

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: P921065

Luminaire Tested: DFN2DIP-TR4F0-080D060US935-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921065
REPORT IS A COMBINATION OF REPORTS P901934 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D060US935-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

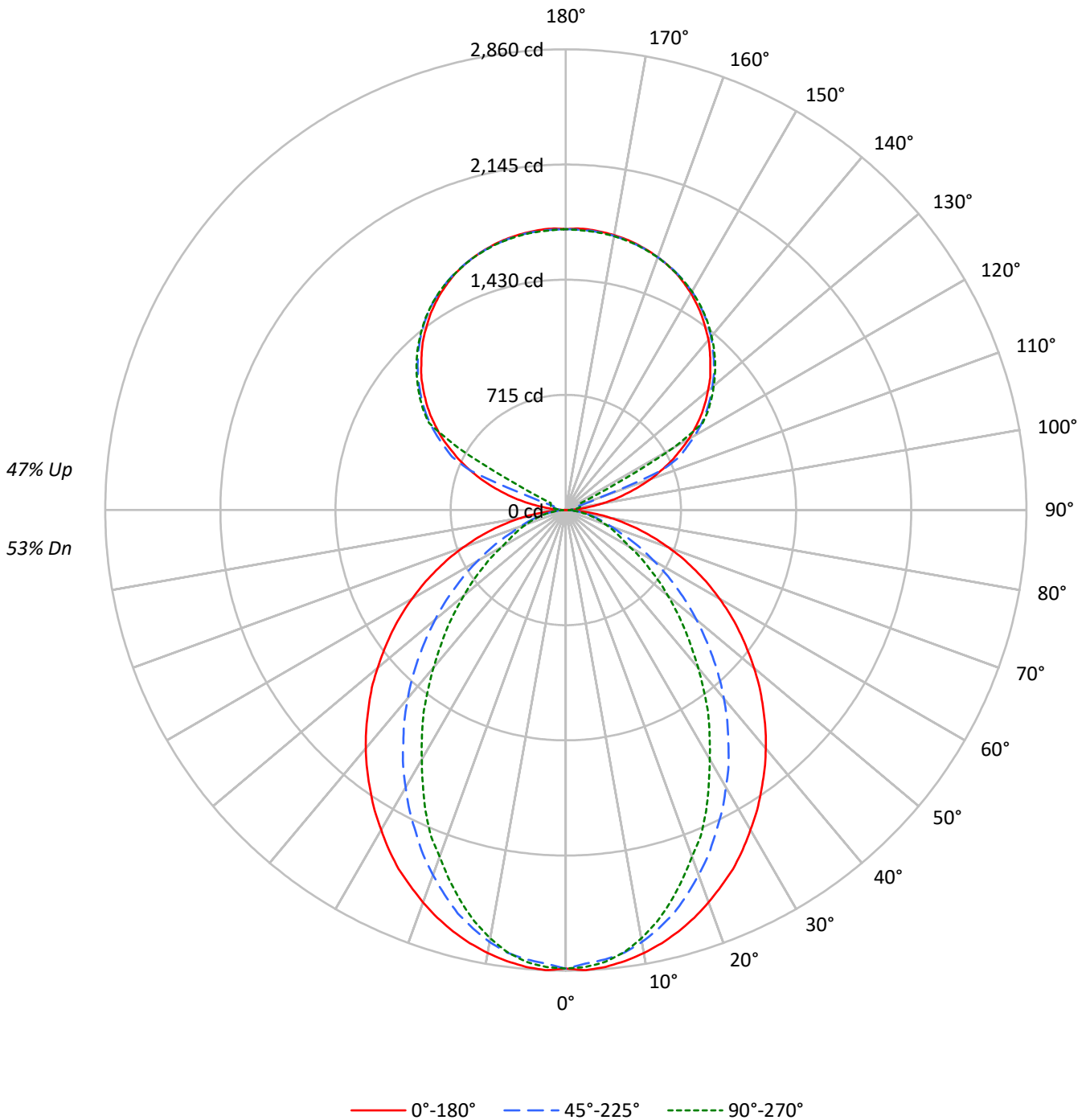
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10969.1 lumens
Efficiency: N/A
Efficacy: 91.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 119.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P921065
CATALOG NUMBER: DFN2DIP-TR4F0-080D060US935-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P921065

CATALOG NUMBER: DFN2DIP-TR4F0-080D060US935-RLLONL

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 | 108 | 108 | 108 | 108 | 100 | 100 | 100 | 100 | 85 | 85 | 85 | 72 | 72 | 72 | 59 | 59 | 59 | 59 | 59 | 59 | 53 |
| 1 | 99 | 95 | 91 | 88 | 92 | 88 | 85 | 82 | 76 | 73 | 71 | 64 | 62 | 61 | 53 | 52 | 51 | 53 | 52 | 51 | 46 |
| 2 | 91 | 83 | 78 | 73 | 84 | 78 | 73 | 68 | 67 | 63 | 60 | 57 | 54 | 52 | 47 | 45 | 44 | 47 | 45 | 44 | 39 |
| 3 | 83 | 74 | 67 | 61 | 77 | 69 | 63 | 58 | 59 | 55 | 51 | 51 | 47 | 44 | 42 | 40 | 38 | 42 | 40 | 38 | 34 |
| 4 | 76 | 66 | 58 | 52 | 70 | 61 | 55 | 49 | 53 | 48 | 44 | 45 | 42 | 38 | 38 | 35 | 33 | 38 | 35 | 33 | 30 |
| 5 | 70 | 59 | 51 | 45 | 65 | 55 | 48 | 43 | 48 | 42 | 38 | 41 | 37 | 34 | 35 | 32 | 29 | 35 | 32 | 29 | 26 |
| 6 | 65 | 53 | 45 | 39 | 60 | 50 | 43 | 37 | 43 | 38 | 34 | 37 | 33 | 30 | 32 | 28 | 26 | 32 | 28 | 26 | 23 |
| 7 | 60 | 48 | 40 | 35 | 56 | 45 | 38 | 33 | 39 | 34 | 30 | 34 | 30 | 26 | 29 | 26 | 23 | 29 | 26 | 23 | 21 |
| 8 | 56 | 44 | 36 | 31 | 52 | 41 | 34 | 29 | 36 | 31 | 27 | 31 | 27 | 24 | 27 | 24 | 21 | 27 | 24 | 21 | 19 |
| 9 | 52 | 40 | 33 | 28 | 48 | 38 | 31 | 26 | 33 | 28 | 24 | 29 | 25 | 22 | 25 | 22 | 19 | 25 | 22 | 19 | 17 |
| 10 | 49 | 37 | 30 | 25 | 45 | 35 | 28 | 24 | 31 | 25 | 22 | 27 | 23 | 20 | 23 | 20 | 17 | 23 | 20 | 17 | 16 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2262 | 2262 | 2262 |
| 5° | 2265 | 2226 | 2240 |
| 10° | 2243 | 2182 | 2167 |
| 15° | 2212 | 2110 | 2054 |
| 20° | 2171 | 2010 | 1916 |
| 25° | 2129 | 1899 | 1782 |
| 30° | 2073 | 1785 | 1613 |
| 35° | 2018 | 1662 | 1464 |
| 40° | 1962 | 1535 | 1293 |
| 45° | 1897 | 1394 | 1139 |
| 50° | 1830 | 1251 | 988 |
| 55° | 1760 | 1099 | 843 |
| 60° | 1678 | 940 | 694 |
| 65° | 1585 | 778 | 624 |
| 70° | 1472 | 628 | 565 |
| 75° | 1329 | 553 | 514 |
| 80° | 1123 | 464 | 445 |
| 85° | 783 | 309 | 334 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1897 cd/sqm



TEST NUMBER: P921065

CATALOG NUMBER: DFN2DIP-TR4F0-080D060US935-RLONL

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 266.8 | 2.4 |
| 10°-20° | 732.4 | 6.7 |
| 20°-30° | 1028.3 | 9.4 |
| 30°-40° | 1120.9 | 10.2 |
| 40°-50° | 1030.3 | 9.4 |
| 50°-60° | 809.1 | 7.4 |
| 60°-70° | 526.6 | 4.8 |
| 70°-80° | 271.1 | 2.5 |
| 80°-90° | 72.3 | 0.7 |
| 90°-100° | 57.5 | 0.5 |
| 100°-110° | 214.3 | 2.0 |
| 110°-120° | 568.4 | 5.2 |
| 120°-130° | 942.7 | 8.6 |
| 130°-140° | 1001.4 | 9.1 |
| 140°-150° | 930.7 | 8.5 |
| 150°-160° | 748.2 | 6.8 |
| 160°-170° | 482.1 | 4.4 |
| 170°-180° | 165.9 | 1.5 |
| 0°-30° | 2027.6 | 18.5 |
| 0°-40° | 3148.5 | 28.7 |
| 0°-60° | 4987.8 | 45.5 |
| 0°-90° | 5857.9 | 53.4 |
| 90°-120° | 840.2 | 7.7 |
| 90°-150° | 3714.9 | 33.9 |
| 90°-180° | 5111.0 | 46.6 |
| 0°-180° | 10969.1 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 2847 | 2847 | 2847 | 2847 | 2847 | |
| 5° | 2847 | 2834 | 2800 | 2824 | 2816 | 270 |
| 15° | 2708 | 2679 | 2592 | 2543 | 2517 | 763 |
| 25° | 2458 | 2375 | 2205 | 2100 | 2061 | 1130 |
| 35° | 2118 | 1986 | 1760 | 1597 | 1540 | 1326 |
| 45° | 1731 | 1559 | 1288 | 1105 | 1043 | 1337 |
| 55° | 1316 | 1116 | 837 | 683 | 634 | 1176 |
| 65° | 889 | 680 | 448 | 361 | 353 | 881 |
| 75° | 474 | 294 | 206 | 188 | 186 | 501 |
| 85° | 111 | 57 | 49 | 49 | 49 | 127 |
| 90° | 1 | 15 | 25 | 32 | 34 | 10 |
| 95° | 82 | 40 | 49 | 56 | 54 | 97 |
| 105° | 384 | 421 | 77 | 91 | 96 | 410 |
| 115° | 725 | 747 | 778 | 194 | 104 | 714 |
| 125° | 1026 | 1042 | 1066 | 1075 | 1079 | 915 |
| 135° | 1269 | 1289 | 1301 | 1313 | 1311 | 980 |
| 145° | 1472 | 1471 | 1492 | 1501 | 1495 | 921 |
| 155° | 1621 | 1610 | 1625 | 1632 | 1622 | 747 |
| 165° | 1708 | 1701 | 1704 | 1713 | 1704 | 483 |
| 175° | 1747 | 1738 | 1741 | 1750 | 1737 | 166 |
| 180° | 1743 | 1743 | 1743 | 1743 | 1743 | |



TEST NUMBER: P921065

CATALOG NUMBER: DFN2DIP-TR4F0-080D060US935-RLLONL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 2846.8 | 2846.8 | 2846.8 | 2846.8 | 2846.8 |
| 2.5° | 2859.6 | 2846.8 | 2818.4 | 2844.3 | 2839.1 |
| 5° | 2846.8 | 2834.0 | 2800.3 | 2823.6 | 2815.9 |
| 7.5° | 2823.6 | 2808.2 | 2772.2 | 2782.3 | 2769.4 |
| 10° | 2792.6 | 2774.7 | 2723.3 | 2715.3 | 2700.0 |
| 12.5° | 2754.2 | 2730.9 | 2661.2 | 2645.8 | 2617.4 |
| 15° | 2707.7 | 2679.3 | 2591.8 | 2542.9 | 2517.1 |
| 17.5° | 2653.5 | 2612.3 | 2504.0 | 2447.5 | 2406.1 |
| 20° | 2591.8 | 2540.1 | 2411.4 | 2347.2 | 2290.3 |
| 22.5° | 2524.8 | 2465.5 | 2316.0 | 2228.5 | 2189.9 |
| 25° | 2457.8 | 2375.3 | 2205.3 | 2099.8 | 2061.0 |
| 27.5° | 2378.0 | 2290.3 | 2102.2 | 1981.2 | 1921.8 |
| 30° | 2293.0 | 2194.9 | 1988.8 | 1857.6 | 1787.9 |
| 32.5° | 2210.4 | 2091.9 | 1880.8 | 1726.1 | 1661.6 |
| 35° | 2117.8 | 1986.3 | 1759.7 | 1597.4 | 1540.5 |
| 37.5° | 2027.6 | 1885.8 | 1646.3 | 1468.3 | 1404.1 |
| 40° | 1932.3 | 1777.8 | 1527.7 | 1344.8 | 1277.8 |
| 42.5° | 1834.4 | 1669.6 | 1409.3 | 1218.6 | 1154.3 |
| 45° | 1731.3 | 1558.6 | 1288.2 | 1105.1 | 1043.4 |
| 47.5° | 1633.5 | 1450.6 | 1172.3 | 989.2 | 932.6 |
| 50° | 1525.2 | 1342.4 | 1058.9 | 881.0 | 827.1 |
| 52.5° | 1419.4 | 1226.1 | 950.6 | 780.7 | 731.8 |
| 55° | 1316.4 | 1115.5 | 837.2 | 682.8 | 633.9 |
| 57.5° | 1210.9 | 1004.8 | 736.9 | 592.6 | 551.3 |
| 60° | 1102.6 | 896.6 | 631.1 | 499.9 | 458.7 |
| 62.5° | 997.1 | 791.0 | 541.0 | 417.4 | 396.9 |
| 65° | 888.9 | 680.0 | 448.2 | 360.8 | 352.8 |
| 67.5° | 785.8 | 577.0 | 360.8 | 316.8 | 309.2 |
| 70° | 677.6 | 476.7 | 298.8 | 273.0 | 262.7 |
| 72.5° | 574.5 | 383.7 | 249.9 | 229.4 | 224.1 |
| 75° | 474.0 | 293.6 | 206.1 | 188.0 | 185.6 |
| 77.5° | 373.7 | 208.5 | 162.4 | 152.0 | 146.8 |
| 80° | 280.7 | 149.6 | 123.6 | 113.4 | 113.4 |
| 82.5° | 195.7 | 100.6 | 85.0 | 79.8 | 79.8 |
| 85° | 110.7 | 56.6 | 48.9 | 48.9 | 48.9 |
| 87.5° | 41.2 | 20.5 | 20.5 | 18.1 | 18.1 |
| 90° | 1.2 | 15.2 | 25.1 | 31.6 | 34.0 |
| 92.5° | 31.6 | 26.5 | 30.2 | 32.8 | 34.0 |
| 95° | 82.0 | 40.3 | 49.2 | 55.6 | 54.2 |
| 97.5° | 147.6 | 44.2 | 64.2 | 68.2 | 69.4 |
| 100° | 223.3 | 50.5 | 71.9 | 82.0 | 84.5 |
| 102.5° | 306.5 | 304.1 | 74.5 | 88.3 | 92.1 |
| 105° | 383.5 | 421.4 | 77.0 | 90.7 | 95.9 |
| 107.5° | 473.1 | 504.5 | 79.6 | 93.3 | 98.4 |
| 110° | 559.0 | 585.3 | 220.8 | 94.7 | 99.6 |



TEST NUMBER: P921065

CATALOG NUMBER: DFN2DIP-TR4F0-080D060US935-RLLONL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 639.6 | 662.3 | 640.8 | 97.0 | 101.0 |
| 115° | 725.4 | 746.8 | 778.4 | 194.3 | 103.5 |
| 117.5° | 799.8 | 825.0 | 846.5 | 666.1 | 335.5 |
| 120° | 883.1 | 902.0 | 924.8 | 939.9 | 769.6 |
| 122.5° | 953.6 | 973.9 | 999.2 | 1006.7 | 1008.1 |
| 125° | 1025.6 | 1042.1 | 1066.0 | 1074.9 | 1078.6 |
| 127.5° | 1091.2 | 1108.9 | 1127.9 | 1140.5 | 1141.7 |
| 130° | 1153.0 | 1173.3 | 1187.1 | 1201.0 | 1199.8 |
| 132.5° | 1216.2 | 1232.6 | 1246.4 | 1257.7 | 1256.5 |
| 135° | 1269.2 | 1289.4 | 1300.6 | 1313.4 | 1310.8 |
| 137.5° | 1324.6 | 1339.7 | 1352.5 | 1365.0 | 1361.3 |
| 140° | 1378.8 | 1389.0 | 1402.8 | 1414.2 | 1407.9 |
| 142.5° | 1424.3 | 1433.2 | 1449.6 | 1459.6 | 1453.3 |
| 145° | 1472.3 | 1470.9 | 1492.4 | 1501.2 | 1495.0 |
| 147.5° | 1513.8 | 1510.0 | 1531.5 | 1537.7 | 1532.8 |
| 150° | 1554.3 | 1545.4 | 1565.6 | 1573.1 | 1566.8 |
| 152.5° | 1588.3 | 1578.2 | 1597.1 | 1604.7 | 1595.9 |
| 155° | 1621.1 | 1609.8 | 1625.0 | 1632.5 | 1622.4 |
| 157.5° | 1647.6 | 1637.5 | 1648.9 | 1657.8 | 1647.6 |
| 160° | 1670.3 | 1662.7 | 1670.3 | 1677.8 | 1669.0 |
| 162.5° | 1690.4 | 1682.9 | 1689.2 | 1698.1 | 1686.7 |
| 165° | 1708.1 | 1700.6 | 1704.3 | 1713.2 | 1704.3 |
| 167.5° | 1722.0 | 1714.4 | 1718.3 | 1727.2 | 1715.7 |
| 170° | 1733.4 | 1725.8 | 1728.4 | 1737.1 | 1725.8 |
| 172.5° | 1740.9 | 1733.4 | 1735.9 | 1744.8 | 1733.4 |
| 175° | 1747.2 | 1738.4 | 1740.9 | 1749.7 | 1737.1 |
| 177.5° | 1749.7 | 1740.9 | 1742.2 | 1751.1 | 1739.7 |
| 180° | 1743.4 | 1743.4 | 1743.4 | 1743.4 | 1743.4 |



TEST NUMBER: P921065
 CATALOG NUMBER: DFN2DIP-TR4F0-080D060US935-RLONL

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 | 10.29 | 11.15 | 11.22 | 12.10 | 13.32 | 6.26 | 7.12 | 7.20 | 8.07 | 9.29 |
| | 3H | 11.97 | 12.74 | 12.92 | 13.69 | 14.94 | 7.46 | 8.22 | 8.40 | 9.18 | 10.43 |
| | 4H | 12.58 | 13.30 | 13.54 | 14.27 | 15.52 | 7.91 | 8.63 | 8.87 | 9.59 | 10.85 |
| | 6H | 13.00 | 13.67 | 13.97 | 14.64 | 15.91 | 8.23 | 8.90 | 9.20 | 9.86 | 11.13 |
| | 8H | 13.13 | 13.76 | 14.11 | 14.75 | 16.01 | 8.32 | 8.96 | 9.30 | 9.94 | 11.21 |
| | 12H | 13.19 | 13.80 | 14.17 | 14.77 | 16.06 | 8.37 | 8.97 | 9.35 | 9.95 | 11.24 |
| 4H | 2H | 10.31 | 11.04 | 11.28 | 12.00 | 13.26 | 6.86 | 7.59 | 7.83 | 8.55 | 9.81 |
| | 3H | 12.14 | 12.75 | 13.12 | 13.74 | 15.01 | 8.22 | 8.82 | 9.19 | 9.81 | 11.08 |
| | 4H | 12.84 | 13.39 | 13.82 | 14.37 | 15.67 | 8.77 | 9.32 | 9.75 | 10.30 | 11.60 |
| | 6H | 13.35 | 13.83 | 14.35 | 14.83 | 16.13 | 9.19 | 9.66 | 10.18 | 10.67 | 11.96 |
| | 8H | 13.53 | 13.97 | 14.53 | 14.97 | 16.28 | 9.32 | 9.76 | 10.32 | 10.76 | 12.07 |
| | 12H | 13.63 | 14.02 | 14.64 | 15.04 | 16.35 | 9.38 | 9.78 | 10.40 | 10.80 | 12.11 |
| 8H | 4H | 12.81 | 13.25 | 13.80 | 14.25 | 15.56 | 9.05 | 9.49 | 10.05 | 10.49 | 11.80 |
| | 6H | 13.37 | 13.74 | 14.40 | 14.78 | 16.09 | 9.57 | 9.93 | 10.59 | 10.98 | 12.28 |
| | 8H | 13.59 | 13.91 | 14.62 | 14.94 | 16.27 | 9.76 | 10.08 | 10.79 | 11.11 | 12.44 |
| | 12H | 13.73 | 14.01 | 14.76 | 15.04 | 16.41 | 9.88 | 10.16 | 10.91 | 11.19 | 12.56 |
| 12H | 4H | 12.76 | 13.16 | 13.78 | 14.17 | 15.49 | 9.05 | 9.45 | 10.07 | 10.47 | 11.78 |
| | 6H | 13.35 | 13.67 | 14.38 | 14.70 | 16.02 | 9.62 | 9.94 | 10.65 | 10.97 | 12.29 |
| | 8H | 13.57 | 13.85 | 14.60 | 14.88 | 16.25 | 9.83 | 10.11 | 10.86 | 11.14 | 12.51 |