

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: P921264

Luminaire Tested: DFN2DIP-4P2F0-040D030US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921264
REPORT IS A COMBINATION OF REPORTS P899022 AND P895899
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-040D030US940-RLLFLL
Description: 2 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

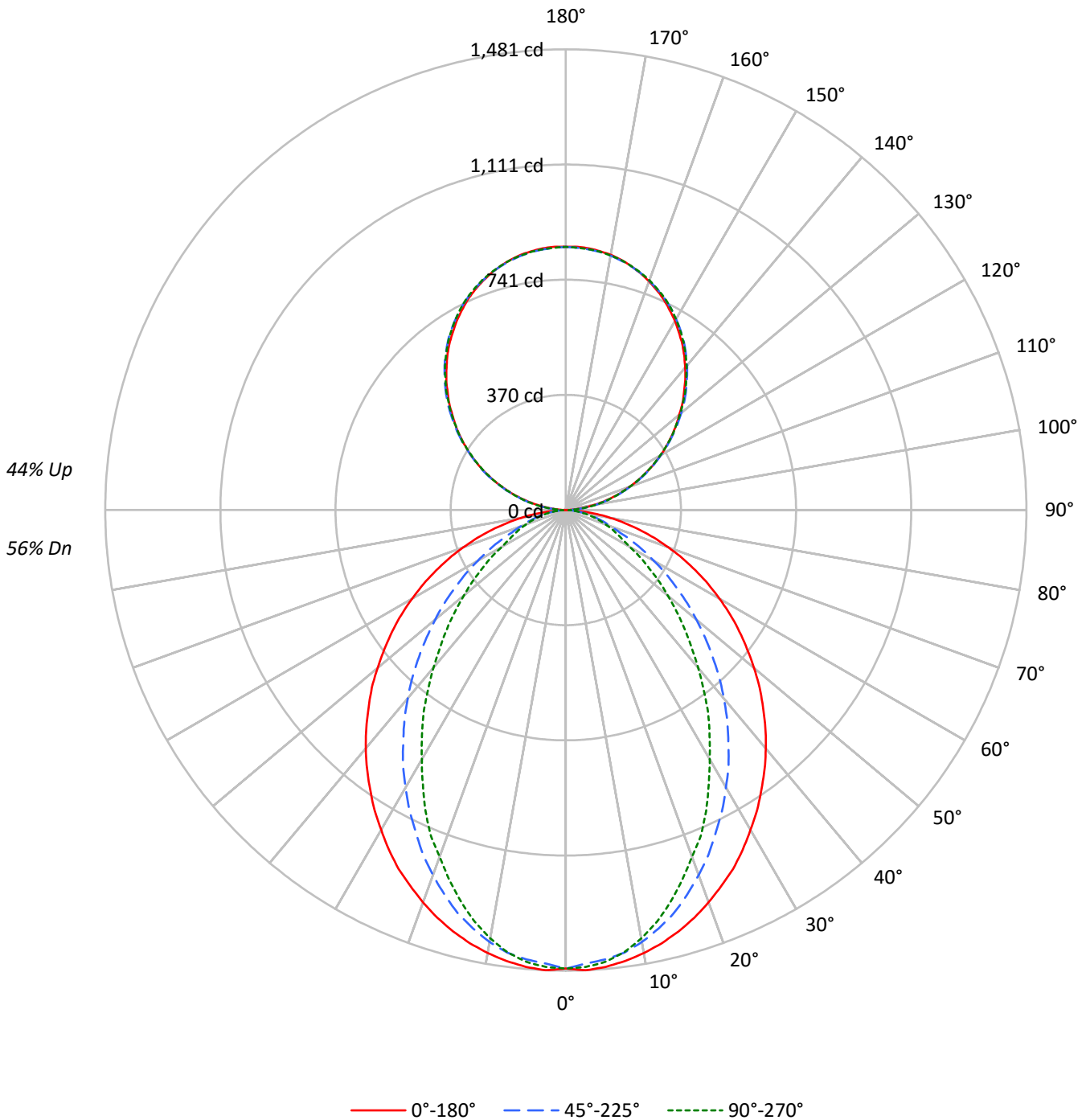
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5399.3 lumens
Efficiency: N/A
Efficacy: 84.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 63.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P921264
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Luminous Intensity Polar Plot





TEST NUMBER: P921264

CATALOG NUMBER: DFN2DIP-4P2F0-040D030US940-RLLFLL

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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | | | | |
| 0 | 109 | 109 | 109 | 109 | 101 | 101 | 101 | 101 | 87 | 87 | 87 | 74 | 74 | 74 | 62 | 62 | 62 | 56 | 56 | 56 | 56 |
| 1 | 100 | 96 | 92 | 88 | 93 | 89 | 86 | 83 | 77 | 75 | 72 | 66 | 64 | 63 | 55 | 54 | 53 | 48 | 48 | 48 | 48 |
| 2 | 91 | 84 | 78 | 73 | 85 | 79 | 73 | 69 | 68 | 64 | 61 | 58 | 56 | 53 | 49 | 47 | 46 | 41 | 41 | 41 | 41 |
| 3 | 84 | 74 | 67 | 62 | 78 | 70 | 63 | 58 | 61 | 56 | 52 | 52 | 49 | 46 | 44 | 42 | 40 | 36 | 36 | 36 | 36 |
| 4 | 77 | 66 | 59 | 53 | 71 | 62 | 55 | 50 | 54 | 49 | 45 | 47 | 43 | 40 | 40 | 37 | 35 | 31 | 31 | 31 | 31 |
| 5 | 71 | 59 | 51 | 46 | 66 | 56 | 49 | 43 | 49 | 43 | 39 | 42 | 38 | 35 | 36 | 33 | 30 | 27 | 27 | 27 | 27 |
| 6 | 65 | 53 | 46 | 40 | 61 | 50 | 43 | 38 | 44 | 38 | 34 | 38 | 34 | 31 | 33 | 30 | 27 | 24 | 24 | 24 | 24 |
| 7 | 61 | 48 | 41 | 35 | 56 | 46 | 39 | 34 | 40 | 35 | 30 | 35 | 31 | 27 | 30 | 27 | 24 | 22 | 22 | 22 | 22 |
| 8 | 56 | 44 | 37 | 31 | 52 | 42 | 35 | 30 | 37 | 31 | 27 | 32 | 28 | 25 | 28 | 25 | 22 | 20 | 20 | 20 | 20 |
| 9 | 53 | 41 | 33 | 28 | 49 | 38 | 32 | 27 | 34 | 28 | 25 | 30 | 25 | 22 | 26 | 23 | 20 | 18 | 18 | 18 | 18 |
| 10 | 49 | 37 | 30 | 25 | 46 | 35 | 29 | 24 | 31 | 26 | 22 | 28 | 23 | 20 | 24 | 21 | 18 | 16 | 16 | 16 | 16 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 3691 | 3691 | 3691 |
| 5° | 3690 | 3623 | 3650 |
| 10° | 3646 | 3543 | 3525 |
| 15° | 3588 | 3417 | 3336 |
| 20° | 3515 | 3247 | 3106 |
| 25° | 3439 | 3058 | 2884 |
| 30° | 3340 | 2865 | 2605 |
| 35° | 3243 | 2658 | 2359 |
| 40° | 3143 | 2446 | 2079 |
| 45° | 3029 | 2211 | 1825 |
| 50° | 2909 | 1975 | 1578 |
| 55° | 2784 | 1724 | 1340 |
| 60° | 2639 | 1464 | 1098 |
| 65° | 2472 | 1200 | 981 |
| 70° | 2268 | 954 | 879 |
| 75° | 2012 | 823 | 788 |
| 80° | 1645 | 664 | 666 |
| 85° | 1061 | 408 | 469 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3029 cd/sqm



TEST NUMBER: P921264

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 138.2 | 2.6 |
| 10°-20° | 379.3 | 7.0 |
| 20°-30° | 532.5 | 9.9 |
| 30°-40° | 580.5 | 10.8 |
| 40°-50° | 533.5 | 9.9 |
| 50°-60° | 419.0 | 7.8 |
| 60°-70° | 272.7 | 5.1 |
| 70°-80° | 140.4 | 2.6 |
| 80°-90° | 38.2 | 0.7 |
| 90°-100° | 52.3 | 1.0 |
| 100°-110° | 166.3 | 3.1 |
| 110°-120° | 284.7 | 5.3 |
| 120°-130° | 374.4 | 6.9 |
| 130°-140° | 420.2 | 7.8 |
| 140°-150° | 412.1 | 7.6 |
| 150°-160° | 345.7 | 6.4 |
| 160°-170° | 229.2 | 4.2 |
| 170°-180° | 80.1 | 1.5 |
| 0°-30° | 1049.9 | 19.4 |
| 0°-40° | 1630.4 | 30.2 |
| 0°-60° | 2582.9 | 47.8 |
| 0°-90° | 3034.2 | 56.2 |
| 90°-120° | 503.4 | 9.3 |
| 90°-150° | 1710.0 | 31.7 |
| 90°-180° | 2365.0 | 43.8 |
| 0°-180° | 5399.3 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1474 | 1474 | 1474 | 1474 | 1474 | |
| 5° | 1474 | 1468 | 1450 | 1462 | 1458 | 140 |
| 15° | 1402 | 1387 | 1342 | 1317 | 1304 | 395 |
| 25° | 1273 | 1230 | 1142 | 1087 | 1067 | 585 |
| 35° | 1097 | 1029 | 911 | 827 | 798 | 686 |
| 45° | 896 | 807 | 667 | 572 | 540 | 692 |
| 55° | 682 | 578 | 434 | 354 | 328 | 609 |
| 65° | 460 | 352 | 232 | 187 | 183 | 456 |
| 75° | 245 | 152 | 107 | 97 | 96 | 260 |
| 85° | 57 | 29 | 25 | 25 | 25 | 66 |
| 90° | 1 | 9 | 25 | 24 | 24 | 5 |
| 95° | 37 | 44 | 46 | 46 | 44 | 41 |
| 105° | 154 | 156 | 157 | 158 | 158 | 162 |
| 115° | 286 | 290 | 288 | 288 | 286 | 283 |
| 125° | 416 | 422 | 420 | 418 | 417 | 371 |
| 135° | 537 | 545 | 547 | 546 | 544 | 415 |
| 145° | 652 | 658 | 662 | 662 | 660 | 408 |
| 155° | 746 | 748 | 750 | 754 | 752 | 343 |
| 165° | 812 | 811 | 811 | 816 | 812 | 229 |
| 175° | 844 | 842 | 841 | 846 | 842 | 80 |
| 180° | 846 | 846 | 846 | 846 | 846 | |



TEST NUMBER: P921264

CATALOG NUMBER: DFN2DIP-4P2F0-040D030US940-RLLFLL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1474.2 | 1474.2 | 1474.2 | 1474.2 | 1474.2 |
| 2.5° | 1480.9 | 1474.2 | 1459.5 | 1472.9 | 1470.2 |
| 5° | 1474.2 | 1467.5 | 1450.1 | 1462.1 | 1458.2 |
| 7.5° | 1462.1 | 1454.2 | 1435.6 | 1440.7 | 1434.1 |
| 10° | 1446.2 | 1436.8 | 1410.2 | 1406.0 | 1398.2 |
| 12.5° | 1426.2 | 1414.2 | 1378.0 | 1370.1 | 1355.4 |
| 15° | 1402.1 | 1387.4 | 1342.1 | 1316.8 | 1303.5 |
| 17.5° | 1374.1 | 1352.7 | 1296.6 | 1267.4 | 1246.0 |
| 20° | 1342.1 | 1315.4 | 1248.7 | 1215.4 | 1186.0 |
| 22.5° | 1307.4 | 1276.8 | 1199.3 | 1154.0 | 1134.1 |
| 25° | 1272.7 | 1230.0 | 1141.9 | 1087.4 | 1067.2 |
| 27.5° | 1231.5 | 1186.0 | 1088.6 | 1025.9 | 995.1 |
| 30° | 1187.4 | 1136.6 | 1029.8 | 961.9 | 925.9 |
| 32.5° | 1144.7 | 1083.2 | 973.9 | 893.9 | 860.4 |
| 35° | 1096.7 | 1028.6 | 911.2 | 827.2 | 797.7 |
| 37.5° | 1050.0 | 976.5 | 852.5 | 760.4 | 727.1 |
| 40° | 1000.6 | 920.6 | 791.1 | 696.4 | 661.7 |
| 42.5° | 949.8 | 864.5 | 729.8 | 631.0 | 597.7 |
| 45° | 896.5 | 807.1 | 667.1 | 572.3 | 540.3 |
| 47.5° | 845.9 | 751.2 | 607.1 | 512.3 | 483.0 |
| 50° | 789.8 | 695.1 | 548.3 | 456.2 | 428.3 |
| 52.5° | 735.0 | 635.0 | 492.3 | 404.2 | 378.9 |
| 55° | 681.7 | 577.6 | 433.5 | 353.6 | 328.2 |
| 57.5° | 627.1 | 520.3 | 381.6 | 306.8 | 285.5 |
| 60° | 571.0 | 464.2 | 326.8 | 258.9 | 237.6 |
| 62.5° | 516.4 | 409.7 | 280.1 | 216.2 | 205.5 |
| 65° | 460.3 | 352.1 | 232.1 | 186.8 | 182.7 |
| 67.5° | 407.0 | 298.8 | 186.8 | 164.1 | 160.1 |
| 70° | 350.9 | 246.8 | 154.7 | 141.4 | 136.0 |
| 72.5° | 297.6 | 198.8 | 129.4 | 118.8 | 116.1 |
| 75° | 245.4 | 152.0 | 106.7 | 97.4 | 96.1 |
| 77.5° | 193.5 | 108.0 | 84.1 | 78.7 | 76.0 |
| 80° | 145.3 | 77.4 | 63.9 | 58.8 | 58.8 |
| 82.5° | 101.4 | 52.1 | 44.1 | 41.3 | 41.3 |
| 85° | 57.3 | 29.3 | 25.3 | 25.3 | 25.3 |
| 87.5° | 21.4 | 10.6 | 10.6 | 9.4 | 9.4 |
| 90° | 0.8 | 9.2 | 25.0 | 23.5 | 24.3 |
| 92.5° | 15.8 | 21.4 | 22.2 | 22.9 | 22.9 |
| 95° | 37.3 | 44.4 | 45.7 | 45.7 | 44.4 |
| 97.5° | 62.0 | 68.6 | 71.4 | 71.4 | 71.4 |
| 100° | 90.5 | 96.4 | 98.4 | 98.4 | 97.7 |
| 102.5° | 120.6 | 125.0 | 127.8 | 128.6 | 127.8 |
| 105° | 153.6 | 155.6 | 157.1 | 158.4 | 158.4 |
| 107.5° | 186.2 | 189.2 | 189.2 | 189.8 | 186.2 |
| 110° | 217.8 | 221.9 | 221.9 | 221.9 | 219.9 |



TEST NUMBER: P921264

CATALOG NUMBER: DFN2DIP-4P2F0-040D030US940-RLLFLL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 112.5° | 252.0 | 256.4 | 255.6 | 253.5 | 252.0 |
| 115° | 285.7 | 289.7 | 288.5 | 287.8 | 285.7 |
| 117.5° | 319.1 | 324.7 | 321.1 | 319.1 | 317.0 |
| 120° | 352.8 | 358.4 | 352.8 | 352.8 | 350.4 |
| 122.5° | 383.3 | 390.5 | 386.9 | 384.9 | 383.3 |
| 125° | 415.5 | 421.9 | 419.8 | 417.5 | 416.8 |
| 127.5° | 446.8 | 454.8 | 452.0 | 448.9 | 446.8 |
| 130° | 476.2 | 485.4 | 484.1 | 482.6 | 479.7 |
| 132.5° | 509.1 | 516.2 | 516.7 | 513.2 | 511.1 |
| 135° | 537.4 | 545.3 | 546.9 | 546.1 | 544.0 |
| 137.5° | 569.0 | 575.4 | 576.7 | 576.2 | 573.1 |
| 140° | 596.8 | 603.2 | 606.8 | 606.8 | 604.0 |
| 142.5° | 625.4 | 631.8 | 633.8 | 634.6 | 631.8 |
| 145° | 652.5 | 657.5 | 661.6 | 662.4 | 659.6 |
| 147.5° | 676.7 | 683.1 | 686.1 | 687.4 | 684.6 |
| 150° | 701.7 | 706.1 | 708.8 | 711.1 | 708.8 |
| 152.5° | 723.9 | 728.2 | 731.7 | 734.6 | 731.7 |
| 155° | 746.1 | 748.1 | 750.4 | 753.9 | 751.7 |
| 157.5° | 765.2 | 766.7 | 768.0 | 773.1 | 769.5 |
| 160° | 782.3 | 783.8 | 784.6 | 788.9 | 785.9 |
| 162.5° | 798.1 | 798.1 | 798.9 | 803.7 | 800.1 |
| 165° | 811.6 | 810.8 | 810.8 | 815.9 | 812.3 |
| 167.5° | 823.9 | 821.5 | 821.5 | 826.6 | 823.0 |
| 170° | 833.0 | 831.0 | 830.3 | 835.4 | 831.0 |
| 172.5° | 839.4 | 837.4 | 836.6 | 841.7 | 837.4 |
| 175° | 844.5 | 842.5 | 841.0 | 846.1 | 841.7 |
| 177.5° | 847.3 | 845.3 | 843.7 | 848.1 | 843.7 |
| 180° | 846.1 | 846.1 | 846.1 | 846.1 | 846.1 |



TEST NUMBER: P921264
 CATALOG NUMBER: DFN2DIP-4P2F0-040D030US940-RLFL

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 | 12.11 | 12.99 | 13.02 | 13.92 | 15.10 | 8.07 | 8.95 | 8.98 | 9.88 | 11.06 |
| | 3H | 13.77 | 14.56 | 14.69 | 15.49 | 16.70 | 9.24 | 10.03 | 10.16 | 10.96 | 12.17 |
| | 4H | 14.36 | 15.11 | 15.30 | 16.05 | 17.26 | 9.68 | 10.43 | 10.62 | 11.36 | 12.58 |
| | 6H | 14.77 | 15.46 | 15.72 | 16.40 | 17.63 | 9.98 | 10.67 | 10.93 | 11.62 | 12.84 |
| | 8H | 14.89 | 15.54 | 15.84 | 16.50 | 17.73 | 10.07 | 10.72 | 11.02 | 11.68 | 12.91 |
| | 12H | 14.94 | 15.56 | 15.90 | 16.52 | 17.77 | 10.10 | 10.72 | 11.06 | 11.68 | 12.93 |
| 4H | 2H | 12.13 | 12.87 | 13.07 | 13.81 | 15.03 | 8.66 | 9.40 | 9.60 | 10.34 | 11.56 |
| | 3H | 13.94 | 14.56 | 14.89 | 15.52 | 16.76 | 9.99 | 10.61 | 10.94 | 11.58 | 12.81 |
| | 4H | 14.61 | 15.18 | 15.57 | 16.14 | 17.40 | 10.52 | 11.09 | 11.48 | 12.05 | 13.31 |
| | 6H | 15.11 | 15.59 | 16.08 | 16.58 | 17.84 | 10.92 | 11.41 | 11.90 | 12.39 | 13.65 |
| | 8H | 15.27 | 15.73 | 16.25 | 16.71 | 17.97 | 11.04 | 11.49 | 12.02 | 12.47 | 13.74 |
| | 12H | 15.36 | 15.77 | 16.35 | 16.76 | 18.04 | 11.10 | 11.50 | 12.09 | 12.50 | 13.77 |
| 8H | 4H | 14.58 | 15.03 | 15.55 | 16.01 | 17.28 | 10.79 | 11.25 | 11.77 | 12.23 | 13.49 |
| | 6H | 15.12 | 15.50 | 16.12 | 16.52 | 17.79 | 11.28 | 11.66 | 12.29 | 12.68 | 13.95 |
| | 8H | 15.32 | 15.65 | 16.33 | 16.66 | 17.95 | 11.46 | 11.79 | 12.47 | 12.80 | 14.09 |
| | 12H | 15.45 | 15.74 | 16.46 | 16.74 | 18.07 | 11.56 | 11.86 | 12.58 | 12.86 | 14.19 |
| 12H | 4H | 14.53 | 14.94 | 15.53 | 15.94 | 17.21 | 10.80 | 11.20 | 11.79 | 12.20 | 13.48 |
| | 6H | 15.09 | 15.43 | 16.10 | 16.44 | 17.72 | 11.33 | 11.66 | 12.34 | 12.67 | 13.95 |
| | 8H | 15.30 | 15.59 | 16.31 | 16.60 | 17.93 | 11.52 | 11.81 | 12.53 | 12.82 | 14.15 |