

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: P912710

Luminaire Tested: DFN2DIP-TR3F0-090D050US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912710
REPORT IS A COMBINATION OF REPORTS P900312 AND P897195
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR3F0-090D050US850-RLLFLL
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

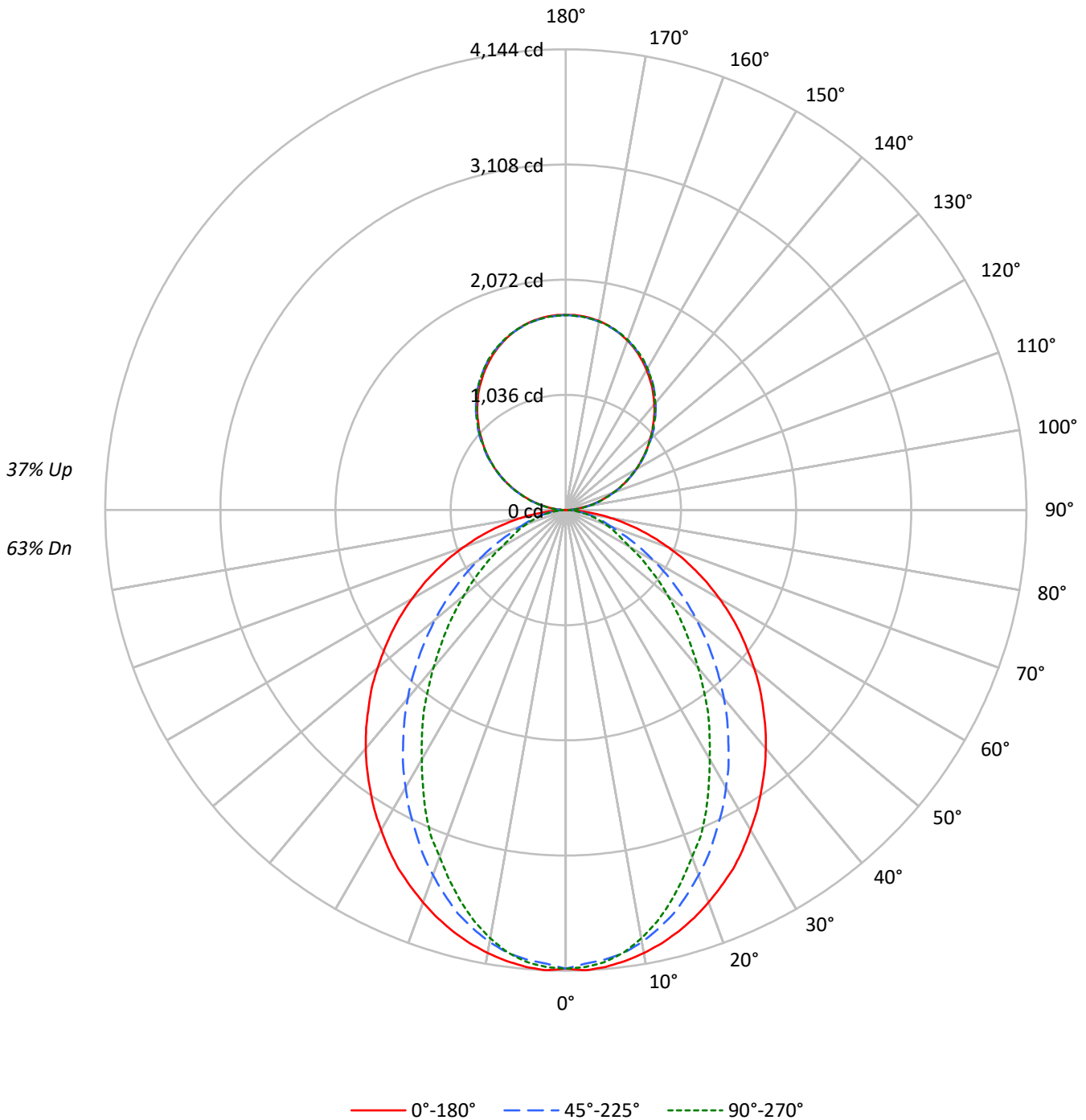
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13391.2 lumens
Efficiency: N/A
Efficacy: 101.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 132
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P912710
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Luminous Intensity Polar Plot





TEST NUMBER: P912710

CATALOG NUMBER: DFN2DIP-TR3F0-090D050US850-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 | 110 | 110 | 110 | 110 | 104 | 104 | 104 | 104 | 91 | 91 | 91 | 79 | 79 | 79 | 68 | 68 | 68 | 68 | 68 | 68 | 63 |
| 1 | 101 | 97 | 93 | 90 | 95 | 91 | 88 | 85 | 81 | 78 | 76 | 71 | 69 | 67 | 61 | 60 | 59 | 59 | 59 | 59 | 55 |
| 2 | 93 | 86 | 80 | 75 | 87 | 81 | 75 | 71 | 71 | 67 | 64 | 63 | 60 | 57 | 55 | 53 | 51 | 51 | 51 | 51 | 47 |
| 3 | 85 | 76 | 69 | 63 | 80 | 72 | 65 | 60 | 64 | 59 | 54 | 56 | 52 | 49 | 49 | 46 | 44 | 44 | 44 | 44 | 40 |
| 4 | 78 | 68 | 60 | 54 | 73 | 64 | 57 | 52 | 57 | 51 | 47 | 50 | 46 | 43 | 44 | 41 | 38 | 38 | 38 | 38 | 35 |
| 5 | 72 | 61 | 53 | 47 | 68 | 57 | 50 | 45 | 51 | 45 | 41 | 46 | 41 | 37 | 40 | 37 | 34 | 34 | 34 | 34 | 31 |
| 6 | 67 | 55 | 47 | 41 | 62 | 52 | 45 | 39 | 47 | 41 | 36 | 41 | 37 | 33 | 37 | 33 | 30 | 30 | 30 | 30 | 27 |
| 7 | 62 | 50 | 42 | 36 | 58 | 47 | 40 | 35 | 42 | 37 | 32 | 38 | 33 | 30 | 34 | 30 | 27 | 27 | 27 | 27 | 25 |
| 8 | 58 | 45 | 38 | 32 | 54 | 43 | 36 | 31 | 39 | 33 | 29 | 35 | 30 | 27 | 31 | 27 | 24 | 24 | 24 | 24 | 22 |
| 9 | 54 | 42 | 34 | 29 | 51 | 40 | 33 | 28 | 36 | 30 | 26 | 32 | 28 | 24 | 29 | 25 | 22 | 22 | 22 | 22 | 20 |
| 10 | 50 | 38 | 31 | 26 | 47 | 37 | 30 | 25 | 33 | 28 | 24 | 30 | 25 | 22 | 27 | 23 | 20 | 20 | 20 | 20 | 18 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 5140 | 5140 | 5140 |
| 5° | 5146 | 5054 | 5088 |
| 10° | 5092 | 4951 | 4919 |
| 15° | 5019 | 4783 | 4660 |
| 20° | 4923 | 4553 | 4343 |
| 25° | 4826 | 4297 | 4037 |
| 30° | 4695 | 4034 | 3651 |
| 35° | 4567 | 3752 | 3311 |
| 40° | 4437 | 3461 | 2922 |
| 45° | 4285 | 3138 | 2570 |
| 50° | 4129 | 2813 | 2226 |
| 55° | 3965 | 2466 | 1896 |
| 60° | 3775 | 2104 | 1558 |
| 65° | 3556 | 1736 | 1398 |
| 70° | 3291 | 1393 | 1260 |
| 75° | 2957 | 1219 | 1139 |
| 80° | 2475 | 1009 | 977 |
| 85° | 1684 | 653 | 715 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4285 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 386.6 | 2.9 |
| 10°-20° | 1061.3 | 7.9 |
| 20°-30° | 1490.1 | 11.1 |
| 30°-40° | 1624.3 | 12.1 |
| 40°-50° | 1492.9 | 11.1 |
| 50°-60° | 1172.4 | 8.8 |
| 60°-70° | 763.1 | 5.7 |
| 70°-80° | 392.8 | 2.9 |
| 80°-90° | 105.3 | 0.8 |
| 90°-100° | 108.5 | 0.8 |
| 100°-110° | 344.8 | 2.6 |
| 110°-120° | 590.1 | 4.4 |
| 120°-130° | 776.0 | 5.8 |
| 130°-140° | 871.0 | 6.5 |
| 140°-150° | 854.2 | 6.4 |
| 150°-160° | 716.5 | 5.4 |
| 160°-170° | 475.2 | 3.5 |
| 170°-180° | 166.1 | 1.2 |
| 0°-30° | 2938.0 | 21.9 |
| 0°-40° | 4562.3 | 34.1 |
| 0°-60° | 7227.6 | 54.0 |
| 0°-90° | 8488.9 | 63.4 |
| 90°-120° | 1043.4 | 7.8 |
| 90°-150° | 3544.6 | 26.5 |
| 90°-180° | 4902.0 | 36.6 |
| 0°-180° | 13391.2 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 4125 | 4125 | 4125 | 4125 | 4125 | |
| 5° | 4125 | 4106 | 4058 | 4091 | 4080 | 391 |
| 15° | 3924 | 3882 | 3756 | 3685 | 3648 | 1106 |
| 25° | 3562 | 3442 | 3196 | 3043 | 2986 | 1638 |
| 35° | 3069 | 2878 | 2550 | 2315 | 2232 | 1921 |
| 45° | 2509 | 2258 | 1867 | 1601 | 1512 | 1937 |
| 55° | 1908 | 1616 | 1213 | 989 | 918 | 1705 |
| 65° | 1288 | 986 | 650 | 523 | 511 | 1277 |
| 75° | 687 | 425 | 299 | 272 | 269 | 726 |
| 85° | 160 | 82 | 71 | 71 | 71 | 184 |
| 90° | 2 | 19 | 52 | 49 | 50 | 13 |
| 95° | 77 | 92 | 95 | 95 | 92 | 86 |
| 105° | 318 | 322 | 326 | 328 | 328 | 336 |
| 115° | 592 | 601 | 598 | 596 | 592 | 586 |
| 125° | 861 | 874 | 870 | 866 | 864 | 770 |
| 135° | 1114 | 1130 | 1134 | 1132 | 1128 | 861 |
| 145° | 1352 | 1363 | 1371 | 1373 | 1367 | 845 |
| 155° | 1546 | 1551 | 1555 | 1563 | 1558 | 712 |
| 165° | 1682 | 1681 | 1681 | 1691 | 1684 | 475 |
| 175° | 1751 | 1746 | 1743 | 1754 | 1745 | 166 |
| 180° | 1754 | 1754 | 1754 | 1754 | 1754 | |



TEST NUMBER: P912710

CATALOG NUMBER: DFN2DIP-TR3F0-090D050US850-RLLFLL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 4125.1 | 4125.1 | 4125.1 | 4125.1 | 4125.1 |
| 2.5° | 4143.8 | 4125.1 | 4083.9 | 4121.6 | 4114.1 |
| 5° | 4125.1 | 4106.5 | 4057.8 | 4091.4 | 4080.3 |
| 7.5° | 4091.4 | 4069.3 | 4017.0 | 4031.7 | 4013.0 |
| 10° | 4046.7 | 4020.6 | 3946.2 | 3934.6 | 3912.4 |
| 12.5° | 3990.8 | 3957.2 | 3856.2 | 3834.0 | 3792.8 |
| 15° | 3923.5 | 3882.4 | 3755.6 | 3684.7 | 3647.5 |
| 17.5° | 3845.1 | 3785.3 | 3628.4 | 3546.5 | 3486.7 |
| 20° | 3755.6 | 3680.8 | 3494.1 | 3401.1 | 3318.7 |
| 22.5° | 3658.6 | 3572.6 | 3355.9 | 3229.2 | 3173.4 |
| 25° | 3561.6 | 3441.9 | 3195.6 | 3042.7 | 2986.4 |
| 27.5° | 3445.9 | 3318.7 | 3046.2 | 2870.8 | 2784.8 |
| 30° | 3322.7 | 3180.5 | 2881.8 | 2691.8 | 2590.7 |
| 32.5° | 3203.0 | 3031.1 | 2725.4 | 2501.2 | 2407.7 |
| 35° | 3068.8 | 2878.3 | 2549.9 | 2314.7 | 2232.3 |
| 37.5° | 2938.1 | 2732.6 | 2385.6 | 2127.7 | 2034.7 |
| 40° | 2799.9 | 2576.1 | 2213.7 | 1948.7 | 1851.7 |
| 42.5° | 2658.1 | 2419.3 | 2042.1 | 1765.7 | 1672.6 |
| 45° | 2508.8 | 2258.5 | 1866.7 | 1601.3 | 1511.8 |
| 47.5° | 2366.9 | 2102.0 | 1698.8 | 1433.4 | 1351.4 |
| 50° | 2210.1 | 1945.1 | 1534.4 | 1276.6 | 1198.5 |
| 52.5° | 2056.9 | 1776.8 | 1377.6 | 1131.2 | 1060.3 |
| 55° | 1907.5 | 1616.4 | 1213.1 | 989.4 | 918.5 |
| 57.5° | 1754.7 | 1456.0 | 1067.9 | 858.7 | 798.9 |
| 60° | 1597.7 | 1299.1 | 914.6 | 724.4 | 664.6 |
| 62.5° | 1444.9 | 1146.3 | 783.8 | 604.8 | 575.1 |
| 65° | 1288.0 | 985.5 | 649.5 | 522.8 | 511.4 |
| 67.5° | 1138.7 | 836.1 | 522.8 | 459.0 | 447.9 |
| 70° | 981.9 | 690.8 | 433.0 | 395.7 | 380.6 |
| 72.5° | 832.5 | 556.1 | 362.0 | 332.3 | 324.8 |
| 75° | 686.8 | 425.4 | 298.7 | 272.5 | 268.9 |
| 77.5° | 541.4 | 302.2 | 235.2 | 220.2 | 212.7 |
| 80° | 406.8 | 216.7 | 179.0 | 164.4 | 164.4 |
| 82.5° | 283.6 | 145.7 | 123.2 | 115.7 | 115.7 |
| 85° | 160.4 | 82.0 | 70.9 | 70.9 | 70.9 |
| 87.5° | 59.8 | 29.7 | 29.7 | 26.2 | 26.2 |
| 90° | 1.6 | 19.1 | 51.8 | 48.7 | 50.2 |
| 92.5° | 32.8 | 44.4 | 46.0 | 47.6 | 47.6 |
| 95° | 77.2 | 92.0 | 94.6 | 94.6 | 92.0 |
| 97.5° | 128.4 | 142.2 | 148.1 | 148.1 | 148.1 |
| 100° | 187.6 | 199.8 | 204.1 | 204.1 | 202.5 |
| 102.5° | 250.1 | 259.1 | 264.8 | 266.5 | 264.8 |
| 105° | 318.3 | 322.5 | 325.7 | 328.3 | 328.3 |
| 107.5° | 385.9 | 392.3 | 392.3 | 393.4 | 385.9 |
| 110° | 451.5 | 460.0 | 460.0 | 460.0 | 455.7 |



TEST NUMBER: P912710

CATALOG NUMBER: DFN2DIP-TR3F0-090D050US850-RLLFLL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 522.3 | 531.3 | 529.8 | 525.6 | 522.3 |
| 115° | 592.1 | 600.6 | 598.0 | 596.4 | 592.1 |
| 117.5° | 661.4 | 673.1 | 665.6 | 661.4 | 657.2 |
| 120° | 731.2 | 742.8 | 731.2 | 731.2 | 726.4 |
| 122.5° | 794.6 | 809.5 | 802.0 | 797.8 | 794.6 |
| 125° | 861.2 | 874.4 | 870.2 | 865.5 | 863.9 |
| 127.5° | 926.2 | 942.6 | 936.9 | 930.5 | 926.2 |
| 130° | 987.1 | 1006.1 | 1003.4 | 1000.3 | 994.4 |
| 132.5° | 1055.3 | 1070.1 | 1071.2 | 1063.8 | 1059.5 |
| 135° | 1114.0 | 1130.3 | 1133.5 | 1132.0 | 1127.7 |
| 137.5° | 1179.5 | 1192.7 | 1195.4 | 1194.3 | 1188.0 |
| 140° | 1237.1 | 1250.4 | 1257.7 | 1257.7 | 1252.0 |
| 142.5° | 1296.3 | 1309.6 | 1313.8 | 1315.4 | 1309.6 |
| 145° | 1352.4 | 1363.0 | 1371.4 | 1373.1 | 1367.2 |
| 147.5° | 1402.7 | 1415.9 | 1422.2 | 1424.8 | 1419.0 |
| 150° | 1454.5 | 1463.4 | 1469.2 | 1474.0 | 1469.2 |
| 152.5° | 1500.5 | 1509.5 | 1516.8 | 1522.7 | 1516.8 |
| 155° | 1546.4 | 1550.6 | 1555.4 | 1562.8 | 1558.0 |
| 157.5° | 1586.1 | 1589.2 | 1591.9 | 1602.5 | 1595.1 |
| 160° | 1621.5 | 1624.7 | 1626.2 | 1635.2 | 1628.9 |
| 162.5° | 1654.3 | 1654.3 | 1655.8 | 1665.9 | 1658.5 |
| 165° | 1682.4 | 1680.7 | 1680.7 | 1691.3 | 1683.9 |
| 167.5° | 1707.6 | 1702.9 | 1702.9 | 1713.5 | 1706.1 |
| 170° | 1726.7 | 1722.5 | 1720.9 | 1731.5 | 1722.5 |
| 172.5° | 1739.9 | 1735.7 | 1734.1 | 1744.7 | 1735.7 |
| 175° | 1750.6 | 1746.2 | 1743.1 | 1753.7 | 1744.7 |
| 177.5° | 1756.3 | 1752.1 | 1748.9 | 1757.9 | 1748.9 |
| 180° | 1753.7 | 1753.7 | 1753.7 | 1753.7 | 1753.7 |



TEST NUMBER: P912710
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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 | 13.95 | 14.90 | 14.79 | 15.76 | 16.83 | 9.93 | 10.88 | 10.77 | 11.74 | 12.80 |
| | 3H | 15.63 | 16.48 | 16.48 | 17.35 | 18.44 | 11.12 | 11.97 | 11.97 | 12.84 | 13.93 |
| | 4H | 16.23 | 17.04 | 17.10 | 17.91 | 19.02 | 11.57 | 12.37 | 12.44 | 13.25 | 14.35 |
| | 6H | 16.65 | 17.39 | 17.54 | 18.28 | 19.40 | 11.89 | 12.63 | 12.77 | 13.51 | 14.63 |
| | 8H | 16.78 | 17.48 | 17.67 | 18.38 | 19.50 | 11.98 | 12.69 | 12.87 | 13.59 | 14.71 |
| | 12H | 16.84 | 17.51 | 17.74 | 18.40 | 19.55 | 12.03 | 12.70 | 12.92 | 13.59 | 14.74 |
| 4H | 2H | 13.98 | 14.78 | 14.85 | 15.66 | 16.77 | 10.53 | 11.33 | 11.40 | 12.21 | 13.32 |
| | 3H | 15.81 | 16.48 | 16.70 | 17.38 | 18.51 | 11.89 | 12.55 | 12.77 | 13.46 | 14.58 |
| | 4H | 16.50 | 17.11 | 17.40 | 18.01 | 19.16 | 12.43 | 13.04 | 13.33 | 13.94 | 15.09 |
| | 6H | 17.01 | 17.54 | 17.92 | 18.46 | 19.61 | 12.85 | 13.38 | 13.76 | 14.30 | 15.45 |
| | 8H | 17.19 | 17.67 | 18.10 | 18.59 | 19.76 | 12.98 | 13.47 | 13.90 | 14.39 | 15.55 |
| | 12H | 17.28 | 17.72 | 18.21 | 18.66 | 19.83 | 13.05 | 13.49 | 13.98 | 14.43 | 15.60 |
| 8H | 4H | 16.48 | 16.96 | 17.39 | 17.88 | 19.05 | 12.72 | 13.21 | 13.63 | 14.13 | 15.29 |
| | 6H | 17.04 | 17.44 | 17.98 | 18.40 | 19.56 | 13.23 | 13.64 | 14.17 | 14.60 | 15.76 |
| | 8H | 17.25 | 17.60 | 18.20 | 18.56 | 19.74 | 13.42 | 13.78 | 14.37 | 14.73 | 15.91 |
| | 12H | 17.38 | 17.70 | 18.34 | 18.64 | 19.88 | 13.54 | 13.85 | 14.49 | 14.80 | 16.03 |
| 12H | 4H | 16.43 | 16.87 | 17.37 | 17.81 | 18.98 | 12.73 | 13.17 | 13.66 | 14.10 | 15.27 |
| | 6H | 17.01 | 17.37 | 17.96 | 18.32 | 19.50 | 13.28 | 13.64 | 14.23 | 14.59 | 15.77 |
| | 8H | 17.23 | 17.55 | 18.18 | 18.49 | 19.72 | 13.49 | 13.80 | 14.44 | 14.75 | 15.98 |