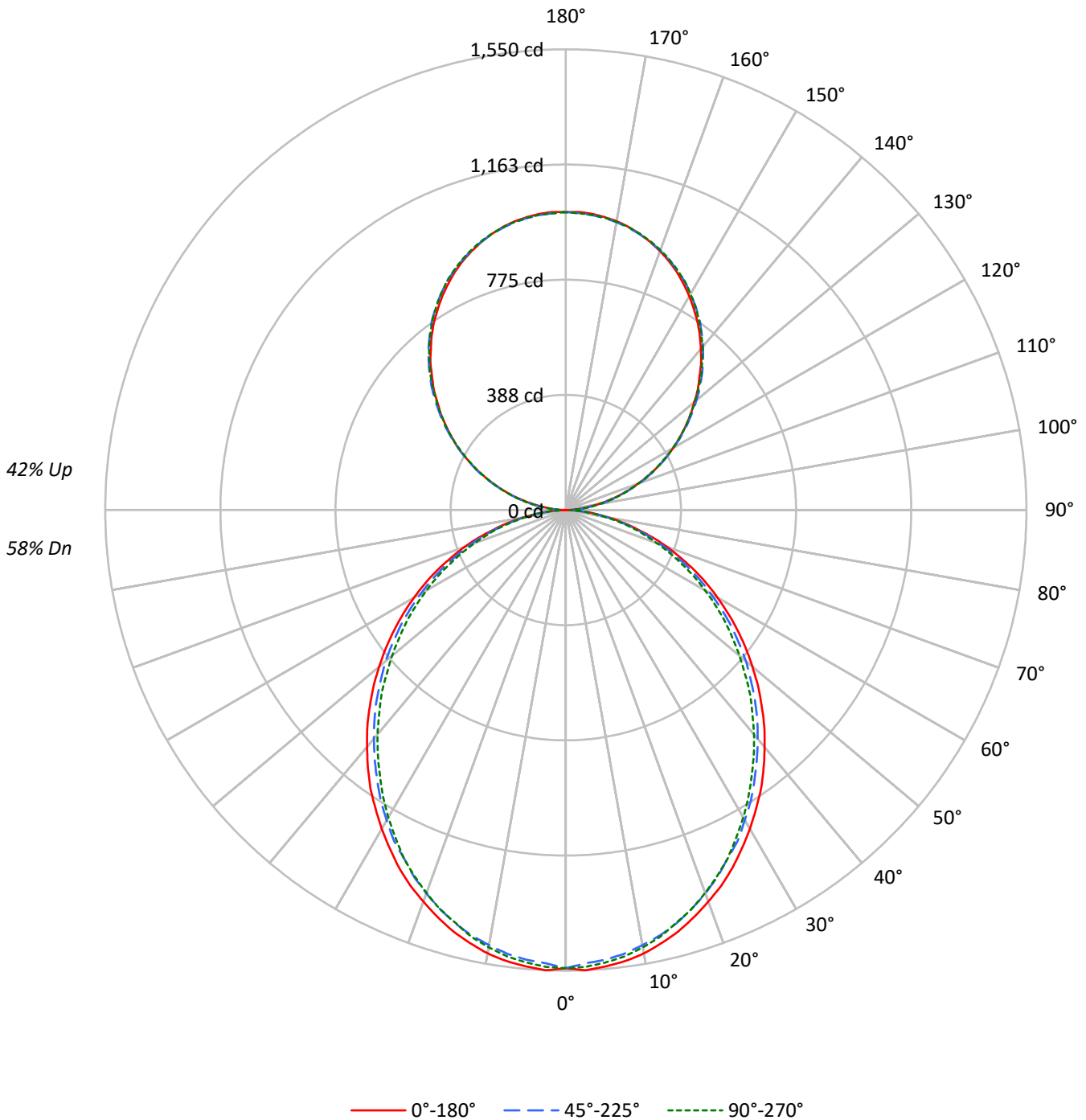
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6725.6 lumens
Efficiency: N/A
Efficacy: 87.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 76.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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 |
| RCR | | | | | | | | | | | | | | | | | | | | |
| 0 | 109 | 109 | 109 | 109 | 102 | 102 | 102 | 102 | 88 | 88 | 88 | 75 | 75 | 75 | 64 | 64 | 64 | 58 | | |
| 1 | 100 | 95 | 91 | 88 | 93 | 89 | 86 | 82 | 77 | 75 | 72 | 66 | 65 | 63 | 56 | 55 | 54 | 49 | | |
| 2 | 91 | 83 | 77 | 72 | 84 | 78 | 72 | 68 | 68 | 64 | 60 | 58 | 55 | 52 | 50 | 47 | 45 | 41 | | |
| 3 | 83 | 73 | 66 | 60 | 77 | 69 | 62 | 57 | 60 | 55 | 50 | 52 | 48 | 44 | 44 | 41 | 39 | 35 | | |
| 4 | 76 | 65 | 57 | 51 | 70 | 61 | 54 | 48 | 53 | 47 | 43 | 46 | 42 | 38 | 39 | 36 | 33 | 30 | | |
| 5 | 70 | 58 | 50 | 43 | 65 | 54 | 47 | 41 | 48 | 42 | 37 | 41 | 37 | 33 | 35 | 32 | 29 | 26 | | |
| 6 | 64 | 52 | 44 | 38 | 60 | 49 | 41 | 36 | 43 | 37 | 32 | 37 | 33 | 29 | 32 | 29 | 26 | 23 | | |
| 7 | 59 | 47 | 39 | 33 | 55 | 44 | 37 | 32 | 39 | 33 | 29 | 34 | 29 | 26 | 29 | 26 | 23 | 20 | | |
| 8 | 55 | 43 | 35 | 29 | 51 | 40 | 33 | 28 | 36 | 30 | 26 | 31 | 26 | 23 | 27 | 23 | 20 | 18 | | |
| 9 | 51 | 39 | 31 | 26 | 48 | 37 | 30 | 25 | 33 | 27 | 23 | 29 | 24 | 21 | 25 | 21 | 18 | 16 | | |
| 10 | 48 | 36 | 28 | 24 | 45 | 34 | 27 | 23 | 30 | 25 | 21 | 27 | 22 | 19 | 23 | 19 | 17 | 15 | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 3631 | 3631 | 3631 |
| 5° | 3631 | 3572 | 3598 |
| 10° | 3596 | 3515 | 3543 |
| 15° | 3537 | 3449 | 3460 |
| 20° | 3460 | 3360 | 3376 |
| 25° | 3383 | 3255 | 3279 |
| 30° | 3288 | 3157 | 3158 |
| 35° | 3198 | 3043 | 3031 |
| 40° | 3087 | 2927 | 2909 |
| 45° | 2977 | 2811 | 2783 |
| 50° | 2856 | 2688 | 2639 |
| 55° | 2728 | 2547 | 2505 |
| 60° | 2584 | 2380 | 2352 |
| 65° | 2426 | 2206 | 2171 |
| 70° | 2225 | 1995 | 1974 |
| 75° | 1949 | 1740 | 1784 |
| 80° | 1614 | 1417 | 1439 |
| 85° | 1096 | 889 | 891 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2977 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 145.1 | 2.2 |
| 10°-20° | 408.1 | 6.1 |
| 20°-30° | 599.8 | 8.9 |
| 30°-40° | 696.6 | 10.4 |
| 40°-50° | 695.8 | 10.3 |
| 50°-60° | 606.7 | 9.0 |
| 60°-70° | 448.5 | 6.7 |
| 70°-80° | 253.7 | 3.8 |
| 80°-90° | 69.8 | 1.0 |
| 90°-100° | 62.0 | 0.9 |
| 100°-110° | 197.0 | 2.9 |
| 110°-120° | 337.2 | 5.0 |
| 120°-130° | 443.5 | 6.6 |
| 130°-140° | 497.8 | 7.4 |
| 140°-150° | 488.1 | 7.3 |
| 150°-160° | 409.5 | 6.1 |
| 160°-170° | 271.5 | 4.0 |
| 170°-180° | 94.9 | 1.4 |
| 0°-30° | 1153.0 | 17.1 |
| 0°-40° | 1849.6 | 27.5 |
| 0°-60° | 3152.1 | 46.9 |
| 0°-90° | 3924.1 | 58.3 |
| 90°-120° | 596.2 | 8.9 |
| 90°-150° | 2025.6 | 30.1 |
| 90°-180° | 2801.0 | 41.6 |
| 0°-180° | 6725.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1541 | 1541 | 1541 | 1541 | 1541 | |
| 5° | 1541 | 1535 | 1519 | 1531 | 1528 | 146 |
| 15° | 1467 | 1458 | 1439 | 1445 | 1438 | 413 |
| 25° | 1328 | 1316 | 1291 | 1294 | 1291 | 611 |
| 35° | 1146 | 1131 | 1107 | 1098 | 1091 | 715 |
| 45° | 932 | 922 | 900 | 883 | 877 | 719 |
| 55° | 706 | 697 | 679 | 661 | 654 | 631 |
| 65° | 476 | 467 | 452 | 439 | 431 | 470 |
| 75° | 249 | 246 | 238 | 230 | 233 | 266 |
| 85° | 61 | 59 | 58 | 53 | 52 | 68 |
| 90° | 1 | 11 | 30 | 28 | 29 | 6 |
| 95° | 44 | 53 | 54 | 54 | 53 | 49 |
| 105° | 182 | 184 | 186 | 188 | 188 | 192 |
| 115° | 338 | 343 | 342 | 341 | 338 | 335 |
| 125° | 492 | 500 | 497 | 495 | 494 | 440 |
| 135° | 637 | 646 | 648 | 647 | 644 | 492 |
| 145° | 773 | 779 | 784 | 785 | 781 | 483 |
| 155° | 884 | 886 | 889 | 893 | 890 | 407 |
| 165° | 961 | 960 | 960 | 966 | 962 | 271 |
| 175° | 1000 | 998 | 996 | 1002 | 997 | 95 |
| 180° | 1002 | 1002 | 1002 | 1002 | 1002 | |



TEST NUMBER: P913398

CATALOG NUMBER: DFN2DIP-HX2F0-050D040US927-FLLFLL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1541.2 | 1541.2 | 1541.2 | 1541.2 | 1541.2 |
| 2.5° | 1550.1 | 1542.8 | 1526.5 | 1541.2 | 1538.4 |
| 5° | 1541.2 | 1535.4 | 1519.0 | 1530.8 | 1528.0 |
| 7.5° | 1530.8 | 1522.0 | 1505.7 | 1517.7 | 1514.7 |
| 10° | 1514.7 | 1504.3 | 1486.5 | 1498.3 | 1493.9 |
| 12.5° | 1492.3 | 1483.5 | 1465.8 | 1473.1 | 1470.1 |
| 15° | 1467.1 | 1458.3 | 1439.0 | 1445.0 | 1437.6 |
| 17.5° | 1436.0 | 1427.2 | 1407.9 | 1415.2 | 1407.9 |
| 20° | 1401.9 | 1393.1 | 1372.4 | 1376.7 | 1370.9 |
| 22.5° | 1367.9 | 1354.6 | 1335.2 | 1335.2 | 1332.2 |
| 25° | 1327.9 | 1316.1 | 1290.9 | 1293.7 | 1290.9 |
| 27.5° | 1283.3 | 1273.0 | 1253.8 | 1249.3 | 1242.0 |
| 30° | 1239.0 | 1227.1 | 1204.9 | 1200.5 | 1194.5 |
| 32.5° | 1191.5 | 1182.7 | 1159.0 | 1150.0 | 1144.1 |
| 35° | 1145.6 | 1130.8 | 1107.1 | 1098.1 | 1090.8 |
| 37.5° | 1093.7 | 1080.4 | 1056.6 | 1046.2 | 1038.9 |
| 40° | 1040.5 | 1028.5 | 1004.7 | 991.5 | 985.6 |
| 42.5° | 988.6 | 976.6 | 953.0 | 938.0 | 929.2 |
| 45° | 932.2 | 921.9 | 899.5 | 883.4 | 877.3 |
| 47.5° | 877.3 | 867.0 | 843.3 | 826.9 | 818.1 |
| 50° | 819.5 | 812.1 | 791.4 | 770.6 | 763.2 |
| 52.5° | 763.2 | 752.8 | 733.6 | 717.3 | 706.9 |
| 55° | 705.5 | 696.6 | 678.7 | 661.0 | 653.6 |
| 57.5° | 647.6 | 640.2 | 620.9 | 603.2 | 597.1 |
| 60° | 589.8 | 584.0 | 563.2 | 546.8 | 542.5 |
| 62.5° | 533.5 | 523.2 | 508.3 | 493.5 | 487.6 |
| 65° | 475.8 | 466.8 | 452.0 | 438.7 | 431.3 |
| 67.5° | 416.5 | 409.0 | 395.8 | 385.4 | 379.4 |
| 70° | 361.6 | 355.7 | 342.3 | 331.9 | 326.1 |
| 72.5° | 305.4 | 299.4 | 292.0 | 281.6 | 277.2 |
| 75° | 248.9 | 246.1 | 238.5 | 229.7 | 232.7 |
| 77.5° | 198.6 | 192.6 | 189.6 | 185.2 | 180.9 |
| 80° | 148.3 | 146.7 | 143.7 | 139.3 | 136.3 |
| 82.5° | 100.8 | 100.8 | 99.3 | 93.4 | 93.4 |
| 85° | 60.7 | 59.3 | 57.8 | 53.3 | 51.9 |
| 87.5° | 26.7 | 23.8 | 20.8 | 16.3 | 14.8 |
| 90° | 0.9 | 10.9 | 29.6 | 27.8 | 28.7 |
| 92.5° | 18.7 | 25.3 | 26.3 | 27.2 | 27.2 |
| 95° | 44.1 | 52.6 | 54.1 | 54.1 | 52.6 |
| 97.5° | 73.4 | 81.3 | 84.6 | 84.6 | 84.6 |
| 100° | 107.3 | 114.2 | 116.6 | 116.6 | 115.7 |
| 102.5° | 142.9 | 148.1 | 151.4 | 152.3 | 151.4 |
| 105° | 181.9 | 184.3 | 186.1 | 187.6 | 187.6 |
| 107.5° | 220.5 | 224.2 | 224.2 | 224.7 | 220.5 |
| 110° | 258.0 | 262.8 | 262.8 | 262.8 | 260.5 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 298.5 | 303.6 | 302.7 | 300.3 | 298.5 |
| 115° | 338.3 | 343.3 | 341.7 | 340.8 | 338.3 |
| 117.5° | 377.9 | 384.6 | 380.4 | 377.9 | 375.6 |
| 120° | 417.9 | 424.5 | 417.9 | 417.9 | 415.1 |
| 122.5° | 454.1 | 462.6 | 458.4 | 455.9 | 454.1 |
| 125° | 492.2 | 499.7 | 497.3 | 494.6 | 493.7 |
| 127.5° | 529.3 | 538.7 | 535.4 | 531.7 | 529.3 |
| 130° | 564.0 | 575.0 | 573.5 | 571.6 | 568.3 |
| 132.5° | 603.0 | 611.5 | 612.1 | 607.8 | 605.5 |
| 135° | 636.6 | 645.9 | 647.8 | 646.8 | 644.4 |
| 137.5° | 674.1 | 681.6 | 683.1 | 682.5 | 678.9 |
| 140° | 706.9 | 714.5 | 718.7 | 718.7 | 715.4 |
| 142.5° | 740.8 | 748.4 | 750.8 | 751.7 | 748.4 |
| 145° | 772.9 | 778.9 | 783.7 | 784.7 | 781.3 |
| 147.5° | 801.5 | 809.1 | 812.7 | 814.2 | 810.9 |
| 150° | 831.2 | 836.3 | 839.6 | 842.3 | 839.6 |
| 152.5° | 857.5 | 862.5 | 866.8 | 870.1 | 866.8 |
| 155° | 883.7 | 886.1 | 888.8 | 893.1 | 890.3 |
| 157.5° | 906.4 | 908.2 | 909.7 | 915.8 | 911.5 |
| 160° | 926.6 | 928.4 | 929.3 | 934.5 | 930.8 |
| 162.5° | 945.3 | 945.3 | 946.3 | 952.0 | 947.8 |
| 165° | 961.4 | 960.4 | 960.4 | 966.5 | 962.3 |
| 167.5° | 975.9 | 973.1 | 973.1 | 979.2 | 974.9 |
| 170° | 986.7 | 984.3 | 983.4 | 989.4 | 984.3 |
| 172.5° | 994.3 | 991.9 | 990.9 | 997.0 | 991.9 |
| 175° | 1000.4 | 997.9 | 996.1 | 1002.1 | 997.0 |
| 177.5° | 1003.7 | 1001.2 | 999.4 | 1004.6 | 999.4 |
| 180° | 1002.1 | 1002.1 | 1002.1 | 1002.1 | 1002.1 |



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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 | 12.35 | 13.29 | 13.23 | 14.20 | 15.34 | 11.93 | 12.87 | 12.81 | 13.77 | 14.92 |
| | 3H | 13.99 | 14.84 | 14.89 | 15.75 | 16.92 | 13.53 | 14.38 | 14.43 | 15.29 | 16.46 |
| | 4H | 14.57 | 15.37 | 15.48 | 16.28 | 17.47 | 14.11 | 14.91 | 15.02 | 15.82 | 17.01 |
| | 6H | 14.95 | 15.69 | 15.87 | 16.61 | 17.81 | 14.49 | 15.23 | 15.41 | 16.15 | 17.35 |
| | 8H | 15.05 | 15.75 | 15.98 | 16.69 | 17.89 | 14.59 | 15.29 | 15.52 | 16.23 | 17.43 |
| | 12H | 15.09 | 15.76 | 16.03 | 16.69 | 17.91 | 14.63 | 15.30 | 15.56 | 16.23 | 17.45 |
| 4H | 2H | 12.81 | 13.61 | 13.73 | 14.53 | 15.71 | 12.47 | 13.27 | 13.39 | 14.19 | 15.37 |
| | 3H | 14.66 | 15.32 | 15.58 | 16.27 | 17.47 | 14.27 | 14.94 | 15.20 | 15.89 | 17.09 |
| | 4H | 15.35 | 15.96 | 16.29 | 16.91 | 18.13 | 14.96 | 15.57 | 15.90 | 16.51 | 17.73 |
| | 6H | 15.85 | 16.38 | 16.80 | 17.34 | 18.57 | 15.46 | 15.98 | 16.40 | 16.95 | 18.17 |
| | 8H | 15.99 | 16.48 | 16.94 | 17.44 | 18.68 | 15.59 | 16.08 | 16.54 | 17.05 | 18.28 |
| | 12H | 16.06 | 16.50 | 17.03 | 17.48 | 18.72 | 15.65 | 16.09 | 16.62 | 17.07 | 18.31 |
| 8H | 4H | 15.55 | 16.04 | 16.50 | 17.00 | 18.23 | 15.20 | 15.69 | 16.15 | 16.65 | 17.88 |
| | 6H | 16.15 | 16.56 | 17.13 | 17.56 | 18.80 | 15.80 | 16.21 | 16.78 | 17.21 | 18.44 |
| | 8H | 16.36 | 16.72 | 17.34 | 17.71 | 18.96 | 16.00 | 16.36 | 16.99 | 17.35 | 18.60 |
| | 12H | 16.48 | 16.79 | 17.47 | 17.78 | 19.08 | 16.11 | 16.42 | 17.10 | 17.41 | 18.71 |
| 12H | 4H | 15.53 | 15.98 | 16.50 | 16.95 | 18.20 | 15.19 | 15.63 | 16.16 | 16.61 | 17.85 |
| | 6H | 16.18 | 16.54 | 17.16 | 17.53 | 18.78 | 15.84 | 16.20 | 16.82 | 17.19 | 18.44 |
| | 8H | 16.40 | 16.72 | 17.39 | 17.71 | 19.01 | 16.06 | 16.38 | 17.05 | 17.36 | 18.66 |