

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: P918924

Luminaire Tested: DFN2DIP-HX3F0-040D060US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918924
REPORT IS A COMBINATION OF REPORTS P899246 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-040D060US935-RLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

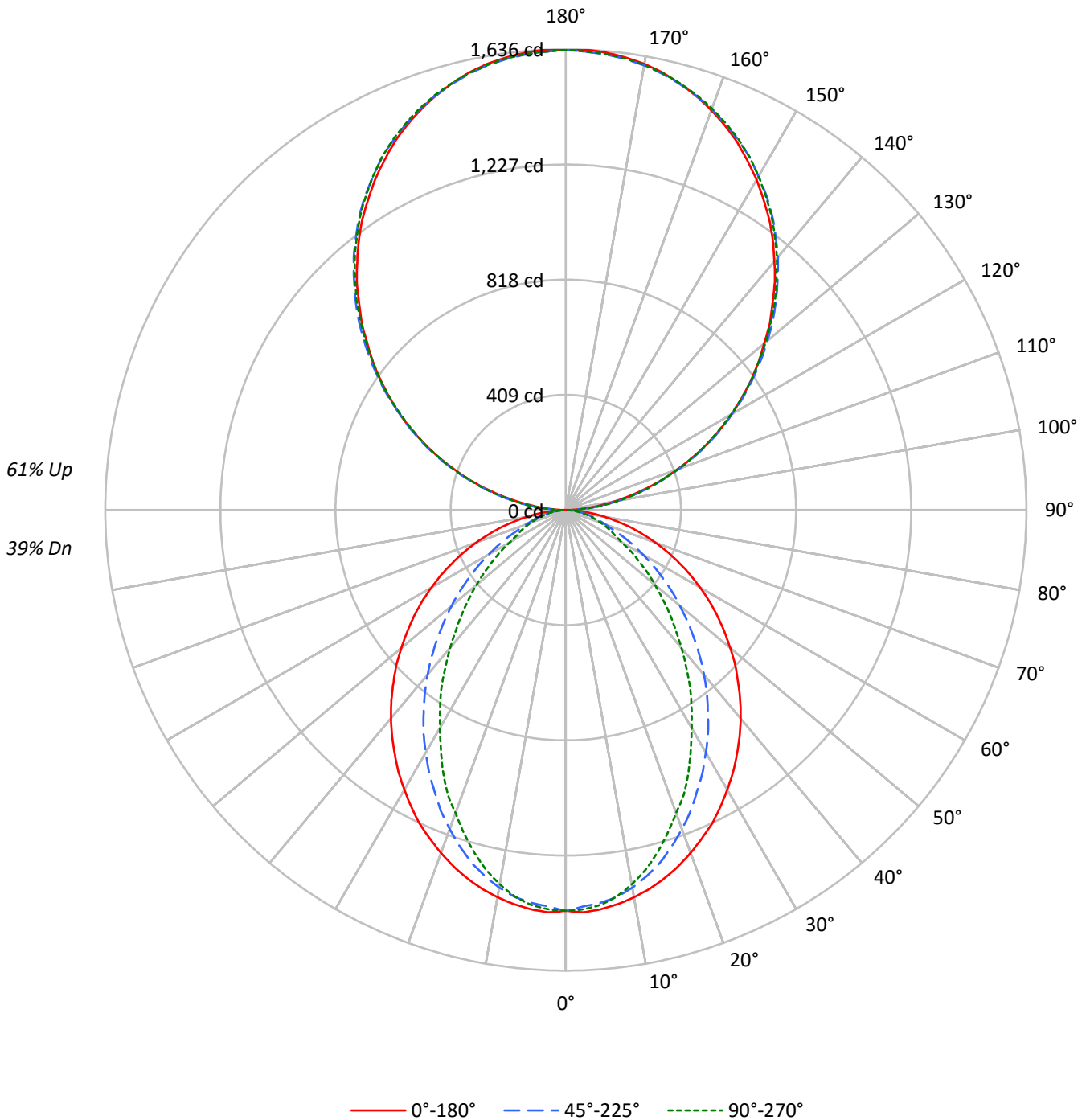
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7499.3 lumens
Efficiency: N/A
Efficacy: 94.0 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): 79.8
Input Voltage (V):
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: P918924

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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 | 105 | 105 | 105 | 105 | 95 | 95 | 95 | 95 | 77 | 77 | 77 | 61 | 61 | 61 | 46 | 46 | 46 | 39 | | | |
| 1 | 96 | 92 | 88 | 85 | 87 | 83 | 80 | 78 | 68 | 66 | 64 | 54 | 53 | 51 | 41 | 40 | 40 | 34 | | | |
| 2 | 87 | 80 | 75 | 70 | 79 | 73 | 68 | 64 | 60 | 57 | 54 | 48 | 46 | 44 | 37 | 35 | 34 | 29 | | | |
| 3 | 80 | 71 | 64 | 58 | 73 | 65 | 59 | 54 | 53 | 49 | 46 | 43 | 40 | 37 | 33 | 31 | 29 | 25 | | | |
| 4 | 73 | 63 | 55 | 50 | 66 | 58 | 51 | 46 | 48 | 43 | 39 | 38 | 35 | 32 | 30 | 27 | 26 | 22 | | | |
| 5 | 67 | 56 | 48 | 43 | 61 | 52 | 45 | 40 | 43 | 38 | 34 | 35 | 31 | 28 | 27 | 24 | 22 | 19 | | | |
| 6 | 62 | 51 | 43 | 37 | 56 | 46 | 40 | 35 | 39 | 33 | 30 | 31 | 28 | 25 | 25 | 22 | 20 | 17 | | | |
| 7 | 57 | 46 | 38 | 33 | 52 | 42 | 35 | 30 | 35 | 30 | 26 | 29 | 25 | 22 | 22 | 20 | 18 | 15 | | | |
| 8 | 53 | 41 | 34 | 29 | 49 | 38 | 32 | 27 | 32 | 27 | 23 | 26 | 22 | 20 | 21 | 18 | 16 | 14 | | | |
| 9 | 50 | 38 | 31 | 26 | 45 | 35 | 29 | 24 | 29 | 24 | 21 | 24 | 20 | 18 | 19 | 17 | 15 | 12 | | | |
| 10 | 46 | 35 | 28 | 23 | 42 | 32 | 26 | 22 | 27 | 22 | 19 | 22 | 19 | 16 | 18 | 15 | 13 | 11 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 1649 | 1649 | 1649 |
| 5° | 1651 | 1622 | 1632 |
| 10° | 1634 | 1589 | 1578 |
| 15° | 1610 | 1535 | 1495 |
| 20° | 1580 | 1462 | 1394 |
| 25° | 1549 | 1379 | 1296 |
| 30° | 1507 | 1295 | 1172 |
| 35° | 1466 | 1205 | 1063 |
| 40° | 1424 | 1112 | 938 |
| 45° | 1376 | 1008 | 826 |
| 50° | 1326 | 904 | 715 |
| 55° | 1274 | 793 | 609 |
| 60° | 1213 | 677 | 501 |
| 65° | 1143 | 559 | 450 |
| 70° | 1059 | 449 | 405 |
| 75° | 952 | 393 | 367 |
| 80° | 798 | 326 | 315 |
| 85° | 546 | 213 | 232 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1538 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 133.4 | 1.8 |
| 10°-20° | 366.2 | 4.9 |
| 20°-30° | 514.2 | 6.9 |
| 30°-40° | 560.5 | 7.5 |
| 40°-50° | 515.1 | 6.9 |
| 50°-60° | 404.5 | 5.4 |
| 60°-70° | 263.3 | 3.5 |
| 70°-80° | 135.6 | 1.8 |
| 80°-90° | 39.2 | 0.5 |
| 90°-100° | 101.1 | 1.3 |
| 100°-110° | 321.2 | 4.3 |
| 110°-120° | 549.7 | 7.3 |
| 120°-130° | 723.0 | 9.6 |
| 130°-140° | 811.5 | 10.8 |
| 140°-150° | 795.8 | 10.6 |
| 150°-160° | 667.5 | 8.9 |
| 160°-170° | 442.7 | 5.9 |
| 170°-180° | 154.7 | 2.1 |
| 0°-30° | 1013.8 | 13.5 |
| 0°-40° | 1574.2 | 21.0 |
| 0°-60° | 2493.9 | 33.3 |
| 0°-90° | 2932.0 | 39.1 |
| 90°-120° | 972.0 | 13.0 |
| 90°-150° | 3302.3 | 44.0 |
| 90°-180° | 4567.0 | 60.9 |
| 0°-180° | 7499.3 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1423 | 1423 | 1423 | 1423 | 1423 | |
| 5° | 1423 | 1417 | 1400 | 1412 | 1408 | 135 |
| 15° | 1354 | 1340 | 1296 | 1271 | 1259 | 382 |
| 25° | 1229 | 1188 | 1103 | 1050 | 1030 | 565 |
| 35° | 1059 | 993 | 880 | 799 | 770 | 663 |
| 45° | 866 | 779 | 644 | 553 | 522 | 668 |
| 55° | 658 | 558 | 419 | 341 | 317 | 588 |
| 65° | 444 | 340 | 224 | 180 | 176 | 441 |
| 75° | 237 | 147 | 103 | 94 | 93 | 251 |
| 85° | 55 | 28 | 24 | 24 | 24 | 64 |
| 90° | 2 | 18 | 48 | 45 | 47 | 7 |
| 95° | 72 | 86 | 88 | 88 | 86 | 80 |
| 105° | 296 | 300 | 303 | 306 | 306 | 313 |
| 115° | 552 | 560 | 557 | 556 | 552 | 546 |
| 125° | 802 | 815 | 811 | 806 | 805 | 717 |
| 135° | 1038 | 1053 | 1056 | 1055 | 1051 | 802 |
| 145° | 1260 | 1270 | 1278 | 1279 | 1274 | 787 |
| 155° | 1441 | 1445 | 1449 | 1456 | 1452 | 663 |
| 165° | 1567 | 1566 | 1566 | 1576 | 1569 | 442 |
| 175° | 1631 | 1627 | 1624 | 1634 | 1625 | 155 |
| 180° | 1634 | 1634 | 1634 | 1634 | 1634 | |



TEST NUMBER: P918924

CATALOG NUMBER: DFN2DIP-HX3F0-040D060US935-RLLFLL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1423.4 | 1423.4 | 1423.4 | 1423.4 | 1423.4 |
| 2.5° | 1429.9 | 1423.4 | 1409.2 | 1422.2 | 1419.5 |
| 5° | 1423.4 | 1416.9 | 1400.2 | 1411.8 | 1408.0 |
| 7.5° | 1411.8 | 1404.1 | 1386.1 | 1391.1 | 1384.7 |
| 10° | 1396.4 | 1387.3 | 1361.6 | 1357.6 | 1350.0 |
| 12.5° | 1377.1 | 1365.5 | 1330.6 | 1322.9 | 1308.7 |
| 15° | 1353.8 | 1339.6 | 1295.9 | 1271.4 | 1258.6 |
| 17.5° | 1326.8 | 1306.1 | 1252.0 | 1223.7 | 1203.1 |
| 20° | 1295.9 | 1270.1 | 1205.7 | 1173.5 | 1145.1 |
| 22.5° | 1262.4 | 1232.8 | 1158.0 | 1114.2 | 1095.0 |
| 25° | 1228.9 | 1187.7 | 1102.6 | 1049.9 | 1030.4 |
| 27.5° | 1189.0 | 1145.1 | 1051.1 | 990.6 | 960.9 |
| 30° | 1146.5 | 1097.4 | 994.4 | 928.8 | 894.0 |
| 32.5° | 1105.3 | 1045.9 | 940.4 | 863.1 | 830.8 |
| 35° | 1058.9 | 993.2 | 879.9 | 798.7 | 770.2 |
| 37.5° | 1013.8 | 942.9 | 823.1 | 734.2 | 702.1 |
| 40° | 966.1 | 888.9 | 763.9 | 672.4 | 638.9 |
| 42.5° | 917.1 | 834.7 | 704.6 | 609.2 | 577.1 |
| 45° | 865.6 | 779.3 | 644.1 | 552.6 | 521.7 |
| 47.5° | 816.7 | 725.3 | 586.2 | 494.6 | 466.3 |
| 50° | 762.6 | 671.1 | 529.4 | 440.5 | 413.5 |
| 52.5° | 709.7 | 613.1 | 475.4 | 390.3 | 365.8 |
| 55° | 658.2 | 557.8 | 418.6 | 341.4 | 316.9 |
| 57.5° | 605.5 | 502.4 | 368.4 | 296.3 | 275.7 |
| 60° | 551.3 | 448.2 | 315.6 | 249.9 | 229.4 |
| 62.5° | 498.6 | 395.5 | 270.4 | 208.7 | 198.5 |
| 65° | 444.4 | 340.0 | 224.1 | 180.4 | 176.4 |
| 67.5° | 393.0 | 288.5 | 180.4 | 158.4 | 154.5 |
| 70° | 338.8 | 238.3 | 149.4 | 136.6 | 131.3 |
| 72.5° | 287.3 | 191.9 | 124.9 | 114.7 | 112.1 |
| 75° | 236.9 | 146.8 | 103.1 | 94.0 | 92.8 |
| 77.5° | 186.8 | 104.3 | 81.2 | 76.0 | 73.4 |
| 80° | 140.3 | 74.7 | 61.7 | 56.7 | 56.7 |
| 82.5° | 97.9 | 50.3 | 42.5 | 39.9 | 39.9 |
| 85° | 55.4 | 28.3 | 24.5 | 24.5 | 24.5 |
| 87.5° | 20.7 | 10.2 | 10.2 | 9.0 | 9.0 |
| 90° | 1.5 | 17.7 | 48.3 | 45.3 | 46.8 |
| 92.5° | 30.6 | 41.4 | 42.9 | 44.3 | 44.3 |
| 95° | 71.9 | 85.7 | 88.2 | 88.2 | 85.7 |
| 97.5° | 119.7 | 132.5 | 137.9 | 137.9 | 137.9 |
| 100° | 174.9 | 186.1 | 190.1 | 190.1 | 188.6 |
| 102.5° | 233.0 | 241.3 | 246.8 | 248.2 | 246.8 |
| 105° | 296.5 | 300.5 | 303.4 | 305.9 | 305.9 |
| 107.5° | 359.6 | 365.5 | 365.5 | 366.4 | 359.6 |
| 110° | 420.7 | 428.5 | 428.5 | 428.5 | 424.6 |



TEST NUMBER: P918924

CATALOG NUMBER: DFN2DIP-HX3F0-040D060US935-RLLFLL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 486.6 | 495.0 | 493.5 | 489.6 | 486.6 |
| 115° | 551.6 | 559.6 | 557.1 | 555.6 | 551.6 |
| 117.5° | 616.2 | 627.1 | 620.1 | 616.2 | 612.3 |
| 120° | 681.2 | 692.1 | 681.2 | 681.2 | 676.7 |
| 122.5° | 740.3 | 754.1 | 747.2 | 743.3 | 740.3 |
| 125° | 802.4 | 814.7 | 810.7 | 806.3 | 804.9 |
| 127.5° | 863.0 | 878.2 | 872.8 | 866.9 | 863.0 |
| 130° | 919.6 | 937.4 | 934.9 | 931.9 | 926.5 |
| 132.5° | 983.2 | 996.9 | 997.9 | 991.0 | 987.0 |
| 135° | 1037.8 | 1053.1 | 1056.0 | 1054.6 | 1050.6 |
| 137.5° | 1098.9 | 1111.2 | 1113.7 | 1112.7 | 1106.8 |
| 140° | 1152.6 | 1164.9 | 1171.8 | 1171.8 | 1166.4 |
| 142.5° | 1207.7 | 1220.0 | 1224.0 | 1225.5 | 1220.0 |
| 145° | 1260.0 | 1269.8 | 1277.7 | 1279.2 | 1273.8 |
| 147.5° | 1306.7 | 1319.0 | 1325.0 | 1327.4 | 1322.0 |
| 150° | 1355.0 | 1363.4 | 1368.8 | 1373.2 | 1368.8 |
| 152.5° | 1397.8 | 1406.3 | 1413.2 | 1418.6 | 1413.2 |
| 155° | 1440.7 | 1444.7 | 1449.1 | 1456.0 | 1451.6 |
| 157.5° | 1477.6 | 1480.7 | 1483.1 | 1493.0 | 1486.1 |
| 160° | 1510.7 | 1513.6 | 1515.1 | 1523.4 | 1517.6 |
| 162.5° | 1541.2 | 1541.2 | 1542.6 | 1552.0 | 1545.1 |
| 165° | 1567.3 | 1565.8 | 1565.8 | 1575.7 | 1568.8 |
| 167.5° | 1591.0 | 1586.6 | 1586.6 | 1596.4 | 1589.5 |
| 170° | 1608.7 | 1604.7 | 1603.3 | 1613.1 | 1604.7 |
| 172.5° | 1621.0 | 1617.0 | 1615.6 | 1625.4 | 1617.0 |
| 175° | 1630.8 | 1626.9 | 1623.9 | 1633.8 | 1625.4 |
| 177.5° | 1636.2 | 1632.4 | 1629.4 | 1637.7 | 1629.4 |
| 180° | 1633.8 | 1633.8 | 1633.8 | 1633.8 | 1633.8 |



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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 | 7.73 | 8.48 | 8.78 | 9.53 | 10.95 | 3.70 | 4.45 | 4.76 | 5.50 | 6.93 |
| | 3H | 9.39 | 10.06 | 10.45 | 11.12 | 12.56 | 4.88 | 5.55 | 5.94 | 6.61 | 8.05 |
| | 4H | 9.99 | 10.62 | 11.06 | 11.69 | 13.13 | 5.33 | 5.96 | 6.40 | 7.02 | 8.47 |
| | 6H | 10.40 | 10.98 | 11.48 | 12.05 | 13.51 | 5.64 | 6.22 | 6.72 | 7.29 | 8.75 |
| | 8H | 10.52 | 11.08 | 11.61 | 12.16 | 13.61 | 5.72 | 6.28 | 6.81 | 7.36 | 8.81 |
| | 12H | 10.58 | 11.10 | 11.67 | 12.18 | 13.66 | 5.76 | 6.29 | 6.85 | 7.37 | 8.84 |
| 4H | 2H | 7.73 | 8.37 | 8.81 | 9.43 | 10.88 | 4.28 | 4.92 | 5.36 | 5.98 | 7.43 |
| | 3H | 9.55 | 10.08 | 10.63 | 11.17 | 12.62 | 5.62 | 6.15 | 6.71 | 7.24 | 8.70 |
| | 4H | 10.23 | 10.71 | 11.32 | 11.79 | 13.28 | 6.16 | 6.65 | 7.25 | 7.73 | 9.21 |
| | 6H | 10.73 | 11.15 | 11.83 | 12.25 | 13.73 | 6.57 | 6.99 | 7.67 | 8.09 | 9.57 |
| | 8H | 10.90 | 11.29 | 12.00 | 12.39 | 13.88 | 6.70 | 7.08 | 7.80 | 8.18 | 9.67 |
| | 12H | 10.99 | 11.34 | 12.11 | 12.45 | 13.94 | 6.76 | 7.11 | 7.87 | 8.22 | 9.71 |
| 8H | 4H | 10.19 | 10.58 | 11.29 | 11.67 | 13.16 | 6.43 | 6.82 | 7.53 | 7.92 | 9.41 |
| | 6H | 10.75 | 11.06 | 11.87 | 12.20 | 13.69 | 6.94 | 7.26 | 8.06 | 8.40 | 9.89 |
| | 8H | 10.96 | 11.24 | 12.08 | 12.36 | 13.86 | 7.13 | 7.41 | 8.26 | 8.53 | 10.03 |
| | 12H | 11.09 | 11.33 | 12.22 | 12.45 | 13.99 | 7.24 | 7.49 | 8.37 | 8.60 | 10.15 |
| 12H | 4H | 10.14 | 10.49 | 11.26 | 11.60 | 13.09 | 6.43 | 6.78 | 7.55 | 7.89 | 9.39 |
| | 6H | 10.72 | 11.00 | 11.85 | 12.12 | 13.63 | 6.99 | 7.27 | 8.12 | 8.39 | 9.89 |
| | 8H | 10.93 | 11.18 | 12.06 | 12.29 | 13.84 | 7.19 | 7.44 | 8.32 | 8.55 | 10.10 |