

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: P905769

Luminaire Tested: DFN2DIP-PN3F0-060D050US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905769
REPORT IS A COMBINATION OF REPORTS P901065 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-060D050US835-FLLONL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

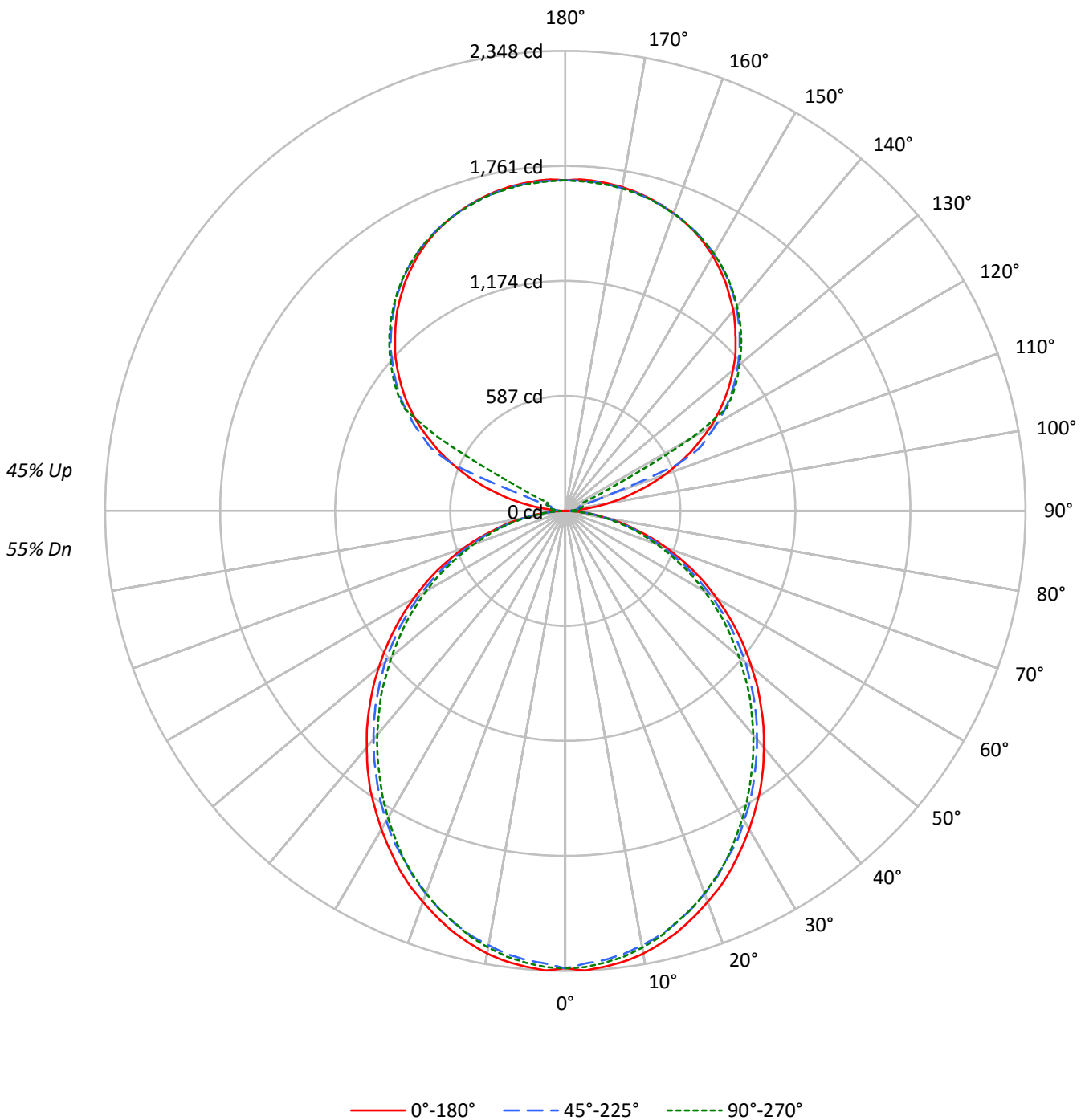
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10890.0 lumens
Efficiency: N/A
Efficacy: 115.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 94.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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 | | | | 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 | 108 | 108 | 108 | 108 | 100 | 100 | 100 | 100 | 86 | 86 | 86 | 73 | 73 | 73 | 60 | 60 | 60 | 55 | | | |
| 1 | 99 | 94 | 91 | 87 | 92 | 88 | 84 | 81 | 75 | 73 | 71 | 64 | 62 | 60 | 53 | 52 | 51 | 46 | | | |
| 2 | 90 | 82 | 76 | 71 | 83 | 77 | 71 | 67 | 66 | 62 | 58 | 56 | 53 | 51 | 47 | 45 | 43 | 39 | | | |
| 3 | 82 | 73 | 65 | 59 | 76 | 68 | 61 | 56 | 58 | 53 | 49 | 50 | 46 | 43 | 42 | 39 | 37 | 33 | | | |
| 4 | 75 | 64 | 56 | 50 | 69 | 60 | 53 | 47 | 52 | 46 | 42 | 44 | 40 | 37 | 37 | 34 | 32 | 28 | | | |
| 5 | 69 | 57 | 49 | 43 | 64 | 53 | 46 | 41 | 46 | 41 | 36 | 40 | 35 | 32 | 34 | 30 | 27 | 24 | | | |
| 6 | 64 | 51 | 43 | 37 | 59 | 48 | 41 | 35 | 42 | 36 | 32 | 36 | 31 | 28 | 30 | 27 | 24 | 21 | | | |
| 7 | 59 | 46 | 38 | 33 | 54 | 43 | 36 | 31 | 38 | 32 | 28 | 33 | 28 | 25 | 28 | 24 | 22 | 19 | | | |
| 8 | 55 | 42 | 34 | 29 | 51 | 40 | 33 | 28 | 35 | 29 | 25 | 30 | 25 | 22 | 26 | 22 | 19 | 17 | | | |
| 9 | 51 | 39 | 31 | 26 | 47 | 36 | 29 | 25 | 32 | 26 | 22 | 28 | 23 | 20 | 24 | 20 | 17 | 15 | | | |
| 10 | 48 | 35 | 28 | 23 | 44 | 33 | 27 | 22 | 29 | 24 | 20 | 25 | 21 | 18 | 22 | 18 | 16 | 14 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2729 | 2729 | 2729 |
| 5° | 2732 | 2689 | 2708 |
| 10° | 2708 | 2651 | 2670 |
| 15° | 2667 | 2605 | 2612 |
| 20° | 2611 | 2543 | 2552 |
| 25° | 2556 | 2468 | 2483 |
| 30° | 2487 | 2399 | 2396 |
| 35° | 2422 | 2318 | 2303 |
| 40° | 2342 | 2235 | 2215 |
| 45° | 2262 | 2152 | 2125 |
| 50° | 2174 | 2065 | 2021 |
| 55° | 2082 | 1965 | 1925 |
| 60° | 1979 | 1846 | 1815 |
| 65° | 1865 | 1722 | 1685 |
| 70° | 1720 | 1571 | 1545 |
| 75° | 1520 | 1390 | 1414 |
| 80° | 1279 | 1159 | 1167 |
| 85° | 901 | 766 | 760 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2262 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 219.7 | 2.0 |
| 10°-20° | 618.3 | 5.7 |
| 20°-30° | 908.6 | 8.3 |
| 30°-40° | 1055.3 | 9.7 |
| 40°-50° | 1054.0 | 9.7 |
| 50°-60° | 919.0 | 8.4 |
| 60°-70° | 679.4 | 6.2 |
| 70°-80° | 384.4 | 3.5 |
| 80°-90° | 104.4 | 1.0 |
| 90°-100° | 55.7 | 0.5 |
| 100°-110° | 207.4 | 1.9 |
| 110°-120° | 550.1 | 5.1 |
| 120°-130° | 912.4 | 8.4 |
| 130°-140° | 969.2 | 8.9 |
| 140°-150° | 900.8 | 8.3 |
| 150°-160° | 724.2 | 6.7 |
| 160°-170° | 466.6 | 4.3 |
| 170°-180° | 160.6 | 1.5 |
| 0°-30° | 1746.6 | 16.0 |
| 0°-40° | 2801.8 | 25.7 |
| 0°-60° | 4774.8 | 43.8 |
| 0°-90° | 5943.0 | 54.6 |
| 90°-120° | 813.2 | 7.5 |
| 90°-150° | 3595.6 | 33.0 |
| 90°-180° | 4947.0 | 45.4 |
| 0°-180° | 10890.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 2335 | 2335 | 2335 | 2335 | 2335 | |
| 5° | 2335 | 2326 | 2301 | 2319 | 2315 | 222 |
| 15° | 2222 | 2209 | 2180 | 2189 | 2178 | 626 |
| 25° | 2011 | 1994 | 1955 | 1960 | 1955 | 926 |
| 35° | 1735 | 1713 | 1677 | 1663 | 1652 | 1084 |
| 45° | 1412 | 1396 | 1363 | 1338 | 1329 | 1090 |
| 55° | 1069 | 1055 | 1028 | 1001 | 990 | 955 |
| 65° | 721 | 707 | 685 | 664 | 653 | 713 |
| 75° | 377 | 373 | 361 | 348 | 352 | 402 |
| 85° | 92 | 90 | 88 | 81 | 79 | 103 |
| 90° | 1 | 15 | 24 | 31 | 33 | 10 |
| 95° | 79 | 39 | 48 | 54 | 52 | 94 |
| 105° | 371 | 408 | 74 | 88 | 93 | 397 |
| 115° | 702 | 723 | 753 | 188 | 100 | 691 |
| 125° | 993 | 1009 | 1032 | 1040 | 1044 | 885 |
| 135° | 1228 | 1248 | 1259 | 1271 | 1269 | 949 |
| 145° | 1425 | 1424 | 1444 | 1453 | 1447 | 891 |
| 155° | 1569 | 1558 | 1573 | 1580 | 1570 | 723 |
| 165° | 1653 | 1646 | 1650 | 1658 | 1650 | 467 |
| 175° | 1691 | 1682 | 1685 | 1694 | 1681 | 161 |
| 180° | 1687 | 1687 | 1687 | 1687 | 1687 | |



TEST NUMBER: P905769

CATALOG NUMBER: DFN2DIP-PN3F0-060D050US835-FLLONL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 2334.6 | 2334.6 | 2334.6 | 2334.6 | 2334.6 |
| 2.5° | 2348.2 | 2337.0 | 2312.2 | 2334.6 | 2330.3 |
| 5° | 2334.6 | 2325.8 | 2301.0 | 2318.9 | 2314.6 |
| 7.5° | 2318.9 | 2305.6 | 2280.8 | 2298.9 | 2294.4 |
| 10° | 2294.4 | 2278.7 | 2251.7 | 2269.6 | 2262.9 |
| 12.5° | 2260.6 | 2247.2 | 2220.3 | 2231.5 | 2227.0 |
| 15° | 2222.4 | 2209.1 | 2179.8 | 2188.9 | 2177.7 |
| 17.5° | 2175.3 | 2162.0 | 2132.7 | 2143.8 | 2132.7 |
| 20° | 2123.6 | 2110.3 | 2078.8 | 2085.5 | 2076.7 |
| 22.5° | 2072.2 | 2051.9 | 2022.6 | 2022.6 | 2018.1 |
| 25° | 2011.4 | 1993.6 | 1955.4 | 1959.7 | 1955.4 |
| 27.5° | 1944.0 | 1928.3 | 1899.2 | 1892.6 | 1881.4 |
| 30° | 1876.9 | 1858.7 | 1825.2 | 1818.5 | 1809.4 |
| 32.5° | 1804.9 | 1791.6 | 1755.6 | 1742.0 | 1733.0 |
| 35° | 1735.4 | 1713.0 | 1677.0 | 1663.4 | 1652.2 |
| 37.5° | 1656.8 | 1636.5 | 1600.6 | 1584.8 | 1573.6 |
| 40° | 1576.0 | 1557.9 | 1522.0 | 1502.0 | 1492.9 |
| 42.5° | 1497.4 | 1479.3 | 1443.6 | 1421.0 | 1407.6 |
| 45° | 1412.2 | 1396.4 | 1362.6 | 1338.1 | 1329.0 |
| 47.5° | 1329.0 | 1313.3 | 1277.4 | 1252.6 | 1239.2 |
| 50° | 1241.4 | 1230.2 | 1198.8 | 1167.3 | 1156.1 |
| 52.5° | 1156.1 | 1140.4 | 1111.3 | 1086.6 | 1070.9 |
| 55° | 1068.7 | 1055.1 | 1028.2 | 1001.3 | 990.1 |
| 57.5° | 981.1 | 969.9 | 940.6 | 913.7 | 904.6 |
| 60° | 893.4 | 884.6 | 853.2 | 828.4 | 821.7 |
| 62.5° | 808.1 | 792.4 | 770.0 | 747.6 | 738.6 |
| 65° | 720.7 | 707.2 | 684.8 | 664.5 | 653.3 |
| 67.5° | 630.9 | 619.5 | 599.5 | 583.8 | 574.7 |
| 70° | 547.8 | 538.8 | 518.5 | 502.8 | 494.0 |
| 72.5° | 462.5 | 453.5 | 442.3 | 426.6 | 419.9 |
| 75° | 377.0 | 372.8 | 361.3 | 348.0 | 352.5 |
| 77.5° | 300.8 | 291.8 | 287.2 | 280.6 | 273.9 |
| 80° | 224.6 | 222.2 | 217.7 | 211.0 | 206.5 |
| 82.5° | 152.7 | 152.7 | 150.5 | 141.5 | 141.5 |
| 85° | 91.9 | 89.8 | 87.6 | 80.7 | 78.6 |
| 87.5° | 40.5 | 36.0 | 31.4 | 24.8 | 22.4 |
| 90° | 1.2 | 14.6 | 24.4 | 30.6 | 32.9 |
| 92.5° | 30.6 | 25.7 | 29.3 | 31.8 | 32.9 |
| 95° | 79.3 | 39.0 | 47.6 | 53.8 | 52.5 |
| 97.5° | 142.8 | 42.8 | 62.2 | 66.0 | 67.1 |
| 100° | 216.2 | 48.9 | 69.6 | 79.3 | 81.8 |
| 102.5° | 296.7 | 294.3 | 72.1 | 85.4 | 89.2 |
| 105° | 371.2 | 407.9 | 74.5 | 87.9 | 92.8 |
| 107.5° | 457.9 | 488.3 | 77.0 | 90.3 | 95.3 |
| 110° | 541.0 | 566.5 | 213.7 | 91.6 | 96.4 |



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CATALOG NUMBER: DFN2DIP-PN3F0-060D050US835-FLLONL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 619.1 | 641.0 | 620.3 | 94.0 | 97.7 |
| 115° | 702.1 | 722.8 | 753.4 | 188.1 | 100.2 |
| 117.5° | 774.1 | 798.5 | 819.4 | 644.6 | 324.8 |
| 120° | 854.7 | 873.0 | 895.0 | 909.7 | 744.8 |
| 122.5° | 923.0 | 942.6 | 967.1 | 974.4 | 975.7 |
| 125° | 992.6 | 1008.6 | 1031.8 | 1040.3 | 1044.0 |
| 127.5° | 1056.1 | 1073.2 | 1091.7 | 1103.8 | 1105.0 |
| 130° | 1116.0 | 1135.6 | 1148.9 | 1162.4 | 1161.3 |
| 132.5° | 1177.1 | 1193.0 | 1206.3 | 1217.4 | 1216.2 |
| 135° | 1228.4 | 1248.0 | 1258.8 | 1271.2 | 1268.7 |
| 137.5° | 1282.0 | 1296.7 | 1309.0 | 1321.2 | 1317.6 |
| 140° | 1334.5 | 1344.4 | 1357.7 | 1368.7 | 1362.7 |
| 142.5° | 1378.6 | 1387.2 | 1403.0 | 1412.7 | 1406.6 |
| 145° | 1425.0 | 1423.7 | 1444.4 | 1453.0 | 1446.9 |
| 147.5° | 1465.2 | 1461.5 | 1482.3 | 1488.4 | 1483.6 |
| 150° | 1504.3 | 1495.8 | 1515.3 | 1522.6 | 1516.5 |
| 152.5° | 1537.2 | 1527.5 | 1545.8 | 1553.2 | 1544.6 |
| 155° | 1569.0 | 1558.1 | 1572.7 | 1580.0 | 1570.3 |
| 157.5° | 1594.6 | 1584.9 | 1595.9 | 1604.5 | 1594.6 |
| 160° | 1616.7 | 1609.3 | 1616.7 | 1623.9 | 1615.4 |
| 162.5° | 1636.1 | 1628.9 | 1634.9 | 1643.5 | 1632.5 |
| 165° | 1653.2 | 1646.0 | 1649.6 | 1658.1 | 1649.6 |
| 167.5° | 1666.7 | 1659.3 | 1663.1 | 1671.6 | 1660.6 |
| 170° | 1677.7 | 1670.3 | 1672.8 | 1681.3 | 1670.3 |
| 172.5° | 1685.0 | 1677.7 | 1680.2 | 1688.7 | 1677.7 |
| 175° | 1691.1 | 1682.5 | 1685.0 | 1693.5 | 1681.3 |
| 177.5° | 1693.5 | 1685.0 | 1686.3 | 1694.8 | 1683.8 |
| 180° | 1687.4 | 1687.4 | 1687.4 | 1687.4 | 1687.4 |



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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 | 11.13 | 12.04 | 12.05 | 12.97 | 14.18 | 10.69 | 11.60 | 11.61 | 12.53 | 13.74 |
| | 3H | 12.79 | 13.60 | 13.72 | 14.55 | 15.78 | 12.31 | 13.12 | 13.24 | 14.06 | 15.29 |
| | 4H | 13.38 | 14.14 | 14.32 | 15.09 | 16.33 | 12.89 | 13.66 | 13.84 | 14.61 | 15.85 |
| | 6H | 13.77 | 14.48 | 14.73 | 15.44 | 16.69 | 13.28 | 13.99 | 14.24 | 14.95 | 16.20 |
| | 8H | 13.88 | 14.55 | 14.84 | 15.52 | 16.77 | 13.39 | 14.06 | 14.35 | 15.03 | 16.28 |
| | 12H | 13.93 | 14.57 | 14.89 | 15.53 | 16.81 | 13.43 | 14.07 | 14.40 | 15.04 | 16.31 |
| 4H | 2H | 11.60 | 12.36 | 12.55 | 13.31 | 14.55 | 11.25 | 12.01 | 12.19 | 12.96 | 14.20 |
| | 3H | 13.46 | 14.10 | 14.42 | 15.08 | 16.33 | 13.06 | 13.70 | 14.02 | 14.68 | 15.93 |
| | 4H | 14.17 | 14.76 | 15.14 | 15.73 | 17.01 | 13.75 | 14.34 | 14.72 | 15.31 | 16.59 |
| | 6H | 14.68 | 15.19 | 15.66 | 16.18 | 17.46 | 14.26 | 14.76 | 15.24 | 15.76 | 17.04 |
| | 8H | 14.83 | 15.30 | 15.81 | 16.29 | 17.58 | 14.40 | 14.87 | 15.39 | 15.87 | 17.15 |
| | 12H | 14.90 | 15.33 | 15.90 | 16.33 | 17.63 | 14.46 | 14.89 | 15.47 | 15.90 | 17.19 |
| 8H | 4H | 14.37 | 14.84 | 15.35 | 15.83 | 17.12 | 14.00 | 14.47 | 14.98 | 15.46 | 16.75 |
| | 6H | 14.99 | 15.38 | 16.00 | 16.41 | 17.70 | 14.62 | 15.01 | 15.62 | 16.04 | 17.33 |
| | 8H | 15.21 | 15.55 | 16.23 | 16.57 | 17.88 | 14.83 | 15.17 | 15.84 | 16.19 | 17.50 |
| | 12H | 15.34 | 15.64 | 16.36 | 16.65 | 18.01 | 14.94 | 15.24 | 15.96 | 16.26 | 17.61 |
| 12H | 4H | 14.35 | 14.78 | 15.36 | 15.79 | 17.08 | 13.99 | 14.42 | 14.99 | 15.42 | 16.72 |
| | 6H | 15.02 | 15.37 | 16.04 | 16.38 | 17.69 | 14.66 | 15.00 | 15.67 | 16.02 | 17.33 |
| | 8H | 15.26 | 15.56 | 16.28 | 16.58 | 17.93 | 14.89 | 15.19 | 15.91 | 16.21 | 17.56 |