

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: P919271

Luminaire Tested: DFN2DIP-PN2F0-040D050US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919271
REPORT IS A COMBINATION OF REPORTS P901016 AND P897905
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN2F0-040D050US935-RLONL
Description: 2 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

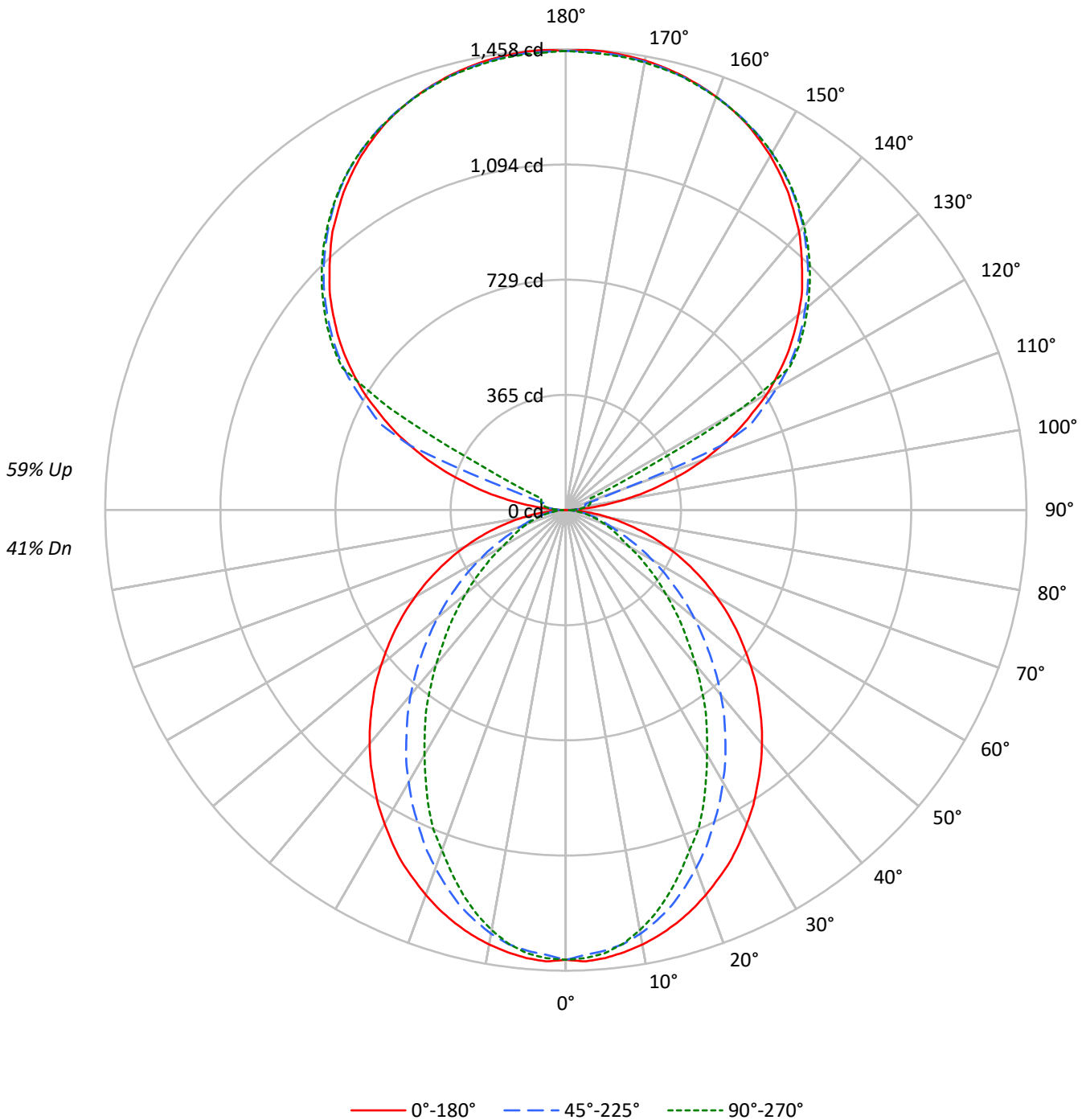
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7189.3 lumens
Efficiency: N/A
Efficacy: 89.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.17' x L: 2.29' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 80.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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 | | | | |
| 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 | 96 | 96 | 96 | 96 | 78 | 78 | 78 | 62 | 62 | 62 | 48 | 48 | 48 | 48 | 48 | 48 | 41 |
| 1 | 96 | 92 | 88 | 85 | 87 | 84 | 81 | 78 | 69 | 67 | 65 | 55 | 54 | 53 | 43 | 42 | 41 | 41 | 41 | 41 | 35 |
| 2 | 88 | 81 | 75 | 70 | 80 | 74 | 69 | 65 | 61 | 57 | 54 | 49 | 47 | 44 | 38 | 36 | 35 | 35 | 35 | 35 | 30 |
| 3 | 80 | 71 | 64 | 59 | 73 | 65 | 59 | 54 | 54 | 50 | 46 | 44 | 41 | 38 | 34 | 32 | 30 | 30 | 30 | 30 | 26 |
| 4 | 74 | 63 | 56 | 50 | 67 | 58 | 52 | 46 | 48 | 43 | 40 | 39 | 36 | 33 | 31 | 28 | 26 | 26 | 26 | 26 | 23 |
| 5 | 68 | 57 | 49 | 43 | 62 | 52 | 45 | 40 | 43 | 38 | 34 | 35 | 32 | 29 | 28 | 25 | 23 | 23 | 23 | 23 | 20 |
| 6 | 62 | 51 | 43 | 37 | 57 | 47 | 40 | 35 | 39 | 34 | 30 | 32 | 28 | 25 | 25 | 23 | 21 | 21 | 21 | 21 | 18 |
| 7 | 58 | 46 | 38 | 33 | 53 | 42 | 36 | 31 | 36 | 30 | 27 | 29 | 25 | 23 | 23 | 21 | 19 | 19 | 19 | 19 | 16 |
| 8 | 54 | 42 | 34 | 29 | 49 | 39 | 32 | 27 | 33 | 27 | 24 | 27 | 23 | 20 | 21 | 19 | 17 | 17 | 17 | 17 | 14 |
| 9 | 50 | 38 | 31 | 26 | 46 | 35 | 29 | 24 | 30 | 25 | 21 | 25 | 21 | 18 | 20 | 17 | 15 | 15 | 15 | 15 | 13 |
| 10 | 47 | 35 | 28 | 23 | 43 | 32 | 26 | 22 | 28 | 23 | 19 | 23 | 19 | 17 | 18 | 16 | 14 | 14 | 14 | 14 | 12 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 3083 | 3083 | 3083 |
| 5° | 3083 | 3027 | 3049 |
| 10° | 3048 | 2961 | 2945 |
| 15° | 3000 | 2857 | 2788 |
| 20° | 2940 | 2716 | 2596 |
| 25° | 2878 | 2559 | 2411 |
| 30° | 2797 | 2399 | 2178 |
| 35° | 2717 | 2228 | 1973 |
| 40° | 2635 | 2051 | 1739 |
| 45° | 2540 | 1855 | 1528 |
| 50° | 2442 | 1658 | 1321 |
| 55° | 2339 | 1449 | 1123 |
| 60° | 2220 | 1232 | 920 |
| 65° | 2082 | 1011 | 823 |
| 70° | 1915 | 806 | 738 |
| 75° | 1704 | 698 | 663 |
| 80° | 1402 | 566 | 561 |
| 85° | 918 | 353 | 399 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2540 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 133.4 | 1.9 |
| 10°-20° | 366.2 | 5.1 |
| 20°-30° | 514.2 | 7.2 |
| 30°-40° | 560.5 | 7.8 |
| 40°-50° | 515.1 | 7.2 |
| 50°-60° | 404.5 | 5.6 |
| 60°-70° | 263.3 | 3.7 |
| 70°-80° | 135.6 | 1.9 |
| 80°-90° | 37.2 | 0.5 |
| 90°-100° | 47.9 | 0.7 |
| 100°-110° | 178.6 | 2.5 |
| 110°-120° | 473.7 | 6.6 |
| 120°-130° | 785.6 | 10.9 |
| 130°-140° | 834.5 | 11.6 |
| 140°-150° | 775.6 | 10.8 |
| 150°-160° | 623.5 | 8.7 |
| 160°-170° | 401.8 | 5.6 |
| 170°-180° | 138.3 | 1.9 |
| 0°-30° | 1013.8 | 14.1 |
| 0°-40° | 1574.2 | 21.9 |
| 0°-60° | 2493.9 | 34.7 |
| 0°-90° | 2929.9 | 40.8 |
| 90°-120° | 700.2 | 9.7 |
| 90°-150° | 3095.8 | 43.1 |
| 90°-180° | 4259.0 | 59.2 |
| 0°-180° | 7189.3 | 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° | 1 | 13 | 21 | 26 | 28 | 7 |
| 95° | 68 | 34 | 41 | 46 | 45 | 81 |
| 105° | 320 | 351 | 64 | 76 | 80 | 342 |
| 115° | 604 | 622 | 649 | 162 | 86 | 595 |
| 125° | 855 | 868 | 888 | 896 | 899 | 762 |
| 135° | 1058 | 1074 | 1084 | 1094 | 1092 | 817 |
| 145° | 1227 | 1226 | 1244 | 1251 | 1246 | 767 |
| 155° | 1351 | 1342 | 1354 | 1360 | 1352 | 622 |
| 165° | 1423 | 1417 | 1420 | 1428 | 1420 | 402 |
| 175° | 1456 | 1449 | 1451 | 1458 | 1448 | 139 |
| 180° | 1453 | 1453 | 1453 | 1453 | 1453 | |



TEST NUMBER: P919271

CATALOG NUMBER: DFN2DIP-PN2F0-040D050US935-RLLONL

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° | 1.0 | 12.6 | 21.0 | 26.3 | 28.3 |
| 92.5° | 26.3 | 22.1 | 25.2 | 27.4 | 28.3 |
| 95° | 68.3 | 33.6 | 41.0 | 46.3 | 45.2 |
| 97.5° | 123.0 | 36.9 | 53.6 | 56.8 | 57.8 |
| 100° | 186.1 | 42.1 | 59.9 | 68.3 | 70.4 |
| 102.5° | 255.5 | 253.4 | 62.1 | 73.5 | 76.8 |
| 105° | 319.6 | 351.2 | 64.1 | 75.7 | 79.9 |
| 107.5° | 394.3 | 420.4 | 66.3 | 77.7 | 82.1 |
| 110° | 465.8 | 487.8 | 184.0 | 78.9 | 83.0 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 533.0 | 551.9 | 534.1 | 80.9 | 84.1 |
| 115° | 604.5 | 622.3 | 648.7 | 162.0 | 86.3 |
| 117.5° | 666.5 | 687.5 | 705.5 | 555.0 | 279.7 |
| 120° | 735.9 | 751.7 | 770.6 | 783.2 | 641.3 |
| 122.5° | 794.7 | 811.6 | 832.7 | 839.0 | 840.1 |
| 125° | 854.6 | 868.4 | 888.4 | 895.7 | 898.9 |
| 127.5° | 909.3 | 924.0 | 940.0 | 950.4 | 951.4 |
| 130° | 960.9 | 977.7 | 989.2 | 1000.8 | 999.9 |
| 132.5° | 1013.5 | 1027.2 | 1038.6 | 1048.2 | 1047.1 |
| 135° | 1057.6 | 1074.5 | 1083.8 | 1094.5 | 1092.3 |
| 137.5° | 1103.8 | 1116.5 | 1127.0 | 1137.6 | 1134.5 |
| 140° | 1149.0 | 1157.5 | 1169.0 | 1178.4 | 1173.3 |
| 142.5° | 1187.0 | 1194.4 | 1208.0 | 1216.3 | 1211.1 |
| 145° | 1226.9 | 1225.8 | 1243.6 | 1251.0 | 1245.8 |
| 147.5° | 1261.5 | 1258.3 | 1276.3 | 1281.5 | 1277.4 |
| 150° | 1295.2 | 1287.9 | 1304.7 | 1311.0 | 1305.7 |
| 152.5° | 1323.5 | 1315.2 | 1330.9 | 1337.3 | 1329.9 |
| 155° | 1350.9 | 1341.5 | 1354.1 | 1360.4 | 1352.0 |
| 157.5° | 1372.9 | 1364.6 | 1374.1 | 1381.5 | 1372.9 |
| 160° | 1392.0 | 1385.6 | 1392.0 | 1398.2 | 1390.9 |
| 162.5° | 1408.7 | 1402.5 | 1407.6 | 1415.0 | 1405.6 |
| 165° | 1423.4 | 1417.2 | 1420.3 | 1427.6 | 1420.3 |
| 167.5° | 1435.0 | 1428.7 | 1431.9 | 1439.2 | 1429.8 |
| 170° | 1444.5 | 1438.1 | 1440.3 | 1447.6 | 1438.1 |
| 172.5° | 1450.8 | 1444.5 | 1446.6 | 1454.0 | 1444.5 |
| 175° | 1456.0 | 1448.6 | 1450.8 | 1458.1 | 1447.6 |
| 177.5° | 1458.1 | 1450.8 | 1451.9 | 1459.2 | 1449.7 |
| 180° | 1452.8 | 1452.8 | 1452.8 | 1452.8 | 1452.8 |



TEST NUMBER: P919271
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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 | 10.01 | 10.77 | 11.05 | 11.81 | 13.21 | 5.98 | 6.74 | 7.02 | 7.78 | 9.18 |
| | 3H | 11.67 | 12.34 | 12.71 | 13.39 | 14.81 | 7.15 | 7.83 | 8.20 | 8.88 | 10.30 |
| | 4H | 12.26 | 12.90 | 13.32 | 13.95 | 15.38 | 7.58 | 8.23 | 8.64 | 9.28 | 10.70 |
| | 6H | 12.66 | 13.25 | 13.73 | 14.31 | 15.74 | 7.89 | 8.48 | 8.96 | 9.53 | 10.97 |
| | 8H | 12.77 | 13.34 | 13.85 | 14.41 | 15.84 | 7.97 | 8.53 | 9.04 | 9.60 | 11.03 |
| | 12H | 12.82 | 13.36 | 13.90 | 14.42 | 15.88 | 8.00 | 8.53 | 9.08 | 9.60 | 11.06 |
| 4H | 2H | 10.02 | 10.66 | 11.09 | 11.71 | 13.14 | 6.56 | 7.20 | 7.62 | 8.25 | 9.68 |
| | 3H | 11.82 | 12.35 | 12.89 | 13.43 | 14.87 | 7.88 | 8.42 | 8.96 | 9.50 | 10.93 |
| | 4H | 12.49 | 12.98 | 13.57 | 14.05 | 15.51 | 8.41 | 8.90 | 9.49 | 9.97 | 11.43 |
| | 6H | 12.98 | 13.40 | 14.07 | 14.50 | 15.95 | 8.81 | 9.23 | 9.90 | 10.32 | 11.78 |
| | 8H | 13.15 | 13.54 | 14.23 | 14.62 | 16.09 | 8.93 | 9.32 | 10.01 | 10.40 | 11.87 |
| | 12H | 13.23 | 13.58 | 14.33 | 14.68 | 16.15 | 8.98 | 9.33 | 10.08 | 10.43 | 11.91 |
| 8H | 4H | 12.45 | 12.84 | 13.54 | 13.93 | 15.40 | 8.67 | 9.07 | 9.76 | 10.15 | 11.62 |
| | 6H | 12.99 | 13.31 | 14.10 | 14.44 | 15.91 | 9.17 | 9.49 | 10.28 | 10.62 | 12.09 |
| | 8H | 13.19 | 13.48 | 14.31 | 14.59 | 16.07 | 9.34 | 9.63 | 10.46 | 10.74 | 12.22 |
| | 12H | 13.31 | 13.56 | 14.44 | 14.67 | 16.20 | 9.45 | 9.70 | 10.57 | 10.80 | 12.33 |
| 12H | 4H | 12.40 | 12.75 | 13.50 | 13.85 | 15.33 | 8.67 | 9.03 | 9.78 | 10.13 | 11.60 |
| | 6H | 12.96 | 13.25 | 14.08 | 14.36 | 15.84 | 9.21 | 9.49 | 10.33 | 10.60 | 12.09 |
| | 8H | 13.17 | 13.42 | 14.29 | 14.52 | 16.05 | 9.40 | 9.65 | 10.52 | 10.76 | 12.28 |