

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: P907004

Luminaire Tested: DFN2DIP-TR2F0-020D060US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907004
REPORT IS A COMBINATION OF REPORTS P900261 AND P897145
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR2F0-020D060US835-FLLFLL
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

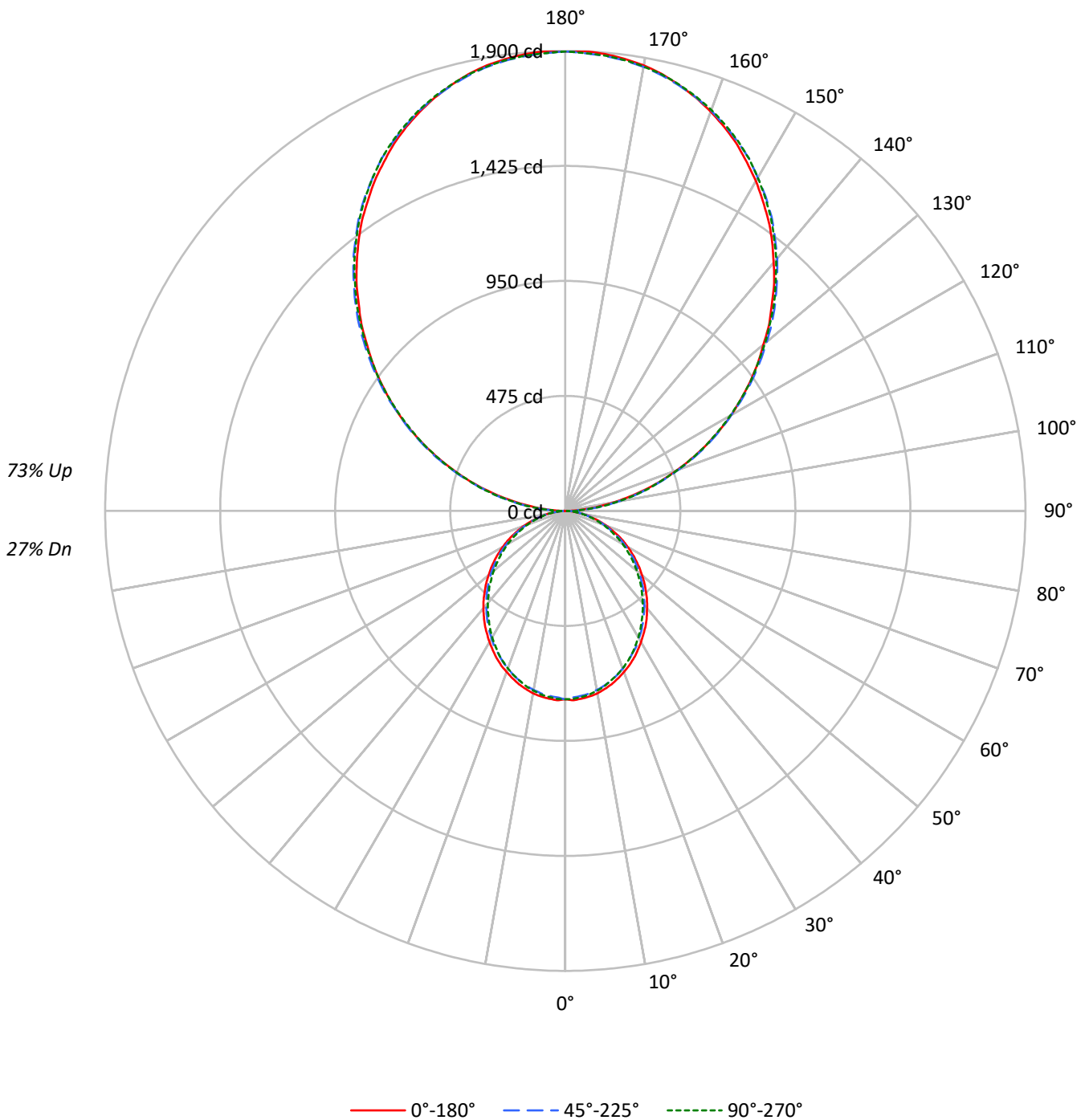
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7290.0 lumens
Efficiency: N/A
Efficacy: 114.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 63.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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





TEST NUMBER: P907004

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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 | 102 | 102 | 102 | 102 | 91 | 91 | 91 | 91 | 71 | 71 | 71 | 52 | 52 | 52 | 35 | 35 | 35 | 27 | | | | 27 |
| 1 | 93 | 88 | 85 | 81 | 83 | 79 | 76 | 73 | 62 | 60 | 58 | 46 | 44 | 43 | 31 | 30 | 30 | 23 | | | | 23 |
| 2 | 84 | 77 | 71 | 66 | 75 | 69 | 64 | 60 | 54 | 51 | 48 | 40 | 38 | 36 | 27 | 26 | 25 | 19 | | | | 19 |
| 3 | 77 | 68 | 61 | 55 | 68 | 61 | 55 | 50 | 48 | 44 | 40 | 35 | 33 | 30 | 24 | 23 | 21 | 16 | | | | 16 |
| 4 | 70 | 60 | 52 | 47 | 62 | 54 | 47 | 42 | 42 | 38 | 34 | 32 | 29 | 26 | 22 | 20 | 18 | 14 | | | | 14 |
| 5 | 64 | 53 | 45 | 40 | 57 | 48 | 41 | 36 | 38 | 33 | 29 | 28 | 25 | 22 | 19 | 17 | 16 | 12 | | | | 12 |
| 6 | 59 | 48 | 40 | 34 | 53 | 43 | 36 | 31 | 34 | 29 | 25 | 25 | 22 | 20 | 18 | 16 | 14 | 11 | | | | 11 |
| 7 | 55 | 43 | 35 | 30 | 49 | 39 | 32 | 27 | 31 | 26 | 22 | 23 | 20 | 17 | 16 | 14 | 12 | 9 | | | | 9 |
| 8 | 51 | 39 | 31 | 26 | 45 | 35 | 28 | 24 | 28 | 23 | 20 | 21 | 18 | 15 | 15 | 13 | 11 | 8 | | | | 8 |
| 9 | 47 | 35 | 28 | 23 | 42 | 32 | 26 | 21 | 25 | 21 | 17 | 19 | 16 | 14 | 14 | 11 | 10 | 8 | | | | 8 |
| 10 | 44 | 32 | 25 | 21 | 39 | 29 | 23 | 19 | 23 | 19 | 16 | 18 | 15 | 12 | 13 | 10 | 9 | 7 | | | | 7 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 1736 | 1736 | 1736 |
| 5° | 1736 | 1708 | 1720 |
| 10° | 1719 | 1681 | 1694 |
| 15° | 1691 | 1649 | 1654 |
| 20° | 1655 | 1607 | 1614 |
| 25° | 1618 | 1557 | 1568 |
| 30° | 1573 | 1511 | 1511 |
| 35° | 1530 | 1456 | 1450 |
| 40° | 1477 | 1401 | 1392 |
| 45° | 1424 | 1346 | 1332 |
| 50° | 1367 | 1288 | 1264 |
| 55° | 1306 | 1220 | 1199 |
| 60° | 1238 | 1141 | 1126 |
| 65° | 1162 | 1058 | 1040 |
| 70° | 1067 | 957 | 947 |
| 75° | 935 | 836 | 856 |
| 80° | 776 | 683 | 692 |
| 85° | 528 | 430 | 430 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2476 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 73.2 | 1.0 |
| 10°-20° | 206.1 | 2.8 |
| 20°-30° | 302.9 | 4.2 |
| 30°-40° | 351.8 | 4.8 |
| 40°-50° | 351.3 | 4.8 |
| 50°-60° | 306.3 | 4.2 |
| 60°-70° | 226.5 | 3.1 |
| 70°-80° | 128.1 | 1.8 |
| 80°-90° | 39.2 | 0.5 |
| 90°-100° | 117.4 | 1.6 |
| 100°-110° | 373.1 | 5.1 |
| 110°-120° | 638.5 | 8.8 |
| 120°-130° | 839.7 | 11.5 |
| 130°-140° | 942.5 | 12.9 |
| 140°-150° | 924.2 | 12.7 |
| 150°-160° | 775.3 | 10.6 |
| 160°-170° | 514.2 | 7.1 |
| 170°-180° | 179.7 | 2.5 |
| 0°-30° | 582.2 | 8.0 |
| 0°-40° | 934.0 | 12.8 |
| 0°-60° | 1591.6 | 21.8 |
| 0°-90° | 1985.4 | 27.2 |
| 90°-120° | 1129.0 | 15.5 |
| 90°-150° | 3835.4 | 52.6 |
| 90°-180° | 5305.0 | 72.8 |
| 0°-180° | 7290.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 778 | 778 | 778 | 778 | 778 | |
| 5° | 778 | 775 | 767 | 773 | 772 | 74 |
| 15° | 741 | 736 | 727 | 730 | 726 | 209 |
| 25° | 670 | 664 | 652 | 653 | 652 | 309 |
| 35° | 578 | 571 | 559 | 554 | 551 | 361 |
| 45° | 471 | 466 | 454 | 446 | 443 | 363 |
| 55° | 356 | 352 | 343 | 334 | 330 | 318 |
| 65° | 240 | 236 | 228 | 222 | 218 | 238 |
| 75° | 126 | 124 | 120 | 116 | 118 | 134 |
| 85° | 31 | 30 | 29 | 27 | 26 | 34 |
| 90° | 2 | 21 | 56 | 53 | 54 | 7 |
| 95° | 84 | 100 | 102 | 102 | 100 | 93 |
| 105° | 344 | 349 | 352 | 355 | 355 | 363 |
| 115° | 641 | 650 | 647 | 645 | 641 | 634 |
| 125° | 932 | 946 | 942 | 936 | 935 | 833 |
| 135° | 1205 | 1223 | 1226 | 1225 | 1220 | 932 |
| 145° | 1463 | 1475 | 1484 | 1486 | 1479 | 914 |
| 155° | 1673 | 1678 | 1683 | 1691 | 1686 | 770 |
| 165° | 1820 | 1819 | 1819 | 1830 | 1822 | 514 |
| 175° | 1894 | 1890 | 1886 | 1898 | 1888 | 180 |
| 180° | 1898 | 1898 | 1898 | 1898 | 1898 | |



TEST NUMBER: P907004

CATALOG NUMBER: DFN2DIP-TR2F0-020D060US835-FLLFLL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 0° | 778.2 | 778.2 | 778.2 | 778.2 | 778.2 |
| 2.5° | 782.7 | 779.0 | 770.7 | 778.2 | 776.8 |
| 5° | 778.2 | 775.3 | 767.0 | 773.0 | 771.5 |
| 7.5° | 773.0 | 768.5 | 760.3 | 766.3 | 764.8 |
| 10° | 764.8 | 759.6 | 750.6 | 756.5 | 754.3 |
| 12.5° | 753.5 | 749.1 | 740.1 | 743.8 | 742.3 |
| 15° | 740.8 | 736.4 | 726.6 | 729.6 | 725.9 |
| 17.5° | 725.1 | 720.7 | 710.9 | 714.6 | 710.9 |
| 20° | 707.9 | 703.4 | 692.9 | 695.2 | 692.2 |
| 22.5° | 690.7 | 684.0 | 674.2 | 674.2 | 672.7 |
| 25° | 670.5 | 664.5 | 651.8 | 653.2 | 651.8 |
| 27.5° | 648.0 | 642.8 | 633.1 | 630.9 | 627.1 |
| 30° | 625.6 | 619.6 | 608.4 | 606.2 | 603.1 |
| 32.5° | 601.6 | 597.2 | 585.2 | 580.7 | 577.7 |
| 35° | 578.5 | 571.0 | 559.0 | 554.5 | 550.7 |
| 37.5° | 552.3 | 545.5 | 533.5 | 528.3 | 524.5 |
| 40° | 525.3 | 519.3 | 507.3 | 500.7 | 497.6 |
| 42.5° | 499.1 | 493.1 | 481.2 | 473.7 | 469.2 |
| 45° | 470.7 | 465.5 | 454.2 | 446.0 | 443.0 |
| 47.5° | 443.0 | 437.8 | 425.8 | 417.5 | 413.1 |
| 50° | 413.8 | 410.1 | 399.6 | 389.1 | 385.4 |
| 52.5° | 385.4 | 380.1 | 370.4 | 362.2 | 357.0 |
| 55° | 356.2 | 351.7 | 342.7 | 333.8 | 330.0 |
| 57.5° | 327.0 | 323.3 | 313.5 | 304.6 | 301.5 |
| 60° | 297.8 | 294.9 | 284.4 | 276.1 | 273.9 |
| 62.5° | 269.4 | 264.1 | 256.7 | 249.2 | 246.2 |
| 65° | 240.2 | 235.7 | 228.3 | 221.5 | 217.8 |
| 67.5° | 210.3 | 206.5 | 199.8 | 194.6 | 191.6 |
| 70° | 182.6 | 179.6 | 172.8 | 167.6 | 164.7 |
| 72.5° | 154.2 | 151.2 | 147.4 | 142.2 | 140.0 |
| 75° | 125.7 | 124.3 | 120.4 | 116.0 | 117.5 |
| 77.5° | 100.3 | 97.3 | 95.7 | 93.5 | 91.3 |
| 80° | 74.9 | 74.1 | 72.6 | 70.3 | 68.8 |
| 82.5° | 50.9 | 50.9 | 50.2 | 47.2 | 47.2 |
| 85° | 30.6 | 29.9 | 29.2 | 26.9 | 26.2 |
| 87.5° | 13.5 | 12.0 | 10.5 | 8.3 | 7.5 |
| 90° | 1.7 | 20.6 | 56.1 | 52.6 | 54.3 |
| 92.5° | 35.5 | 48.1 | 49.8 | 51.5 | 51.5 |
| 95° | 83.5 | 99.5 | 102.4 | 102.4 | 99.5 |
| 97.5° | 139.0 | 153.9 | 160.2 | 160.2 | 160.2 |
| 100° | 203.1 | 216.2 | 220.8 | 220.8 | 219.1 |
| 102.5° | 270.6 | 280.3 | 286.6 | 288.3 | 286.6 |
| 105° | 344.4 | 349.0 | 352.4 | 355.3 | 355.3 |
| 107.5° | 417.6 | 424.5 | 424.5 | 425.6 | 417.6 |
| 110° | 488.6 | 497.7 | 497.7 | 497.7 | 493.1 |



TEST NUMBER: P907004

CATALOG NUMBER: DFN2DIP-TR2F0-020D060US835-FLLFL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 565.2 | 574.9 | 573.2 | 568.6 | 565.2 |
| 115° | 640.7 | 649.9 | 647.0 | 645.3 | 640.7 |
| 117.5° | 715.7 | 728.3 | 720.2 | 715.7 | 711.1 |
| 120° | 791.2 | 803.8 | 791.2 | 791.2 | 786.0 |
| 122.5° | 859.8 | 875.8 | 867.8 | 863.3 | 859.8 |
| 125° | 931.9 | 946.2 | 941.6 | 936.5 | 934.8 |
| 127.5° | 1002.3 | 1020.0 | 1013.7 | 1006.9 | 1002.3 |
| 130° | 1068.1 | 1088.7 | 1085.8 | 1082.4 | 1076.1 |
| 132.5° | 1141.9 | 1157.9 | 1159.0 | 1151.0 | 1146.4 |
| 135° | 1205.4 | 1223.1 | 1226.5 | 1224.8 | 1220.2 |
| 137.5° | 1276.3 | 1290.6 | 1293.5 | 1292.3 | 1285.5 |
| 140° | 1338.7 | 1353.0 | 1361.0 | 1361.0 | 1354.7 |
| 142.5° | 1402.7 | 1417.0 | 1421.6 | 1423.3 | 1417.0 |
| 145° | 1463.4 | 1474.8 | 1484.0 | 1485.7 | 1479.4 |
| 147.5° | 1517.7 | 1532.0 | 1538.9 | 1541.7 | 1535.4 |
| 150° | 1573.8 | 1583.5 | 1589.8 | 1594.9 | 1589.8 |
| 152.5° | 1623.5 | 1633.3 | 1641.3 | 1647.6 | 1641.3 |
| 155° | 1673.3 | 1677.9 | 1683.0 | 1691.1 | 1685.9 |
| 157.5° | 1716.2 | 1719.7 | 1722.5 | 1734.0 | 1726.0 |
| 160° | 1754.6 | 1758.0 | 1759.7 | 1769.4 | 1762.6 |
| 162.5° | 1790.0 | 1790.0 | 1791.7 | 1802.6 | 1794.6 |
| 165° | 1820.3 | 1818.6 | 1818.6 | 1830.1 | 1822.1 |
| 167.5° | 1847.8 | 1842.7 | 1842.7 | 1854.1 | 1846.1 |
| 170° | 1868.4 | 1863.8 | 1862.1 | 1873.5 | 1863.8 |
| 172.5° | 1882.7 | 1878.1 | 1876.4 | 1887.8 | 1878.1 |
| 175° | 1894.1 | 1889.6 | 1886.1 | 1897.6 | 1887.8 |
| 177.5° | 1900.4 | 1895.9 | 1892.4 | 1902.1 | 1892.4 |
| 180° | 1897.6 | 1897.6 | 1897.6 | 1897.6 | 1897.6 |



TEST NUMBER: P907004
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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 | 6.45 | 7.14 | 7.58 | 8.26 | 9.82 | 6.03 | 6.71 | 7.16 | 7.84 | 9.40 |
| | 3H | 8.07 | 8.69 | 9.21 | 9.82 | 11.40 | 7.61 | 8.23 | 8.75 | 9.36 | 10.94 |
| | 4H | 8.64 | 9.22 | 9.78 | 10.35 | 11.94 | 8.18 | 8.76 | 9.32 | 9.89 | 11.48 |
| | 6H | 9.01 | 9.55 | 10.17 | 10.68 | 12.28 | 8.55 | 9.09 | 9.70 | 10.22 | 11.82 |
| | 8H | 9.10 | 9.61 | 10.26 | 10.76 | 12.35 | 8.64 | 9.15 | 9.80 | 10.30 | 11.89 |
| | 12H | 9.13 | 9.62 | 10.30 | 10.76 | 12.37 | 8.67 | 9.16 | 9.83 | 10.30 | 11.91 |
| 4H | 2H | 6.88 | 7.47 | 8.04 | 8.60 | 10.18 | 6.54 | 7.13 | 7.70 | 8.26 | 9.84 |
| | 3H | 8.70 | 9.19 | 9.86 | 10.35 | 11.94 | 8.32 | 8.81 | 9.48 | 9.96 | 11.56 |
| | 4H | 9.39 | 9.84 | 10.55 | 10.99 | 12.60 | 9.00 | 9.45 | 10.16 | 10.59 | 12.21 |
| | 6H | 9.87 | 10.26 | 11.04 | 11.43 | 13.03 | 9.48 | 9.86 | 10.65 | 11.03 | 12.64 |
| | 8H | 10.01 | 10.37 | 11.18 | 11.53 | 13.15 | 9.61 | 9.97 | 10.78 | 11.13 | 12.75 |
| | 12H | 10.06 | 10.39 | 11.25 | 11.56 | 13.19 | 9.66 | 9.98 | 10.84 | 11.15 | 12.78 |
| 8H | 4H | 9.56 | 9.92 | 10.73 | 11.08 | 12.70 | 9.21 | 9.57 | 10.38 | 10.73 | 12.35 |
| | 6H | 10.16 | 10.46 | 11.35 | 11.66 | 13.28 | 9.81 | 10.10 | 10.99 | 11.31 | 12.92 |
| | 8H | 10.36 | 10.62 | 11.56 | 11.80 | 13.44 | 10.01 | 10.26 | 11.20 | 11.44 | 13.08 |
| | 12H | 10.47 | 10.70 | 11.67 | 11.88 | 13.55 | 10.10 | 10.33 | 11.30 | 11.51 | 13.18 |
| 12H | 4H | 9.54 | 9.86 | 10.72 | 11.03 | 12.66 | 9.19 | 9.52 | 10.38 | 10.69 | 12.32 |
| | 6H | 10.18 | 10.44 | 11.38 | 11.62 | 13.26 | 9.84 | 10.10 | 11.03 | 11.28 | 12.92 |
| | 8H | 10.40 | 10.63 | 11.60 | 11.80 | 13.48 | 10.05 | 10.28 | 11.25 | 11.46 | 13.13 |