

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: P922174

Luminaire Tested: DFN2DIP-PN3F0-070D070US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922174
REPORT IS A COMBINATION OF REPORTS P899576 AND P896399
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-070D070US940-RLLFLL
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

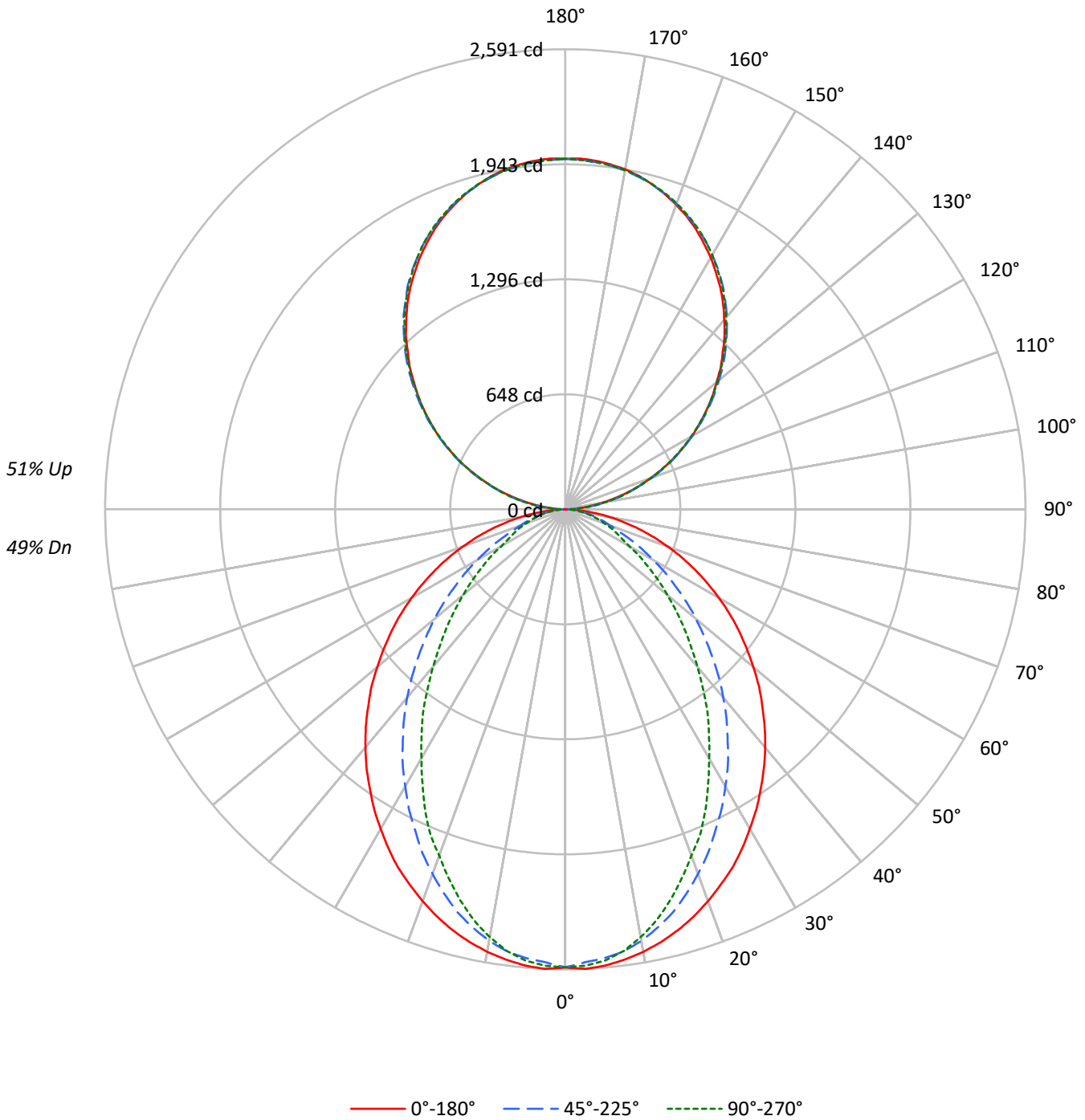
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10829.8 lumens
Efficiency: N/A
Efficacy: 87.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 123.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P922174
CATALOG NUMBER: DFN2DIP-PN3F0-070D070US940-RLLFLL

Luminous Intensity Polar Plot





TEST NUMBER: P922174

CATALOG NUMBER: DFN2DIP-PN3F0-070D070US940-RLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| RF | 20 | | | | 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 | 107 | 107 | 107 | 107 | 99 | 99 | 99 | 99 | 83 | 83 | 83 | 68 | 68 | 68 | 55 | 55 | 55 | 49 | | | | 49 |
| 1 | 98 | 94 | 90 | 87 | 90 | 87 | 84 | 81 | 73 | 71 | 69 | 61 | 59 | 58 | 50 | 49 | 48 | 42 | | | | 42 |
| 2 | 90 | 83 | 77 | 72 | 82 | 76 | 71 | 67 | 65 | 61 | 58 | 54 | 51 | 49 | 44 | 42 | 41 | 36 | | | | 36 |
| 3 | 82 | 73 | 66 | 60 | 75 | 68 | 61 | 57 | 58 | 53 | 49 | 48 | 45 | 42 | 40 | 37 | 35 | 31 | | | | 31 |
| 4 | 75 | 65 | 57 | 51 | 69 | 60 | 54 | 48 | 51 | 46 | 42 | 43 | 40 | 36 | 36 | 33 | 31 | 27 | | | | 27 |
| 5 | 69 | 58 | 50 | 44 | 64 | 54 | 47 | 42 | 46 | 41 | 37 | 39 | 35 | 32 | 32 | 29 | 27 | 24 | | | | 24 |
| 6 | 64 | 52 | 44 | 39 | 59 | 49 | 42 | 37 | 42 | 36 | 32 | 35 | 31 | 28 | 30 | 26 | 24 | 21 | | | | 21 |
| 7 | 59 | 47 | 40 | 34 | 55 | 44 | 37 | 32 | 38 | 33 | 29 | 32 | 28 | 25 | 27 | 24 | 22 | 19 | | | | 19 |
| 8 | 55 | 43 | 36 | 30 | 51 | 40 | 33 | 29 | 35 | 29 | 26 | 30 | 26 | 23 | 25 | 22 | 20 | 17 | | | | 17 |
| 9 | 51 | 39 | 32 | 27 | 47 | 37 | 30 | 26 | 32 | 27 | 23 | 27 | 23 | 20 | 23 | 20 | 18 | 16 | | | | 16 |
| 10 | 48 | 36 | 29 | 24 | 44 | 34 | 28 | 23 | 30 | 24 | 21 | 25 | 21 | 19 | 22 | 18 | 16 | 14 | | | | 14 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 3016 | 3016 | 3016 |
| 5° | 3019 | 2966 | 2986 |
| 10° | 2987 | 2905 | 2887 |
| 15° | 2944 | 2807 | 2736 |
| 20° | 2888 | 2673 | 2551 |
| 25° | 2830 | 2523 | 2372 |
| 30° | 2754 | 2369 | 2145 |
| 35° | 2678 | 2204 | 1946 |
| 40° | 2602 | 2033 | 1718 |
| 45° | 2513 | 1844 | 1512 |
| 50° | 2421 | 1653 | 1310 |
| 55° | 2325 | 1450 | 1117 |
| 60° | 2213 | 1237 | 918 |
| 65° | 2084 | 1022 | 825 |
| 70° | 1928 | 820 | 744 |
| 75° | 1732 | 718 | 675 |
| 80° | 1449 | 596 | 581 |
| 85° | 984 | 388 | 429 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2513 cd/sqm



TEST NUMBER: P922174

CATALOG NUMBER: DFN2DIP-PN3F0-070D070US940-RLFL

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 241.8 | 2.2 |
| 10°-20° | 663.7 | 6.1 |
| 20°-30° | 931.9 | 8.6 |
| 30°-40° | 1015.8 | 9.4 |
| 40°-50° | 933.6 | 8.6 |
| 50°-60° | 733.2 | 6.8 |
| 60°-70° | 477.3 | 4.4 |
| 70°-80° | 245.7 | 2.3 |
| 80°-90° | 68.3 | 0.6 |
| 90°-100° | 122.2 | 1.1 |
| 100°-110° | 388.1 | 3.6 |
| 110°-120° | 664.2 | 6.1 |
| 120°-130° | 873.6 | 8.1 |
| 130°-140° | 980.5 | 9.1 |
| 140°-150° | 961.5 | 8.9 |
| 150°-160° | 806.6 | 7.4 |
| 160°-170° | 534.9 | 4.9 |
| 170°-180° | 187.0 | 1.7 |
| 0°-30° | 1837.4 | 17.0 |
| 0°-40° | 2853.2 | 26.3 |
| 0°-60° | 4520.0 | 41.7 |
| 0°-90° | 5311.3 | 49.0 |
| 90°-120° | 1174.5 | 10.8 |
| 90°-150° | 3990.1 | 36.8 |
| 90°-180° | 5519.0 | 51.0 |
| 0°-180° | 10829.8 | 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° | 2 | 21 | 58 | 55 | 56 | 11 |
| 95° | 87 | 104 | 107 | 107 | 104 | 97 |
| 105° | 358 | 363 | 367 | 370 | 370 | 378 |
| 115° | 667 | 676 | 673 | 671 | 667 | 659 |
| 125° | 970 | 984 | 980 | 974 | 972 | 866 |
| 135° | 1254 | 1272 | 1276 | 1274 | 1269 | 969 |
| 145° | 1522 | 1534 | 1544 | 1546 | 1539 | 951 |
| 155° | 1741 | 1746 | 1751 | 1759 | 1754 | 801 |
| 165° | 1894 | 1892 | 1892 | 1904 | 1896 | 534 |
| 175° | 1970 | 1966 | 1962 | 1974 | 1964 | 187 |
| 180° | 1974 | 1974 | 1974 | 1974 | 1974 | |



TEST NUMBER: P922174

CATALOG NUMBER: DFN2DIP-PN3F0-070D070US940-RLFL

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° | 1.8 | 21.4 | 58.3 | 54.8 | 56.5 |
| 92.5° | 36.9 | 50.0 | 51.8 | 53.6 | 53.6 |
| 95° | 86.9 | 103.5 | 106.6 | 106.6 | 103.5 |
| 97.5° | 144.6 | 160.1 | 166.7 | 166.7 | 166.7 |
| 100° | 211.2 | 225.0 | 229.7 | 229.7 | 227.9 |
| 102.5° | 281.5 | 291.6 | 298.2 | 300.0 | 298.2 |
| 105° | 358.3 | 363.0 | 366.6 | 369.6 | 369.6 |
| 107.5° | 434.4 | 441.6 | 441.6 | 442.8 | 434.4 |
| 110° | 508.3 | 517.8 | 517.8 | 517.8 | 513.0 |



TEST NUMBER: P922174

CATALOG NUMBER: DFN2DIP-PN3F0-070D070US940-RLFL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 588.0 | 598.2 | 596.4 | 591.6 | 588.0 |
| 115° | 666.6 | 676.1 | 673.2 | 671.4 | 666.6 |
| 117.5° | 744.5 | 757.6 | 749.3 | 744.5 | 739.8 |
| 120° | 823.0 | 836.2 | 823.0 | 823.0 | 817.7 |
| 122.5° | 894.5 | 911.1 | 902.9 | 898.0 | 894.5 |
| 125° | 969.5 | 984.4 | 979.6 | 974.3 | 972.5 |
| 127.5° | 1042.7 | 1061.1 | 1054.6 | 1047.5 | 1042.7 |
| 130° | 1111.2 | 1132.6 | 1129.6 | 1126.1 | 1119.5 |
| 132.5° | 1187.9 | 1204.6 | 1205.8 | 1197.5 | 1192.7 |
| 135° | 1254.0 | 1272.4 | 1276.0 | 1274.2 | 1269.4 |
| 137.5° | 1327.8 | 1342.6 | 1345.6 | 1344.4 | 1337.3 |
| 140° | 1392.7 | 1407.6 | 1415.9 | 1415.9 | 1409.3 |
| 142.5° | 1459.3 | 1474.2 | 1478.9 | 1480.7 | 1474.2 |
| 145° | 1522.4 | 1534.3 | 1543.8 | 1545.6 | 1539.1 |
| 147.5° | 1579.0 | 1593.8 | 1601.0 | 1603.9 | 1597.4 |
| 150° | 1637.3 | 1647.3 | 1653.9 | 1659.3 | 1653.9 |
| 152.5° | 1689.0 | 1699.2 | 1707.4 | 1714.0 | 1707.4 |
| 155° | 1740.8 | 1745.5 | 1751.0 | 1759.3 | 1753.9 |
| 157.5° | 1785.5 | 1789.0 | 1792.0 | 1803.9 | 1795.5 |
| 160° | 1825.3 | 1828.9 | 1830.7 | 1840.8 | 1833.6 |
| 162.5° | 1862.2 | 1862.2 | 1864.0 | 1875.3 | 1867.0 |
| 165° | 1893.7 | 1891.9 | 1891.9 | 1903.9 | 1895.5 |
| 167.5° | 1922.3 | 1917.0 | 1917.0 | 1928.9 | 1920.6 |
| 170° | 1943.8 | 1939.0 | 1937.2 | 1949.1 | 1939.0 |
| 172.5° | 1958.6 | 1953.8 | 1952.0 | 1964.0 | 1953.8 |
| 175° | 1970.5 | 1965.8 | 1962.2 | 1974.1 | 1964.0 |
| 177.5° | 1977.1 | 1972.3 | 1968.7 | 1978.9 | 1968.7 |
| 180° | 1974.1 | 1974.1 | 1974.1 | 1974.1 | 1974.1 |



TEST NUMBER: P922174
 CATALOG NUMBER: DFN2DIP-PN3F0-070D070US940-RLLFLL

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 | 10.85 | 11.67 | 11.82 | 12.65 | 13.94 | 6.82 | 7.64 | 7.79 | 8.62 | 9.91 |
| | 3H | 12.52 | 13.26 | 13.51 | 14.25 | 15.56 | 8.00 | 8.73 | 8.98 | 9.73 | 11.03 |
| | 4H | 13.13 | 13.82 | 14.12 | 14.82 | 16.13 | 8.44 | 9.14 | 9.44 | 10.13 | 11.45 |
| | 6H | 13.54 | 14.18 | 14.55 | 15.18 | 16.51 | 8.76 | 9.40 | 9.77 | 10.40 | 11.73 |
| | 8H | 13.67 | 14.27 | 14.68 | 15.29 | 16.62 | 8.85 | 9.46 | 9.86 | 10.47 | 11.80 |
| | 12H | 13.73 | 14.30 | 14.74 | 15.31 | 16.66 | 8.89 | 9.47 | 9.91 | 10.48 | 11.83 |
| 4H | 2H | 10.87 | 11.56 | 11.87 | 12.56 | 13.87 | 7.41 | 8.10 | 8.41 | 9.10 | 10.42 |
| | 3H | 12.69 | 13.27 | 13.70 | 14.29 | 15.62 | 8.75 | 9.33 | 9.76 | 10.35 | 11.68 |
| | 4H | 13.38 | 13.90 | 14.39 | 14.92 | 16.27 | 9.29 | 9.82 | 10.31 | 10.84 | 12.19 |
| | 6H | 13.88 | 14.34 | 14.91 | 15.38 | 16.73 | 9.71 | 10.16 | 10.74 | 11.20 | 12.55 |
| | 8H | 14.06 | 14.48 | 15.09 | 15.51 | 16.88 | 9.83 | 10.25 | 10.86 | 11.29 | 12.65 |
| | 12H | 14.15 | 14.53 | 15.20 | 15.58 | 16.95 | 9.89 | 10.27 | 10.94 | 11.32 | 12.69 |
| 8H | 4H | 13.34 | 13.76 | 14.37 | 14.80 | 16.16 | 9.57 | 9.99 | 10.60 | 11.02 | 12.39 |
| | 6H | 13.90 | 14.25 | 14.95 | 15.32 | 16.69 | 10.08 | 10.43 | 11.13 | 11.50 | 12.87 |
| | 8H | 14.11 | 14.42 | 15.17 | 15.48 | 16.86 | 10.27 | 10.57 | 11.33 | 11.63 | 13.01 |
| | 12H | 14.25 | 14.52 | 15.31 | 15.57 | 17.00 | 10.38 | 10.65 | 11.44 | 11.70 | 13.13 |
| 12H | 4H | 13.29 | 13.67 | 14.34 | 14.72 | 16.09 | 9.57 | 9.96 | 10.62 | 11.00 | 12.37 |
| | 6H | 13.87 | 14.18 | 14.94 | 15.24 | 16.62 | 10.13 | 10.43 | 11.19 | 11.49 | 12.88 |
| | 8H | 14.09 | 14.36 | 15.16 | 15.41 | 16.84 | 10.33 | 10.60 | 11.40 | 11.66 | 13.08 |