

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: P921721

Luminaire Tested: DFN2DIP-HX3F0-070D050US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921721
REPORT IS A COMBINATION OF REPORTS P900758 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-070D050US940-RLONL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

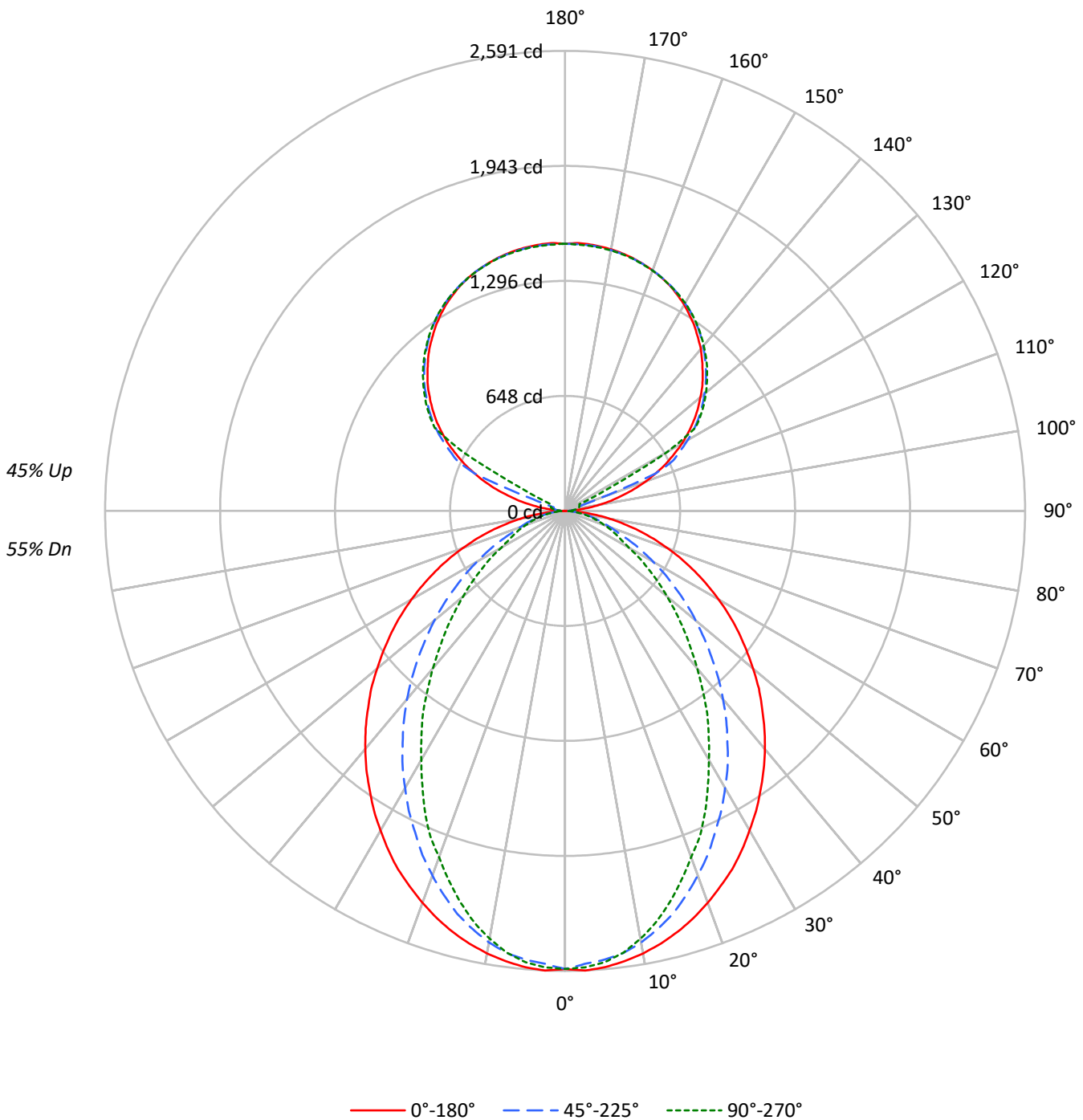
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9719.6 lumens
Efficiency: N/A
Efficacy: 91.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 105.8
Input Voltage (V):
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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 108 | 108 | 108 | 108 | 100 | 100 | 100 | 100 | 86 | 86 | 86 | 73 | 73 | 73 | 60 | 60 | 60 | 55 |
| 1 | 99 | 95 | 91 | 88 | 92 | 89 | 85 | 82 | 76 | 74 | 72 | 65 | 63 | 62 | 54 | 53 | 52 | 47 |
| 2 | 91 | 84 | 78 | 73 | 84 | 78 | 73 | 69 | 67 | 63 | 60 | 57 | 55 | 52 | 48 | 46 | 45 | 40 |
| 3 | 83 | 74 | 67 | 61 | 77 | 69 | 63 | 58 | 60 | 55 | 51 | 51 | 48 | 45 | 43 | 41 | 39 | 35 |
| 4 | 76 | 66 | 58 | 52 | 71 | 62 | 55 | 50 | 54 | 48 | 44 | 46 | 42 | 39 | 39 | 36 | 34 | 30 |
| 5 | 70 | 59 | 51 | 45 | 65 | 55 | 48 | 43 | 48 | 43 | 38 | 42 | 37 | 34 | 35 | 32 | 30 | 27 |
| 6 | 65 | 53 | 45 | 40 | 60 | 50 | 43 | 38 | 44 | 38 | 34 | 38 | 33 | 30 | 32 | 29 | 26 | 24 |
| 7 | 60 | 48 | 40 | 35 | 56 | 45 | 38 | 33 | 40 | 34 | 30 | 35 | 30 | 27 | 30 | 26 | 24 | 21 |
| 8 | 56 | 44 | 36 | 31 | 52 | 41 | 34 | 30 | 36 | 31 | 27 | 32 | 27 | 24 | 27 | 24 | 21 | 19 |
| 9 | 52 | 40 | 33 | 28 | 49 | 38 | 31 | 27 | 34 | 28 | 24 | 29 | 25 | 22 | 25 | 22 | 19 | 17 |
| 10 | 49 | 37 | 30 | 25 | 46 | 35 | 28 | 24 | 31 | 26 | 22 | 27 | 23 | 20 | 24 | 20 | 18 | 16 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2988 | 2988 | 2988 |
| 5° | 2992 | 2939 | 2958 |
| 10° | 2961 | 2879 | 2860 |
| 15° | 2919 | 2782 | 2710 |
| 20° | 2863 | 2649 | 2526 |
| 25° | 2807 | 2500 | 2348 |
| 30° | 2731 | 2347 | 2124 |
| 35° | 2657 | 2184 | 1927 |
| 40° | 2582 | 2015 | 1701 |
| 45° | 2494 | 1827 | 1496 |
| 50° | 2403 | 1638 | 1296 |
| 55° | 2308 | 1437 | 1104 |
| 60° | 2199 | 1226 | 907 |
| 65° | 2072 | 1013 | 815 |
| 70° | 1919 | 813 | 735 |
| 75° | 1726 | 712 | 665 |
| 80° | 1447 | 591 | 571 |
| 85° | 988 | 384 | 420 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2494 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 241.8 | 2.5 |
| 10°-20° | 663.7 | 6.8 |
| 20°-30° | 931.9 | 9.6 |
| 30°-40° | 1015.8 | 10.5 |
| 40°-50° | 933.6 | 9.6 |
| 50°-60° | 733.2 | 7.5 |
| 60°-70° | 477.3 | 4.9 |
| 70°-80° | 245.7 | 2.5 |
| 80°-90° | 65.3 | 0.7 |
| 90°-100° | 49.6 | 0.5 |
| 100°-110° | 185.0 | 1.9 |
| 110°-120° | 490.6 | 5.0 |
| 120°-130° | 813.6 | 8.4 |
| 130°-140° | 864.3 | 8.9 |
| 140°-150° | 803.2 | 8.3 |
| 150°-160° | 645.8 | 6.6 |
| 160°-170° | 416.1 | 4.3 |
| 170°-180° | 143.2 | 1.5 |
| 0°-30° | 1837.4 | 18.9 |
| 0°-40° | 2853.2 | 29.4 |
| 0°-60° | 4520.0 | 46.5 |
| 0°-90° | 5308.3 | 54.6 |
| 90°-120° | 725.2 | 7.5 |
| 90°-150° | 3206.2 | 33.0 |
| 90°-180° | 4411.0 | 45.4 |
| 0°-180° | 9719.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 2580 | 2580 | 2580 | 2580 | 2580 | |
| 5° | 2580 | 2568 | 2538 | 2559 | 2552 | 245 |
| 15° | 2454 | 2428 | 2349 | 2304 | 2281 | 691 |
| 25° | 2227 | 2152 | 1998 | 1903 | 1868 | 1024 |
| 35° | 1919 | 1800 | 1595 | 1448 | 1396 | 1201 |
| 45° | 1569 | 1412 | 1167 | 1002 | 946 | 1212 |
| 55° | 1193 | 1011 | 759 | 619 | 574 | 1066 |
| 65° | 806 | 616 | 406 | 327 | 320 | 799 |
| 75° | 430 | 266 | 187 | 170 | 168 | 454 |
| 85° | 100 | 51 | 44 | 44 | 44 | 115 |
| 90° | 1 | 13 | 22 | 27 | 29 | 9 |
| 95° | 71 | 35 | 42 | 48 | 47 | 84 |
| 105° | 331 | 364 | 66 | 78 | 83 | 354 |
| 115° | 626 | 644 | 672 | 168 | 89 | 616 |
| 125° | 885 | 899 | 920 | 928 | 931 | 789 |
| 135° | 1095 | 1113 | 1122 | 1134 | 1131 | 846 |
| 145° | 1271 | 1270 | 1288 | 1296 | 1290 | 795 |
| 155° | 1399 | 1389 | 1402 | 1409 | 1400 | 645 |
| 165° | 1474 | 1468 | 1471 | 1478 | 1471 | 416 |
| 175° | 1508 | 1500 | 1502 | 1510 | 1499 | 144 |
| 180° | 1505 | 1505 | 1505 | 1505 | 1505 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 2579.8 | 2579.8 | 2579.8 | 2579.8 | 2579.8 |
| 2.5° | 2591.4 | 2579.8 | 2554.0 | 2577.6 | 2572.9 |
| 5° | 2579.8 | 2568.1 | 2537.7 | 2558.8 | 2551.8 |
| 7.5° | 2558.8 | 2544.9 | 2512.2 | 2521.3 | 2509.7 |
| 10° | 2530.8 | 2514.4 | 2467.8 | 2460.7 | 2446.8 |
| 12.5° | 2495.8 | 2474.8 | 2411.6 | 2397.7 | 2371.9 |
| 15° | 2453.7 | 2427.9 | 2348.7 | 2304.4 | 2281.1 |
| 17.5° | 2404.7 | 2367.3 | 2269.2 | 2217.9 | 2180.5 |
| 20° | 2348.7 | 2301.9 | 2185.2 | 2127.0 | 2075.5 |
| 22.5° | 2288.0 | 2234.3 | 2098.7 | 2019.5 | 1984.6 |
| 25° | 2227.3 | 2152.5 | 1998.4 | 1902.8 | 1867.7 |
| 27.5° | 2155.0 | 2075.5 | 1905.1 | 1795.4 | 1741.6 |
| 30° | 2078.0 | 1989.0 | 1802.2 | 1683.4 | 1620.2 |
| 32.5° | 2003.1 | 1895.7 | 1704.4 | 1564.2 | 1505.7 |
| 35° | 1919.1 | 1800.0 | 1594.7 | 1447.6 | 1396.1 |
| 37.5° | 1837.5 | 1708.9 | 1491.9 | 1330.6 | 1272.5 |
| 40° | 1751.0 | 1611.1 | 1384.4 | 1218.7 | 1158.0 |
| 42.5° | 1662.3 | 1513.0 | 1277.1 | 1104.2 | 1046.1 |
| 45° | 1569.0 | 1412.4 | 1167.4 | 1001.5 | 945.5 |
| 47.5° | 1480.2 | 1314.6 | 1062.4 | 896.4 | 845.2 |
| 50° | 1382.2 | 1216.5 | 959.6 | 798.3 | 749.6 |
| 52.5° | 1286.3 | 1111.2 | 861.5 | 707.4 | 663.1 |
| 55° | 1192.9 | 1010.8 | 758.7 | 618.8 | 574.4 |
| 57.5° | 1097.3 | 910.5 | 667.8 | 537.0 | 499.6 |
| 60° | 999.3 | 812.4 | 571.9 | 453.1 | 415.6 |
| 62.5° | 903.6 | 716.8 | 490.2 | 378.3 | 359.6 |
| 65° | 805.5 | 616.3 | 406.3 | 327.0 | 319.8 |
| 67.5° | 712.1 | 522.9 | 327.0 | 287.0 | 280.2 |
| 70° | 614.0 | 431.9 | 270.7 | 247.4 | 238.0 |
| 72.5° | 520.7 | 347.8 | 226.4 | 207.9 | 203.1 |
| 75° | 429.5 | 266.0 | 186.7 | 170.4 | 168.2 |
| 77.5° | 338.6 | 189.0 | 147.1 | 137.7 | 133.0 |
| 80° | 254.4 | 135.5 | 112.0 | 102.8 | 102.8 |
| 82.5° | 177.4 | 91.1 | 77.0 | 72.3 | 72.3 |
| 85° | 100.3 | 51.3 | 44.3 | 44.3 | 44.3 |
| 87.5° | 37.4 | 18.5 | 18.5 | 16.3 | 16.3 |
| 90° | 1.1 | 13.0 | 21.8 | 27.3 | 29.3 |
| 92.5° | 27.3 | 22.9 | 26.1 | 28.4 | 29.3 |
| 95° | 70.7 | 34.8 | 42.4 | 48.0 | 46.8 |
| 97.5° | 127.3 | 38.2 | 55.5 | 58.9 | 59.8 |
| 100° | 192.8 | 43.6 | 62.1 | 70.7 | 72.9 |
| 102.5° | 264.6 | 262.4 | 64.3 | 76.2 | 79.5 |
| 105° | 331.0 | 363.7 | 66.4 | 78.4 | 82.8 |
| 107.5° | 408.3 | 435.4 | 68.7 | 80.5 | 85.0 |
| 110° | 482.4 | 505.2 | 190.6 | 81.7 | 86.0 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 552.1 | 571.6 | 553.1 | 83.8 | 87.1 |
| 115° | 626.1 | 644.5 | 671.8 | 167.7 | 89.3 |
| 117.5° | 690.3 | 712.0 | 730.7 | 574.8 | 289.6 |
| 120° | 762.1 | 778.5 | 798.1 | 811.2 | 664.1 |
| 122.5° | 823.0 | 840.5 | 862.4 | 868.9 | 870.0 |
| 125° | 885.1 | 899.4 | 920.1 | 927.6 | 930.9 |
| 127.5° | 941.7 | 957.0 | 973.5 | 984.3 | 985.3 |
| 130° | 995.1 | 1012.6 | 1024.5 | 1036.5 | 1035.5 |
| 132.5° | 1049.6 | 1063.8 | 1075.7 | 1085.6 | 1084.5 |
| 135° | 1095.4 | 1112.9 | 1122.5 | 1133.5 | 1131.3 |
| 137.5° | 1143.2 | 1156.3 | 1167.2 | 1178.1 | 1174.9 |
| 140° | 1190.0 | 1198.8 | 1210.7 | 1220.5 | 1215.1 |
| 142.5° | 1229.3 | 1237.0 | 1251.1 | 1259.7 | 1254.3 |
| 145° | 1270.7 | 1269.5 | 1288.0 | 1295.7 | 1290.2 |
| 147.5° | 1306.5 | 1303.2 | 1321.8 | 1327.2 | 1322.9 |
| 150° | 1341.4 | 1333.8 | 1351.2 | 1357.7 | 1352.3 |
| 152.5° | 1370.7 | 1362.1 | 1378.4 | 1385.0 | 1377.3 |
| 155° | 1399.1 | 1389.4 | 1402.4 | 1408.9 | 1400.3 |
| 157.5° | 1421.9 | 1413.3 | 1423.1 | 1430.7 | 1421.9 |
| 160° | 1441.6 | 1435.0 | 1441.6 | 1448.0 | 1440.5 |
| 162.5° | 1458.9 | 1452.5 | 1457.9 | 1465.5 | 1455.7 |
| 165° | 1474.2 | 1467.8 | 1471.0 | 1478.5 | 1471.0 |
| 167.5° | 1486.2 | 1479.6 | 1483.0 | 1490.6 | 1480.8 |
| 170° | 1496.0 | 1489.4 | 1491.7 | 1499.2 | 1489.4 |
| 172.5° | 1502.5 | 1496.0 | 1498.3 | 1505.8 | 1496.0 |
| 175° | 1508.0 | 1500.3 | 1502.5 | 1510.1 | 1499.2 |
| 177.5° | 1510.1 | 1502.5 | 1503.7 | 1511.3 | 1501.5 |
| 180° | 1504.7 | 1504.7 | 1504.7 | 1504.7 | 1504.7 |



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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 | 11.33 | 12.20 | 12.25 | 13.13 | 14.34 | 7.30 | 8.17 | 8.23 | 9.11 | 10.32 |
| | 3H | 13.00 | 13.78 | 13.94 | 14.72 | 15.95 | 8.49 | 9.27 | 9.43 | 10.21 | 11.45 |
| | 4H | 13.61 | 14.34 | 14.56 | 15.29 | 16.53 | 8.94 | 9.67 | 9.89 | 10.63 | 11.87 |
| | 6H | 14.02 | 14.70 | 14.98 | 15.66 | 16.91 | 9.26 | 9.94 | 10.22 | 10.89 | 12.14 |
| | 8H | 14.15 | 14.79 | 15.11 | 15.76 | 17.01 | 9.35 | 9.99 | 10.32 | 10.97 | 12.22 |
| | 12H | 14.21 | 14.82 | 15.18 | 15.78 | 17.06 | 9.39 | 10.00 | 10.36 | 10.97 | 12.24 |
| 4H | 2H | 11.35 | 12.08 | 12.31 | 13.03 | 14.27 | 7.90 | 8.63 | 8.86 | 9.59 | 10.83 |
| | 3H | 13.17 | 13.78 | 14.14 | 14.76 | 16.02 | 9.25 | 9.86 | 10.21 | 10.84 | 12.09 |
| | 4H | 13.86 | 14.42 | 14.84 | 15.39 | 16.67 | 9.79 | 10.35 | 10.77 | 11.33 | 12.60 |
| | 6H | 14.37 | 14.85 | 15.36 | 15.85 | 17.13 | 10.21 | 10.69 | 11.20 | 11.69 | 12.96 |
| | 8H | 14.54 | 14.99 | 15.53 | 15.98 | 17.27 | 10.34 | 10.78 | 11.33 | 11.78 | 13.07 |
| | 12H | 14.64 | 15.04 | 15.64 | 16.05 | 17.34 | 10.40 | 10.80 | 11.41 | 11.81 | 13.11 |
| 8H | 4H | 13.83 | 14.28 | 14.82 | 15.27 | 16.56 | 10.07 | 10.52 | 11.06 | 11.51 | 12.80 |
| | 6H | 14.39 | 14.76 | 15.40 | 15.79 | 17.08 | 10.59 | 10.95 | 11.60 | 11.99 | 13.28 |
| | 8H | 14.60 | 14.93 | 15.62 | 15.95 | 17.26 | 10.77 | 11.10 | 11.79 | 12.12 | 13.43 |
| | 12H | 14.74 | 15.02 | 15.76 | 16.04 | 17.39 | 10.89 | 11.18 | 11.91 | 12.19 | 13.54 |
| 12H | 4H | 13.78 | 14.19 | 14.79 | 15.20 | 16.49 | 10.08 | 10.48 | 11.08 | 11.49 | 12.78 |
| | 6H | 14.37 | 14.69 | 15.39 | 15.71 | 17.02 | 10.63 | 10.96 | 11.65 | 11.98 | 13.29 |
| | 8H | 14.58 | 14.87 | 15.61 | 15.88 | 17.24 | 10.84 | 11.13 | 11.86 | 12.14 | 13.49 |