

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: P918955

Luminaire Tested: DFN2DIP-HX3F0-050D080US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918955
REPORT IS A COMBINATION OF REPORTS P899276 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-050D080US935-RLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

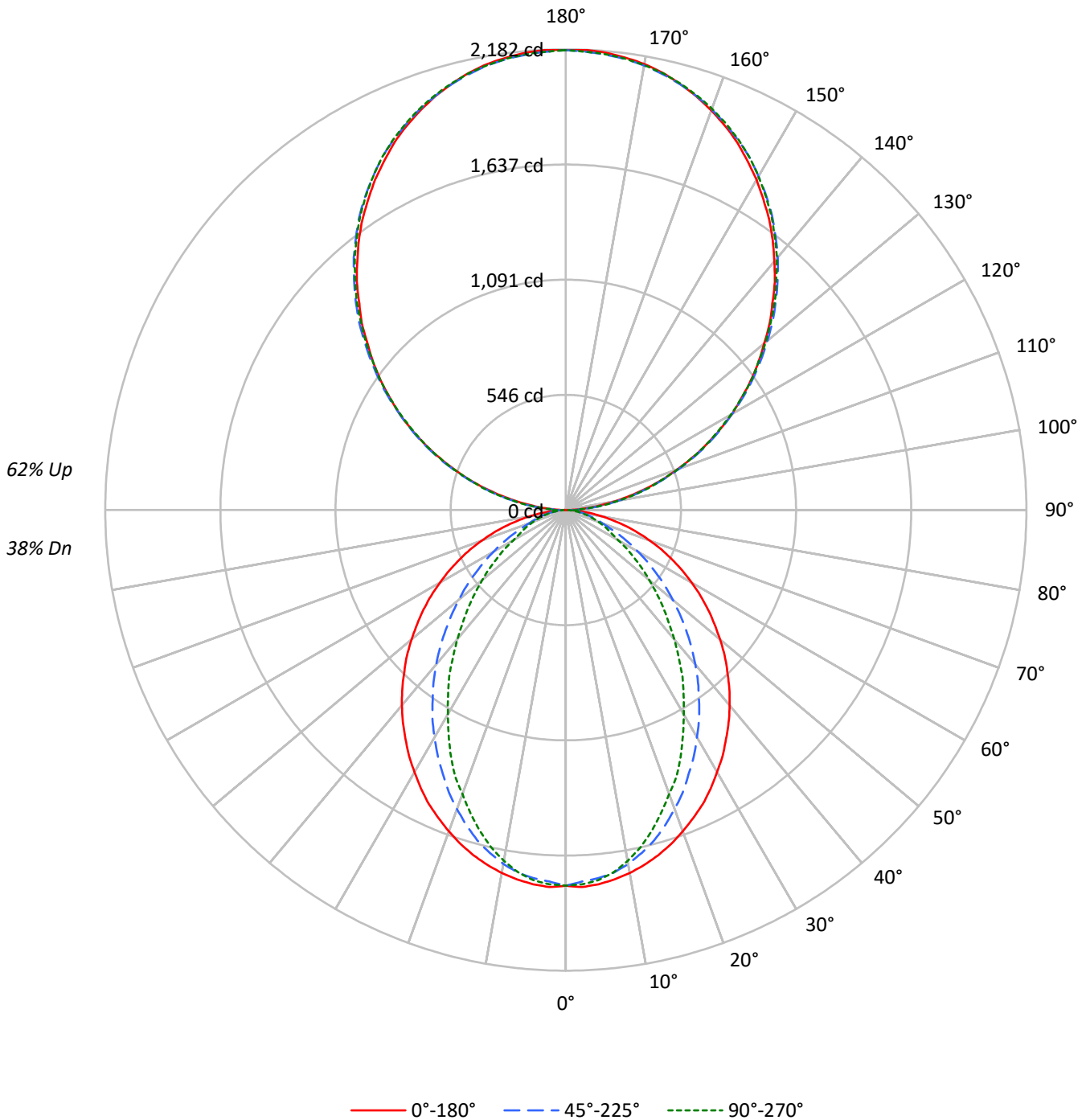
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9755.2 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: Semi-Indirect

Input Watts (W): 106.1
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: P918955
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Luminous Intensity Polar Plot





TEST NUMBER: P918955

CATALOG NUMBER: DFN2DIP-HX3F0-050D080US935-RLFL

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 | 104 | 104 | 104 | 104 | 95 | 95 | 95 | 95 | 76 | 76 | 76 | 60 | 60 | 60 | 45 | 45 | 45 | 38 | | | 38 |
| 1 | 95 | 91 | 88 | 84 | 86 | 83 | 80 | 77 | 67 | 65 | 63 | 53 | 52 | 50 | 40 | 39 | 38 | 32 | | | 32 |
| 2 | 87 | 80 | 74 | 69 | 79 | 73 | 68 | 64 | 59 | 56 | 53 | 47 | 45 | 43 | 36 | 34 | 33 | 28 | | | 28 |
| 3 | 80 | 71 | 64 | 58 | 72 | 64 | 58 | 54 | 53 | 48 | 45 | 42 | 39 | 37 | 32 | 30 | 28 | 24 | | | 24 |
| 4 | 73 | 63 | 55 | 49 | 66 | 57 | 51 | 46 | 47 | 42 | 39 | 38 | 34 | 32 | 29 | 27 | 25 | 21 | | | 21 |
| 5 | 67 | 56 | 48 | 42 | 61 | 51 | 44 | 39 | 42 | 37 | 33 | 34 | 30 | 28 | 26 | 24 | 22 | 18 | | | 18 |
| 6 | 62 | 50 | 42 | 37 | 56 | 46 | 39 | 34 | 38 | 33 | 29 | 31 | 27 | 24 | 24 | 21 | 19 | 16 | | | 16 |
| 7 | 57 | 45 | 38 | 32 | 52 | 42 | 35 | 30 | 35 | 30 | 26 | 28 | 24 | 22 | 22 | 19 | 17 | 15 | | | 15 |
| 8 | 53 | 41 | 34 | 29 | 48 | 38 | 31 | 27 | 32 | 27 | 23 | 26 | 22 | 19 | 20 | 18 | 16 | 13 | | | 13 |
| 9 | 49 | 38 | 30 | 26 | 45 | 35 | 28 | 24 | 29 | 24 | 21 | 24 | 20 | 17 | 19 | 16 | 14 | 12 | | | 12 |
| 10 | 46 | 35 | 28 | 23 | 42 | 32 | 26 | 21 | 27 | 22 | 19 | 22 | 18 | 16 | 17 | 15 | 13 | 11 | | | 11 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2061 | 2061 | 2061 |
| 5° | 2063 | 2027 | 2040 |
| 10° | 2042 | 1986 | 1973 |
| 15° | 2013 | 1919 | 1869 |
| 20° | 1975 | 1827 | 1742 |
| 25° | 1936 | 1724 | 1620 |
| 30° | 1884 | 1619 | 1465 |
| 35° | 1833 | 1506 | 1329 |
| 40° | 1780 | 1390 | 1173 |
| 45° | 1720 | 1260 | 1032 |
| 50° | 1658 | 1130 | 894 |
| 55° | 1592 | 991 | 762 |
| 60° | 1516 | 846 | 626 |
| 65° | 1429 | 698 | 562 |
| 70° | 1323 | 561 | 507 |
| 75° | 1190 | 491 | 459 |
| 80° | 998 | 407 | 394 |
| 85° | 682 | 266 | 290 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2050 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 166.8 | 1.7 |
| 10°-20° | 457.8 | 4.7 |
| 20°-30° | 642.7 | 6.6 |
| 30°-40° | 700.6 | 7.2 |
| 40°-50° | 643.9 | 6.6 |
| 50°-60° | 505.7 | 5.2 |
| 60°-70° | 329.2 | 3.4 |
| 70°-80° | 169.5 | 1.7 |
| 80°-90° | 49.5 | 0.5 |
| 90°-100° | 134.8 | 1.4 |
| 100°-110° | 428.3 | 4.4 |
| 110°-120° | 733.0 | 7.5 |
| 120°-130° | 964.0 | 9.9 |
| 130°-140° | 1082.0 | 11.1 |
| 140°-150° | 1061.0 | 10.9 |
| 150°-160° | 890.1 | 9.1 |
| 160°-170° | 590.3 | 6.1 |
| 170°-180° | 206.3 | 2.1 |
| 0°-30° | 1267.2 | 13.0 |
| 0°-40° | 1967.8 | 20.2 |
| 0°-60° | 3117.4 | 32.0 |
| 0°-90° | 3665.5 | 37.6 |
| 90°-120° | 1296.1 | 13.3 |
| 90°-150° | 4403.1 | 45.1 |
| 90°-180° | 6090.0 | 62.4 |
| 0°-180° | 9755.2 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1779 | 1779 | 1779 | 1779 | 1779 | |
| 5° | 1779 | 1771 | 1750 | 1765 | 1760 | 169 |
| 15° | 1692 | 1675 | 1620 | 1589 | 1573 | 477 |
| 25° | 1536 | 1484 | 1378 | 1312 | 1288 | 706 |
| 35° | 1324 | 1242 | 1100 | 998 | 963 | 828 |
| 45° | 1082 | 974 | 805 | 691 | 652 | 836 |
| 55° | 823 | 697 | 523 | 427 | 396 | 735 |
| 65° | 556 | 425 | 280 | 226 | 221 | 551 |
| 75° | 296 | 184 | 129 | 118 | 116 | 313 |
| 85° | 69 | 35 | 31 | 31 | 31 | 79 |
| 90° | 2 | 24 | 64 | 60 | 62 | 10 |
| 95° | 96 | 114 | 118 | 118 | 114 | 107 |
| 105° | 395 | 401 | 405 | 408 | 408 | 417 |
| 115° | 736 | 746 | 743 | 741 | 736 | 728 |
| 125° | 1070 | 1086 | 1081 | 1075 | 1073 | 956 |
| 135° | 1384 | 1404 | 1408 | 1406 | 1401 | 1070 |
| 145° | 1680 | 1693 | 1704 | 1706 | 1698 | 1050 |
| 155° | 1921 | 1926 | 1932 | 1941 | 1935 | 884 |
| 165° | 2090 | 2088 | 2088 | 2101 | 2092 | 590 |
| 175° | 2174 | 2169 | 2165 | 2178 | 2167 | 207 |
| 180° | 2178 | 2178 | 2178 | 2178 | 2178 | |



TEST NUMBER: P918955

CATALOG NUMBER: DFN2DIP-HX3F0-050D080US935-RLFL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1779.3 | 1779.3 | 1779.3 | 1779.3 | 1779.3 |
| 2.5° | 1787.3 | 1779.3 | 1761.5 | 1777.7 | 1774.4 |
| 5° | 1779.3 | 1771.2 | 1750.2 | 1764.7 | 1760.0 |
| 7.5° | 1764.7 | 1755.1 | 1732.6 | 1739.0 | 1730.9 |
| 10° | 1745.4 | 1734.1 | 1702.0 | 1697.1 | 1687.5 |
| 12.5° | 1721.3 | 1706.8 | 1663.3 | 1653.7 | 1635.9 |
| 15° | 1692.3 | 1674.6 | 1619.9 | 1589.3 | 1573.2 |
| 17.5° | 1658.5 | 1632.7 | 1565.0 | 1529.6 | 1503.8 |
| 20° | 1619.9 | 1587.6 | 1507.1 | 1467.0 | 1431.4 |
| 22.5° | 1578.0 | 1540.9 | 1447.5 | 1392.8 | 1368.7 |
| 25° | 1536.1 | 1484.5 | 1378.3 | 1312.3 | 1288.1 |
| 27.5° | 1486.3 | 1431.4 | 1313.9 | 1238.2 | 1201.2 |
| 30° | 1433.1 | 1371.8 | 1243.0 | 1161.0 | 1117.4 |
| 32.5° | 1381.6 | 1307.4 | 1175.5 | 1078.8 | 1038.5 |
| 35° | 1323.6 | 1241.5 | 1099.8 | 998.3 | 962.9 |
| 37.5° | 1267.2 | 1178.6 | 1029.0 | 917.7 | 877.6 |
| 40° | 1207.6 | 1111.1 | 954.8 | 840.5 | 798.7 |
| 42.5° | 1146.5 | 1043.4 | 880.8 | 761.6 | 721.4 |
| 45° | 1082.1 | 974.1 | 805.1 | 690.7 | 652.0 |
| 47.5° | 1020.9 | 906.6 | 732.7 | 618.3 | 582.9 |
| 50° | 953.3 | 839.0 | 661.8 | 550.6 | 516.9 |
| 52.5° | 887.2 | 766.4 | 594.2 | 487.9 | 457.4 |
| 55° | 822.8 | 697.1 | 523.2 | 426.7 | 396.1 |
| 57.5° | 756.8 | 628.0 | 460.5 | 370.4 | 344.6 |
| 60° | 689.1 | 560.3 | 394.4 | 312.5 | 286.6 |
| 62.5° | 623.2 | 494.4 | 338.1 | 260.9 | 248.1 |
| 65° | 555.5 | 425.1 | 280.2 | 225.5 | 220.6 |
| 67.5° | 491.1 | 360.7 | 225.5 | 198.0 | 193.2 |
| 70° | 423.5 | 297.9 | 186.8 | 170.6 | 164.2 |
| 72.5° | 359.1 | 239.9 | 156.2 | 143.4 | 140.1 |
| 75° | 296.3 | 183.5 | 128.8 | 117.5 | 116.0 |
| 77.5° | 233.5 | 130.4 | 101.5 | 95.0 | 91.7 |
| 80° | 175.5 | 93.4 | 77.2 | 70.9 | 70.9 |
| 82.5° | 122.3 | 62.9 | 53.1 | 49.9 | 49.9 |
| 85° | 69.2 | 35.4 | 30.6 | 30.6 | 30.6 |
| 87.5° | 25.8 | 12.8 | 12.8 | 11.3 | 11.3 |
| 90° | 2.0 | 23.7 | 64.4 | 60.4 | 62.4 |
| 92.5° | 40.7 | 55.2 | 57.2 | 59.1 | 59.1 |
| 95° | 95.9 | 114.3 | 117.5 | 117.5 | 114.3 |
| 97.5° | 159.6 | 176.7 | 183.9 | 183.9 | 183.9 |
| 100° | 233.2 | 248.2 | 253.5 | 253.5 | 251.5 |
| 102.5° | 310.6 | 321.8 | 329.0 | 331.0 | 329.0 |
| 105° | 395.4 | 400.6 | 404.6 | 407.9 | 407.9 |
| 107.5° | 479.4 | 487.3 | 487.3 | 488.6 | 479.4 |
| 110° | 560.9 | 571.4 | 571.4 | 571.4 | 566.1 |



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CATALOG NUMBER: DFN2DIP-HX3F0-050D080US935-RLFL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 648.8 | 660.0 | 658.1 | 652.8 | 648.8 |
| 115° | 735.6 | 746.1 | 742.8 | 740.8 | 735.6 |
| 117.5° | 821.6 | 836.0 | 826.8 | 821.6 | 816.3 |
| 120° | 908.3 | 922.7 | 908.3 | 908.3 | 902.3 |
| 122.5° | 987.0 | 1005.5 | 996.3 | 991.0 | 987.0 |
| 125° | 1069.8 | 1086.2 | 1081.0 | 1075.0 | 1073.1 |
| 127.5° | 1150.6 | 1171.0 | 1163.7 | 1155.9 | 1150.6 |
| 130° | 1226.1 | 1249.7 | 1246.5 | 1242.6 | 1235.4 |
| 132.5° | 1310.9 | 1329.2 | 1330.6 | 1321.4 | 1316.1 |
| 135° | 1383.7 | 1404.1 | 1408.1 | 1406.1 | 1400.8 |
| 137.5° | 1465.2 | 1481.6 | 1484.9 | 1483.6 | 1475.7 |
| 140° | 1536.8 | 1553.2 | 1562.4 | 1562.4 | 1555.1 |
| 142.5° | 1610.3 | 1626.8 | 1632.0 | 1634.0 | 1626.8 |
| 145° | 1680.0 | 1693.1 | 1703.6 | 1705.6 | 1698.3 |
| 147.5° | 1742.3 | 1758.8 | 1766.6 | 1770.0 | 1762.7 |
| 150° | 1806.7 | 1817.8 | 1825.1 | 1831.0 | 1825.1 |
| 152.5° | 1863.8 | 1875.0 | 1884.2 | 1891.4 | 1884.2 |
| 155° | 1921.0 | 1926.2 | 1932.2 | 1941.3 | 1935.4 |
| 157.5° | 1970.2 | 1974.2 | 1977.5 | 1990.5 | 1981.4 |
| 160° | 2014.2 | 2018.2 | 2020.2 | 2031.3 | 2023.4 |
| 162.5° | 2054.9 | 2054.9 | 2056.9 | 2069.4 | 2060.2 |
| 165° | 2089.7 | 2087.7 | 2087.7 | 2100.9 | 2091.7 |
| 167.5° | 2121.2 | 2115.4 | 2115.4 | 2128.5 | 2119.3 |
| 170° | 2144.9 | 2139.7 | 2137.7 | 2150.9 | 2139.7 |
| 172.5° | 2161.4 | 2156.1 | 2154.1 | 2167.2 | 2156.1 |
| 175° | 2174.5 | 2169.2 | 2165.2 | 2178.4 | 2167.2 |
| 177.5° | 2181.7 | 2176.4 | 2172.5 | 2183.7 | 2172.5 |
| 180° | 2178.4 | 2178.4 | 2178.4 | 2178.4 | 2178.4 |



TEST NUMBER: P918955
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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 | 8.33 | 9.07 | 9.39 | 10.13 | 11.57 | 4.31 | 5.05 | 5.37 | 6.11 | 7.55 |
| | 3H | 9.99 | 10.65 | 11.07 | 11.72 | 13.18 | 5.48 | 6.14 | 6.56 | 7.21 | 8.67 |
| | 4H | 10.59 | 11.22 | 11.68 | 12.29 | 13.76 | 5.93 | 6.55 | 7.01 | 7.62 | 9.09 |
| | 6H | 11.00 | 11.58 | 12.10 | 12.65 | 14.13 | 6.24 | 6.81 | 7.33 | 7.89 | 9.37 |
| | 8H | 11.12 | 11.67 | 12.22 | 12.76 | 14.23 | 6.33 | 6.87 | 7.42 | 7.96 | 9.43 |
| | 12H | 11.18 | 11.70 | 12.28 | 12.78 | 14.28 | 6.36 | 6.88 | 7.46 | 7.97 | 9.46 |
| 4H | 2H | 8.34 | 8.96 | 9.43 | 10.03 | 11.50 | 4.89 | 5.51 | 5.98 | 6.58 | 8.05 |
| | 3H | 10.15 | 10.67 | 11.25 | 11.77 | 13.25 | 6.22 | 6.74 | 7.32 | 7.84 | 9.32 |
| | 4H | 10.83 | 11.31 | 11.93 | 12.40 | 13.90 | 6.76 | 7.24 | 7.86 | 8.33 | 9.83 |
| | 6H | 11.33 | 11.74 | 12.44 | 12.86 | 14.35 | 7.17 | 7.58 | 8.28 | 8.69 | 10.19 |
| | 8H | 11.50 | 11.88 | 12.61 | 12.99 | 14.50 | 7.30 | 7.68 | 8.41 | 8.78 | 10.29 |
| | 12H | 11.59 | 11.93 | 12.71 | 13.05 | 14.56 | 7.36 | 7.70 | 8.48 | 8.82 | 10.33 |
| 8H | 4H | 10.79 | 11.17 | 11.90 | 12.28 | 13.78 | 7.03 | 7.41 | 8.14 | 8.52 | 10.03 |
| | 6H | 11.35 | 11.66 | 12.48 | 12.81 | 14.31 | 7.54 | 7.86 | 8.67 | 9.00 | 10.51 |
| | 8H | 11.56 | 11.83 | 12.69 | 12.96 | 14.48 | 7.73 | 8.00 | 8.86 | 9.13 | 10.66 |
| | 12H | 11.69 | 11.93 | 12.83 | 13.05 | 14.61 | 7.84 | 8.08 | 8.98 | 9.21 | 10.77 |
| 12H | 4H | 10.74 | 11.08 | 11.86 | 12.20 | 13.71 | 7.03 | 7.38 | 8.16 | 8.49 | 10.01 |
| | 6H | 11.32 | 11.60 | 12.46 | 12.72 | 14.25 | 7.59 | 7.86 | 8.72 | 8.99 | 10.52 |
| | 8H | 11.53 | 11.77 | 12.67 | 12.90 | 14.46 | 7.79 | 8.03 | 8.93 | 9.16 | 10.72 |