

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: P904393

Luminaire Tested: DFN2DIP-TR3F0-040D040US830-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904393
REPORT IS A COMBINATION OF REPORTS P901808 AND P898751
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR3F0-040D040US830-RLLONL
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

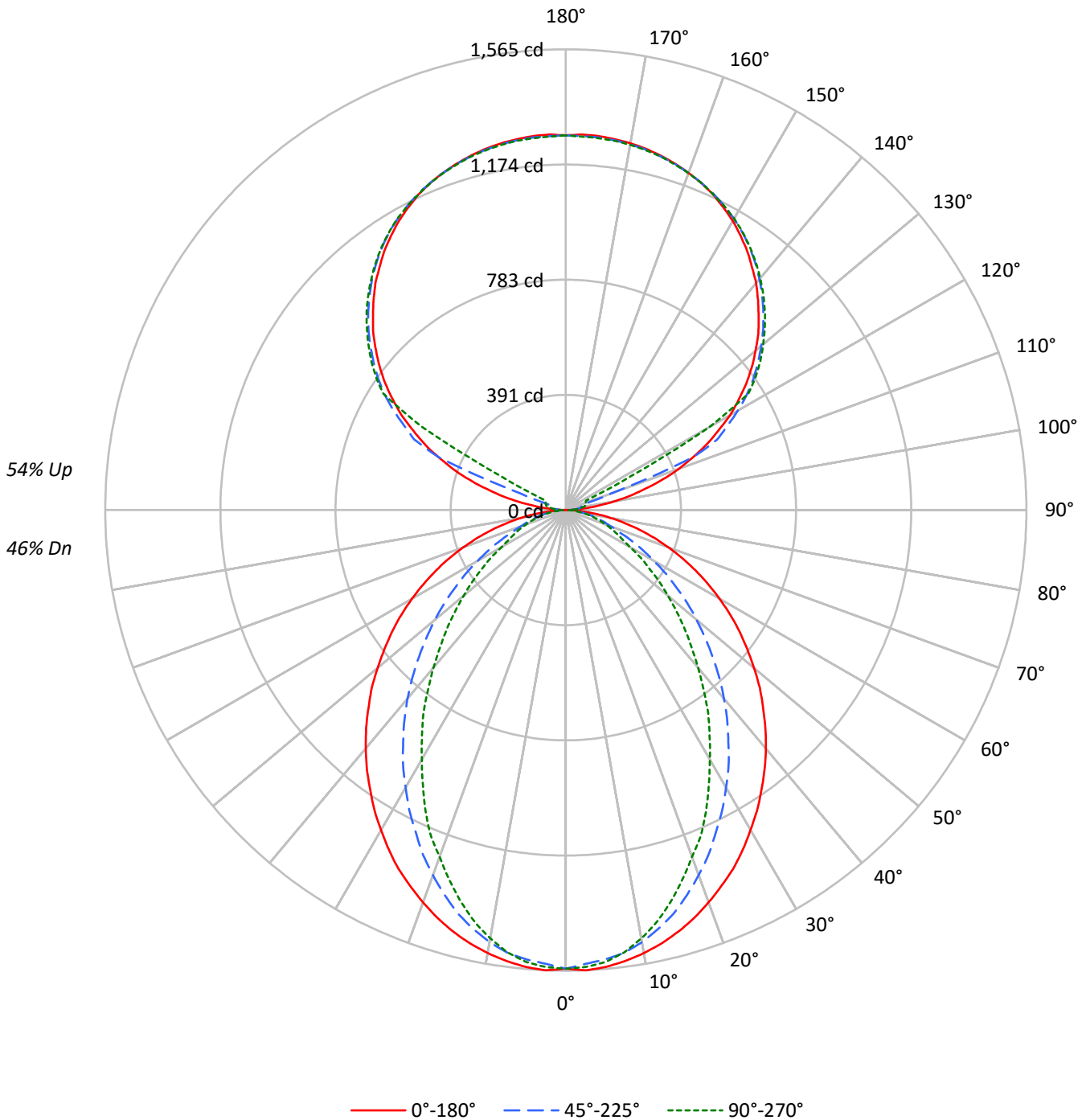
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6937.1 lumens
Efficiency: N/A
Efficacy: 107.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 64.5
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: P904393
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Luminous Intensity Polar Plot





TEST NUMBER: P904393
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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 | 106 | 106 | 106 | 106 | 98 | 98 | 98 | 98 | 81 | 81 | 81 | 66 | 66 | 66 | 53 | 53 | 53 | 46 | | | 46 |
| 1 | 97 | 93 | 90 | 86 | 89 | 86 | 83 | 80 | 72 | 70 | 68 | 59 | 58 | 56 | 47 | 46 | 45 | 40 | | | 40 |
| 2 | 89 | 82 | 76 | 71 | 82 | 76 | 70 | 66 | 63 | 60 | 57 | 52 | 50 | 48 | 42 | 40 | 39 | 34 | | | 34 |
| 3 | 81 | 72 | 65 | 60 | 75 | 67 | 61 | 56 | 56 | 52 | 48 | 47 | 43 | 41 | 38 | 35 | 34 | 29 | | | 29 |
| 4 | 75 | 64 | 57 | 51 | 68 | 60 | 53 | 48 | 50 | 45 | 41 | 42 | 38 | 35 | 34 | 31 | 29 | 26 | | | 26 |
| 5 | 69 | 58 | 50 | 44 | 63 | 53 | 46 | 41 | 45 | 40 | 36 | 38 | 34 | 31 | 31 | 28 | 26 | 23 | | | 23 |
| 6 | 63 | 52 | 44 | 38 | 58 | 48 | 41 | 36 | 41 | 36 | 32 | 34 | 30 | 27 | 28 | 25 | 23 | 20 | | | 20 |
| 7 | 59 | 47 | 39 | 34 | 54 | 44 | 37 | 32 | 37 | 32 | 28 | 31 | 27 | 24 | 26 | 23 | 21 | 18 | | | 18 |
| 8 | 55 | 43 | 35 | 30 | 50 | 40 | 33 | 28 | 34 | 29 | 25 | 29 | 25 | 22 | 24 | 21 | 19 | 16 | | | 16 |
| 9 | 51 | 39 | 32 | 27 | 47 | 36 | 30 | 25 | 31 | 26 | 22 | 27 | 23 | 20 | 22 | 19 | 17 | 15 | | | 15 |
| 10 | 48 | 36 | 29 | 24 | 44 | 33 | 27 | 23 | 29 | 24 | 20 | 25 | 21 | 18 | 20 | 18 | 15 | 13 | | | 13 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 1942 | 1942 | 1942 |
| 5° | 1944 | 1909 | 1922 |
| 10° | 1923 | 1870 | 1858 |
| 15° | 1896 | 1807 | 1760 |
| 20° | 1860 | 1720 | 1641 |
| 25° | 1823 | 1623 | 1525 |
| 30° | 1774 | 1524 | 1379 |
| 35° | 1725 | 1417 | 1251 |
| 40° | 1676 | 1307 | 1104 |
| 45° | 1619 | 1185 | 971 |
| 50° | 1559 | 1063 | 841 |
| 55° | 1498 | 931 | 716 |
| 60° | 1426 | 794 | 589 |
| 65° | 1343 | 655 | 528 |
| 70° | 1243 | 526 | 476 |
| 75° | 1117 | 460 | 430 |
| 80° | 934 | 381 | 369 |
| 85° | 636 | 247 | 270 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1619 cd/sqm



TEST NUMBER: P904393

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 146.0 | 2.1 |
| 10°-20° | 400.9 | 5.8 |
| 20°-30° | 562.8 | 8.1 |
| 30°-40° | 613.5 | 8.8 |
| 40°-50° | 563.9 | 8.1 |
| 50°-60° | 442.9 | 6.4 |
| 60°-70° | 288.3 | 4.2 |
| 70°-80° | 148.4 | 2.1 |
| 80°-90° | 40.1 | 0.6 |
| 90°-100° | 41.9 | 0.6 |
| 100°-110° | 156.4 | 2.3 |
| 110°-120° | 414.8 | 6.0 |
| 120°-130° | 688.0 | 9.9 |
| 130°-140° | 730.8 | 10.5 |
| 140°-150° | 679.2 | 9.8 |
| 150°-160° | 546.1 | 7.9 |
| 160°-170° | 351.9 | 5.1 |
| 170°-180° | 121.1 | 1.7 |
| 0°-30° | 1109.8 | 16.0 |
| 0°-40° | 1723.3 | 24.8 |
| 0°-60° | 2730.1 | 39.4 |
| 0°-90° | 3206.9 | 46.2 |
| 90°-120° | 613.2 | 8.8 |
| 90°-150° | 2711.2 | 39.1 |
| 90°-180° | 3730.0 | 53.8 |
| 0°-180° | 6937.1 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1558 | 1558 | 1558 | 1558 | 1558 | |
| 5° | 1558 | 1551 | 1533 | 1546 | 1541 | 148 |
| 15° | 1482 | 1466 | 1419 | 1392 | 1378 | 418 |
| 25° | 1345 | 1300 | 1207 | 1149 | 1128 | 619 |
| 35° | 1159 | 1087 | 963 | 874 | 843 | 726 |
| 45° | 948 | 853 | 705 | 605 | 571 | 732 |
| 55° | 721 | 611 | 458 | 374 | 347 | 644 |
| 65° | 486 | 372 | 245 | 198 | 193 | 482 |
| 75° | 259 | 161 | 113 | 103 | 102 | 274 |
| 85° | 61 | 31 | 27 | 27 | 27 | 70 |
| 90° | 1 | 11 | 18 | 23 | 25 | 6 |
| 95° | 60 | 29 | 36 | 40 | 40 | 71 |
| 105° | 280 | 308 | 56 | 66 | 70 | 299 |
| 115° | 529 | 545 | 568 | 142 | 76 | 521 |
| 125° | 748 | 760 | 778 | 784 | 787 | 668 |
| 135° | 926 | 941 | 949 | 958 | 957 | 715 |
| 145° | 1074 | 1074 | 1089 | 1096 | 1091 | 672 |
| 155° | 1183 | 1175 | 1186 | 1191 | 1184 | 545 |
| 165° | 1247 | 1241 | 1244 | 1250 | 1244 | 352 |
| 175° | 1275 | 1269 | 1270 | 1277 | 1268 | 121 |
| 180° | 1272 | 1272 | 1272 | 1272 | 1272 | |



TEST NUMBER: P904393

CATALOG NUMBER: DFN2DIP-TR3F0-040D040US830-RLLONL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1558.2 | 1558.2 | 1558.2 | 1558.2 | 1558.2 |
| 2.5° | 1565.3 | 1558.2 | 1542.7 | 1556.9 | 1554.0 |
| 5° | 1558.2 | 1551.1 | 1532.8 | 1545.5 | 1541.3 |
| 7.5° | 1545.5 | 1537.1 | 1517.4 | 1522.9 | 1515.9 |
| 10° | 1528.6 | 1518.7 | 1490.5 | 1486.2 | 1477.9 |
| 12.5° | 1507.5 | 1494.8 | 1456.6 | 1448.2 | 1432.7 |
| 15° | 1482.1 | 1466.5 | 1418.6 | 1391.9 | 1377.8 |
| 17.5° | 1452.5 | 1429.8 | 1370.6 | 1339.6 | 1317.0 |
| 20° | 1418.6 | 1390.3 | 1319.8 | 1284.7 | 1253.6 |
| 22.5° | 1382.0 | 1349.5 | 1267.6 | 1219.7 | 1198.7 |
| 25° | 1345.3 | 1300.1 | 1207.0 | 1149.3 | 1128.0 |
| 27.5° | 1301.7 | 1253.6 | 1150.7 | 1084.4 | 1051.9 |
| 30° | 1255.1 | 1201.4 | 1088.5 | 1016.7 | 978.6 |
| 32.5° | 1209.9 | 1145.0 | 1029.4 | 944.8 | 909.5 |
| 35° | 1159.2 | 1087.2 | 963.2 | 874.3 | 843.2 |
| 37.5° | 1109.8 | 1032.2 | 901.1 | 803.7 | 768.5 |
| 40° | 1057.6 | 973.1 | 836.2 | 736.1 | 699.5 |
| 42.5° | 1004.0 | 913.8 | 771.4 | 666.9 | 631.8 |
| 45° | 947.6 | 853.1 | 705.1 | 604.9 | 571.1 |
| 47.5° | 894.1 | 794.0 | 641.7 | 541.5 | 510.5 |
| 50° | 834.8 | 734.7 | 579.6 | 482.2 | 452.7 |
| 52.5° | 776.9 | 671.2 | 520.4 | 427.3 | 400.5 |
| 55° | 720.6 | 610.6 | 458.3 | 373.7 | 346.9 |
| 57.5° | 662.8 | 550.0 | 403.3 | 324.3 | 301.8 |
| 60° | 603.5 | 490.7 | 345.4 | 273.6 | 251.1 |
| 62.5° | 545.8 | 433.0 | 296.1 | 228.5 | 217.3 |
| 65° | 486.5 | 372.2 | 245.3 | 197.5 | 193.1 |
| 67.5° | 430.2 | 315.8 | 197.5 | 173.4 | 169.2 |
| 70° | 370.9 | 260.9 | 163.5 | 149.5 | 143.7 |
| 72.5° | 314.5 | 210.1 | 136.8 | 125.5 | 122.7 |
| 75° | 259.4 | 160.7 | 112.8 | 102.9 | 101.6 |
| 77.5° | 204.5 | 114.1 | 88.9 | 83.2 | 80.3 |
| 80° | 153.6 | 81.8 | 67.6 | 62.1 | 62.1 |
| 82.5° | 107.2 | 55.0 | 46.6 | 43.6 | 43.6 |
| 85° | 60.6 | 31.0 | 26.8 | 26.8 | 26.8 |
| 87.5° | 22.6 | 11.2 | 11.2 | 9.9 | 9.9 |
| 90° | 0.8 | 11.0 | 18.4 | 23.1 | 24.8 |
| 92.5° | 23.1 | 19.3 | 22.1 | 23.9 | 24.8 |
| 95° | 59.8 | 29.4 | 35.8 | 40.5 | 39.6 |
| 97.5° | 107.7 | 32.2 | 46.9 | 49.8 | 50.6 |
| 100° | 163.0 | 36.9 | 52.5 | 59.8 | 61.6 |
| 102.5° | 223.7 | 222.0 | 54.3 | 64.4 | 67.2 |
| 105° | 279.8 | 307.6 | 56.2 | 66.3 | 69.9 |
| 107.5° | 345.3 | 368.3 | 58.1 | 68.1 | 71.8 |
| 110° | 407.9 | 427.2 | 161.2 | 69.1 | 72.7 |



TEST NUMBER: P904393

CATALOG NUMBER: DFN2DIP-TR3F0-040D040US830-RLLONL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 466.8 | 483.3 | 467.7 | 70.9 | 73.7 |
| 115° | 529.3 | 545.0 | 568.1 | 141.8 | 75.6 |
| 117.5° | 583.7 | 602.1 | 617.8 | 486.1 | 244.9 |
| 120° | 644.5 | 658.3 | 674.9 | 686.0 | 561.7 |
| 122.5° | 696.0 | 710.8 | 729.2 | 734.7 | 735.7 |
| 125° | 748.5 | 760.5 | 778.0 | 784.5 | 787.2 |
| 127.5° | 796.4 | 809.3 | 823.1 | 832.4 | 833.2 |
| 130° | 841.5 | 856.3 | 866.3 | 876.5 | 875.6 |
| 132.5° | 887.5 | 899.6 | 909.6 | 917.9 | 917.1 |
| 135° | 926.2 | 941.0 | 949.2 | 958.5 | 956.7 |
| 137.5° | 966.7 | 977.7 | 987.0 | 996.2 | 993.4 |
| 140° | 1006.3 | 1013.7 | 1023.8 | 1032.1 | 1027.5 |
| 142.5° | 1039.5 | 1045.9 | 1057.9 | 1065.2 | 1060.6 |
| 145° | 1074.5 | 1073.6 | 1089.1 | 1095.6 | 1091.0 |
| 147.5° | 1104.8 | 1102.0 | 1117.7 | 1122.3 | 1118.7 |
| 150° | 1134.3 | 1127.8 | 1142.6 | 1148.1 | 1143.5 |
| 152.5° | 1159.1 | 1151.8 | 1165.5 | 1171.1 | 1164.7 |
| 155° | 1183.1 | 1174.9 | 1185.9 | 1191.4 | 1184.0 |
| 157.5° | 1202.4 | 1195.0 | 1203.4 | 1209.8 | 1202.4 |
| 160° | 1219.0 | 1213.4 | 1219.0 | 1224.5 | 1218.0 |
| 162.5° | 1233.7 | 1228.2 | 1232.8 | 1239.3 | 1231.0 |
| 165° | 1246.6 | 1241.1 | 1243.9 | 1250.3 | 1243.9 |
| 167.5° | 1256.8 | 1251.1 | 1254.1 | 1260.5 | 1252.2 |
| 170° | 1265.1 | 1259.5 | 1261.3 | 1267.8 | 1259.5 |
| 172.5° | 1270.5 | 1265.1 | 1267.0 | 1273.4 | 1265.1 |
| 175° | 1275.1 | 1268.7 | 1270.5 | 1277.0 | 1267.8 |
| 177.5° | 1277.0 | 1270.5 | 1271.5 | 1278.0 | 1269.7 |
| 180° | 1272.4 | 1272.4 | 1272.4 | 1272.4 | 1272.4 |



TEST NUMBER: P904393
 CATALOG NUMBER: DFN2DIP-TR3F0-040D040US830-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 | 9.04 | 9.84 | 10.03 | 10.84 | 12.17 | 5.01 | 5.81 | 6.01 | 6.82 | 8.14 |
| | 3H | 10.70 | 11.42 | 11.71 | 12.43 | 13.78 | 6.19 | 6.91 | 7.20 | 7.92 | 9.27 |
| | 4H | 11.30 | 11.98 | 12.32 | 13.00 | 14.35 | 6.64 | 7.32 | 7.66 | 8.33 | 9.69 |
| | 6H | 11.72 | 12.34 | 12.75 | 13.36 | 14.73 | 6.95 | 7.58 | 7.98 | 8.60 | 9.96 |
| | 8H | 11.84 | 12.43 | 12.87 | 13.47 | 14.83 | 7.04 | 7.63 | 8.08 | 8.67 | 10.03 |
| | 12H | 11.90 | 12.46 | 12.93 | 13.49 | 14.87 | 7.08 | 7.64 | 8.12 | 8.67 | 10.06 |
| 4H | 2H | 9.05 | 9.73 | 10.08 | 10.74 | 12.10 | 5.60 | 6.28 | 6.63 | 7.29 | 8.65 |
| | 3H | 10.87 | 11.43 | 11.90 | 12.47 | 13.84 | 6.94 | 7.50 | 7.97 | 8.55 | 9.92 |
| | 4H | 11.55 | 12.07 | 12.59 | 13.10 | 14.49 | 7.48 | 8.00 | 8.52 | 9.03 | 10.42 |
| | 6H | 12.06 | 12.50 | 13.11 | 13.56 | 14.94 | 7.89 | 8.34 | 8.95 | 9.39 | 10.78 |
| | 8H | 12.22 | 12.64 | 13.28 | 13.69 | 15.09 | 8.02 | 8.43 | 9.07 | 9.48 | 10.88 |
| | 12H | 12.31 | 12.69 | 13.38 | 13.75 | 15.16 | 8.08 | 8.45 | 9.15 | 9.52 | 10.92 |
| 8H | 4H | 11.51 | 11.93 | 12.57 | 12.98 | 14.38 | 7.76 | 8.17 | 8.81 | 9.22 | 10.62 |
| | 6H | 12.07 | 12.41 | 13.14 | 13.50 | 14.90 | 8.27 | 8.61 | 9.34 | 9.70 | 11.10 |
| | 8H | 12.28 | 12.58 | 13.36 | 13.66 | 15.07 | 8.45 | 8.75 | 9.53 | 9.83 | 11.25 |
| | 12H | 12.41 | 12.67 | 13.49 | 13.75 | 15.21 | 8.56 | 8.83 | 9.65 | 9.90 | 11.36 |
| 12H | 4H | 11.47 | 11.84 | 12.53 | 12.90 | 14.31 | 7.76 | 8.13 | 8.83 | 9.20 | 10.60 |
| | 6H | 12.04 | 12.34 | 13.13 | 13.42 | 14.84 | 8.31 | 8.61 | 9.39 | 9.69 | 11.11 |
| | 8H | 12.26 | 12.52 | 13.34 | 13.59 | 15.05 | 8.52 | 8.78 | 9.60 | 9.85 | 11.31 |