

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: P916192

Luminaire Tested: DFN2DIP-HX3F0-040D050US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916192
REPORT IS A COMBINATION OF REPORTS P899232 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-040D050US930-RLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

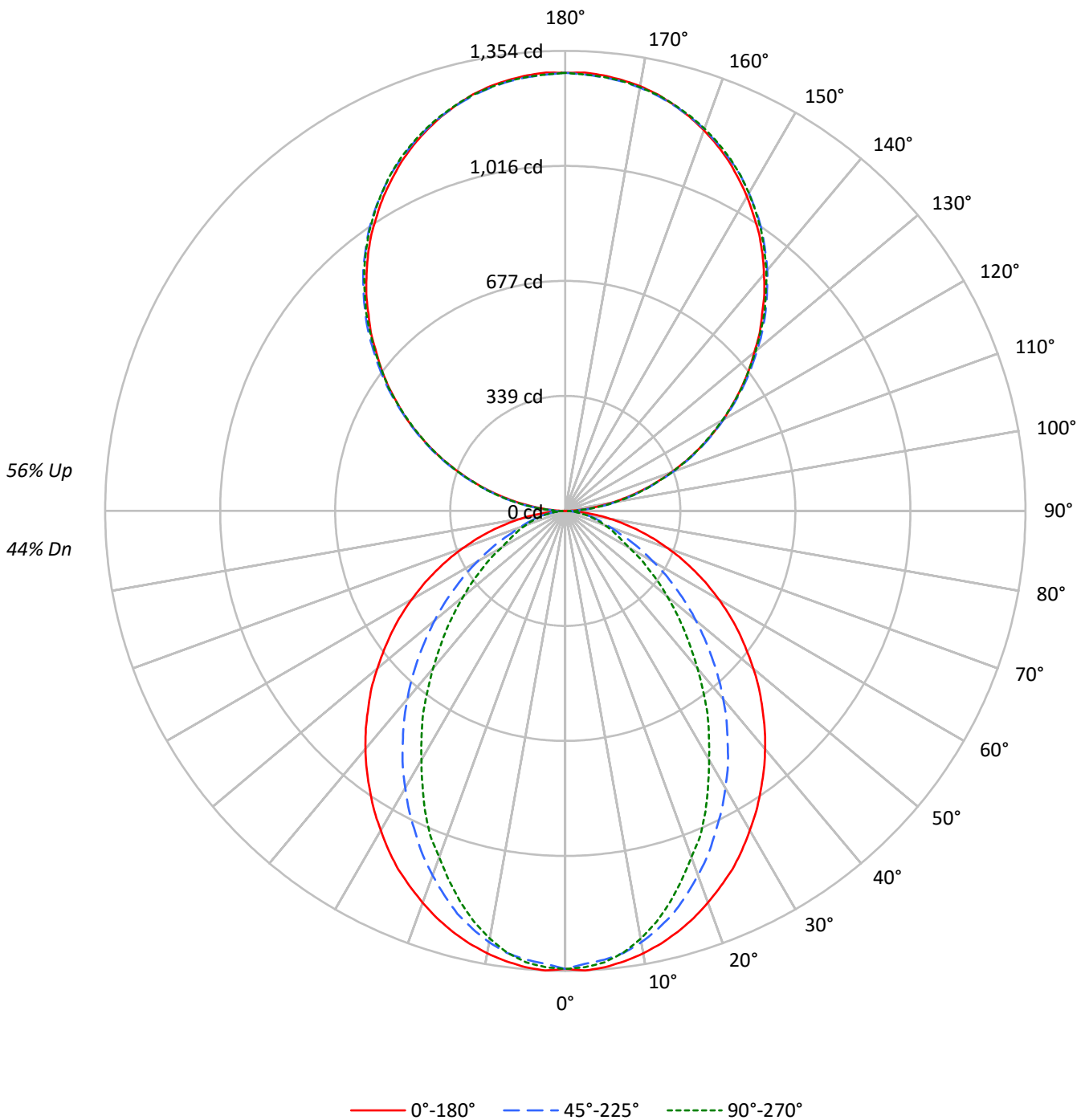
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6379.7 lumens
Efficiency: N/A
Efficacy: 89.7 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: General Diffuse

Input Watts (W): 71.1
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: P916192
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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 | 97 | 97 | 97 | 97 | 80 | 80 | 80 | 64 | 64 | 64 | 50 | 50 | 50 | 44 | | | 44 |
| 1 | 97 | 93 | 89 | 86 | 88 | 85 | 82 | 79 | 70 | 68 | 66 | 57 | 56 | 54 | 45 | 44 | 43 | 37 | | | 37 |
| 2 | 88 | 81 | 75 | 71 | 81 | 75 | 70 | 65 | 62 | 59 | 55 | 51 | 48 | 46 | 40 | 38 | 37 | 32 | | | 32 |
| 3 | 81 | 72 | 65 | 59 | 74 | 66 | 60 | 55 | 55 | 51 | 47 | 45 | 42 | 39 | 36 | 34 | 32 | 28 | | | 28 |
| 4 | 74 | 64 | 56 | 50 | 68 | 59 | 52 | 47 | 49 | 44 | 40 | 41 | 37 | 34 | 32 | 30 | 28 | 24 | | | 24 |
| 5 | 68 | 57 | 49 | 43 | 62 | 53 | 46 | 41 | 44 | 39 | 35 | 37 | 33 | 30 | 29 | 27 | 25 | 21 | | | 21 |
| 6 | 63 | 51 | 43 | 38 | 57 | 47 | 41 | 35 | 40 | 35 | 31 | 33 | 29 | 26 | 27 | 24 | 22 | 19 | | | 19 |
| 7 | 58 | 46 | 39 | 33 | 53 | 43 | 36 | 31 | 36 | 31 | 27 | 30 | 26 | 23 | 25 | 22 | 20 | 17 | | | 17 |
| 8 | 54 | 42 | 35 | 30 | 50 | 39 | 32 | 28 | 33 | 28 | 24 | 28 | 24 | 21 | 23 | 20 | 18 | 15 | | | 15 |
| 9 | 50 | 39 | 31 | 26 | 46 | 36 | 29 | 25 | 31 | 25 | 22 | 26 | 22 | 19 | 21 | 18 | 16 | 14 | | | 14 |
| 10 | 47 | 35 | 28 | 24 | 43 | 33 | 27 | 22 | 28 | 23 | 20 | 24 | 20 | 17 | 19 | 17 | 15 | 13 | | | 13 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 1561 | 1561 | 1561 |
| 5° | 1563 | 1535 | 1546 |
| 10° | 1547 | 1504 | 1494 |
| 15° | 1525 | 1453 | 1416 |
| 20° | 1496 | 1384 | 1320 |
| 25° | 1466 | 1306 | 1227 |
| 30° | 1427 | 1226 | 1110 |
| 35° | 1388 | 1141 | 1007 |
| 40° | 1349 | 1053 | 889 |
| 45° | 1303 | 955 | 782 |
| 50° | 1256 | 856 | 677 |
| 55° | 1206 | 751 | 577 |
| 60° | 1149 | 641 | 474 |
| 65° | 1083 | 529 | 426 |
| 70° | 1002 | 425 | 384 |
| 75° | 902 | 372 | 348 |
| 80° | 756 | 309 | 299 |
| 85° | 516 | 201 | 220 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1303 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 126.3 | 2.0 |
| 10°-20° | 346.8 | 5.4 |
| 20°-30° | 486.9 | 7.6 |
| 30°-40° | 530.7 | 8.3 |
| 40°-50° | 487.8 | 7.6 |
| 50°-60° | 383.1 | 6.0 |
| 60°-70° | 249.3 | 3.9 |
| 70°-80° | 128.4 | 2.0 |
| 80°-90° | 36.4 | 0.6 |
| 90°-100° | 79.8 | 1.3 |
| 100°-110° | 253.5 | 4.0 |
| 110°-120° | 433.8 | 6.8 |
| 120°-130° | 570.5 | 8.9 |
| 130°-140° | 640.4 | 10.0 |
| 140°-150° | 627.9 | 9.8 |
| 150°-160° | 526.8 | 8.3 |
| 160°-170° | 349.3 | 5.5 |
| 170°-180° | 122.1 | 1.9 |
| 0°-30° | 960.0 | 15.0 |
| 0°-40° | 1490.7 | 23.4 |
| 0°-60° | 2361.5 | 37.0 |
| 0°-90° | 2775.7 | 43.5 |
| 90°-120° | 767.0 | 12.0 |
| 90°-150° | 2605.8 | 40.8 |
| 90°-180° | 3604.0 | 56.5 |
| 0°-180° | 6379.7 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1348 | 1348 | 1348 | 1348 | 1348 | |
| 5° | 1348 | 1342 | 1326 | 1337 | 1333 | 128 |
| 15° | 1282 | 1268 | 1227 | 1204 | 1192 | 361 |
| 25° | 1164 | 1125 | 1044 | 994 | 976 | 535 |
| 35° | 1003 | 940 | 833 | 756 | 729 | 628 |
| 45° | 820 | 738 | 610 | 523 | 494 | 633 |
| 55° | 623 | 528 | 396 | 323 | 300 | 557 |
| 65° | 421 | 322 | 212 | 171 | 167 | 417 |
| 75° | 224 | 139 | 98 | 89 | 88 | 237 |
| 85° | 52 | 27 | 23 | 23 | 23 | 60 |
| 90° | 1 | 14 | 38 | 36 | 37 | 6 |
| 95° | 57 | 68 | 70 | 70 | 68 | 63 |
| 105° | 234 | 237 | 240 | 241 | 241 | 247 |
| 115° | 435 | 442 | 440 | 438 | 435 | 431 |
| 125° | 633 | 643 | 640 | 636 | 635 | 566 |
| 135° | 819 | 831 | 833 | 832 | 829 | 633 |
| 145° | 994 | 1002 | 1008 | 1009 | 1005 | 621 |
| 155° | 1137 | 1140 | 1144 | 1149 | 1145 | 523 |
| 165° | 1237 | 1236 | 1236 | 1243 | 1238 | 349 |
| 175° | 1287 | 1284 | 1282 | 1289 | 1283 | 122 |
| 180° | 1289 | 1289 | 1289 | 1289 | 1289 | |



TEST NUMBER: P916192

CATALOG NUMBER: DFN2DIP-HX3F0-040D050US930-RLFL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1347.9 | 1347.9 | 1347.9 | 1347.9 | 1347.9 |
| 2.5° | 1354.0 | 1347.9 | 1334.4 | 1346.7 | 1344.2 |
| 5° | 1347.9 | 1341.7 | 1325.8 | 1336.8 | 1333.3 |
| 7.5° | 1336.8 | 1329.6 | 1312.5 | 1317.3 | 1311.2 |
| 10° | 1322.3 | 1313.7 | 1289.3 | 1285.6 | 1278.4 |
| 12.5° | 1304.0 | 1293.0 | 1260.0 | 1252.7 | 1239.3 |
| 15° | 1282.0 | 1268.5 | 1227.1 | 1204.0 | 1191.8 |
| 17.5° | 1256.4 | 1236.8 | 1185.5 | 1158.8 | 1139.2 |
| 20° | 1227.1 | 1202.6 | 1141.7 | 1111.3 | 1084.3 |
| 22.5° | 1195.4 | 1167.3 | 1096.5 | 1055.1 | 1036.9 |
| 25° | 1163.7 | 1124.6 | 1044.1 | 994.2 | 975.7 |
| 27.5° | 1125.9 | 1084.3 | 995.3 | 938.0 | 909.9 |
| 30° | 1085.7 | 1039.2 | 941.6 | 879.5 | 846.5 |
| 32.5° | 1046.6 | 990.4 | 890.5 | 817.3 | 786.7 |
| 35° | 1002.7 | 940.4 | 833.2 | 756.3 | 729.4 |
| 37.5° | 960.0 | 892.8 | 779.4 | 695.2 | 664.8 |
| 40° | 914.8 | 841.7 | 723.3 | 636.7 | 605.0 |
| 42.5° | 868.5 | 790.4 | 667.2 | 576.9 | 546.5 |
| 45° | 819.7 | 737.9 | 609.9 | 523.3 | 494.0 |
| 47.5° | 773.4 | 686.8 | 555.1 | 468.4 | 441.6 |
| 50° | 722.1 | 635.5 | 501.3 | 417.1 | 391.6 |
| 52.5° | 672.1 | 580.6 | 450.1 | 369.6 | 346.4 |
| 55° | 623.3 | 528.2 | 396.4 | 323.3 | 300.1 |
| 57.5° | 573.3 | 475.7 | 348.9 | 280.5 | 261.1 |
| 60° | 522.0 | 424.4 | 298.8 | 236.7 | 217.2 |
| 62.5° | 472.1 | 374.5 | 256.1 | 197.6 | 187.9 |
| 65° | 420.9 | 322.0 | 212.2 | 170.8 | 167.1 |
| 67.5° | 372.1 | 273.2 | 170.8 | 150.0 | 146.3 |
| 70° | 320.8 | 225.7 | 141.5 | 129.3 | 124.3 |
| 72.5° | 272.1 | 181.7 | 118.3 | 108.6 | 106.2 |
| 75° | 224.4 | 139.0 | 97.6 | 89.0 | 87.9 |
| 77.5° | 176.9 | 98.7 | 76.9 | 72.0 | 69.5 |
| 80° | 132.9 | 70.8 | 58.5 | 53.7 | 53.7 |
| 82.5° | 92.7 | 47.6 | 40.3 | 37.7 | 37.7 |
| 85° | 52.4 | 26.8 | 23.2 | 23.2 | 23.2 |
| 87.5° | 19.6 | 9.7 | 9.7 | 8.6 | 8.6 |
| 90° | 1.1 | 14.0 | 38.1 | 35.8 | 36.9 |
| 92.5° | 24.1 | 32.6 | 33.8 | 35.0 | 35.0 |
| 95° | 56.7 | 67.7 | 69.5 | 69.5 | 67.7 |
| 97.5° | 94.4 | 104.5 | 108.8 | 108.8 | 108.8 |
| 100° | 137.9 | 146.9 | 150.0 | 150.0 | 148.9 |
| 102.5° | 183.8 | 190.5 | 194.7 | 195.9 | 194.7 |
| 105° | 234.0 | 237.1 | 239.5 | 241.3 | 241.3 |
| 107.5° | 283.7 | 288.4 | 288.4 | 289.2 | 283.7 |
| 110° | 331.9 | 338.2 | 338.2 | 338.2 | 335.0 |



TEST NUMBER: P916192

CATALOG NUMBER: DFN2DIP-HX3F0-040D050US930-RLFL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 384.0 | 390.6 | 389.5 | 386.4 | 384.0 |
| 115° | 435.3 | 441.6 | 439.6 | 438.5 | 435.3 |
| 117.5° | 486.2 | 494.8 | 489.3 | 486.2 | 483.1 |
| 120° | 537.5 | 546.1 | 537.5 | 537.5 | 534.0 |
| 122.5° | 584.2 | 595.1 | 589.6 | 586.5 | 584.2 |
| 125° | 633.2 | 642.9 | 639.8 | 636.3 | 635.1 |
| 127.5° | 680.9 | 693.0 | 688.8 | 684.0 | 680.9 |
| 130° | 725.7 | 739.6 | 737.7 | 735.4 | 731.1 |
| 132.5° | 775.8 | 786.7 | 787.5 | 782.0 | 778.9 |
| 135° | 819.0 | 831.0 | 833.3 | 832.2 | 829.1 |
| 137.5° | 867.2 | 876.9 | 878.8 | 878.0 | 873.3 |
| 140° | 909.5 | 919.2 | 924.6 | 924.6 | 920.4 |
| 142.5° | 953.0 | 962.8 | 965.9 | 967.0 | 962.8 |
| 145° | 994.3 | 1002.0 | 1008.2 | 1009.4 | 1005.1 |
| 147.5° | 1031.2 | 1040.9 | 1045.5 | 1047.5 | 1043.2 |
| 150° | 1069.3 | 1075.9 | 1080.1 | 1083.6 | 1080.1 |
| 152.5° | 1103.1 | 1109.7 | 1115.1 | 1119.4 | 1115.1 |
| 155° | 1136.9 | 1140.0 | 1143.5 | 1148.9 | 1145.4 |
| 157.5° | 1166.0 | 1168.3 | 1170.3 | 1178.1 | 1172.6 |
| 160° | 1192.0 | 1194.4 | 1195.6 | 1202.2 | 1197.5 |
| 162.5° | 1216.2 | 1216.2 | 1217.3 | 1224.7 | 1219.3 |
| 165° | 1236.8 | 1235.6 | 1235.6 | 1243.4 | 1237.9 |
| 167.5° | 1255.4 | 1251.9 | 1251.9 | 1259.7 | 1254.3 |
| 170° | 1269.4 | 1266.3 | 1265.2 | 1272.9 | 1266.3 |
| 172.5° | 1279.1 | 1276.0 | 1274.9 | 1282.6 | 1276.0 |
| 175° | 1286.9 | 1283.8 | 1281.5 | 1289.2 | 1282.6 |
| 177.5° | 1291.2 | 1288.1 | 1285.7 | 1292.3 | 1285.7 |
| 180° | 1289.2 | 1289.2 | 1289.2 | 1289.2 | 1289.2 |



TEST NUMBER: P916192
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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 | 8.01 | 8.79 | 9.03 | 9.81 | 11.18 | 3.99 | 4.77 | 5.00 | 5.79 | 7.15 |
| | 3H | 9.68 | 10.37 | 10.70 | 11.41 | 12.79 | 5.17 | 5.86 | 6.19 | 6.90 | 8.28 |
| | 4H | 10.28 | 10.94 | 11.32 | 11.97 | 13.36 | 5.61 | 6.27 | 6.65 | 7.31 | 8.70 |
| | 6H | 10.69 | 11.30 | 11.74 | 12.34 | 13.74 | 5.93 | 6.53 | 6.98 | 7.57 | 8.98 |
| | 8H | 10.81 | 11.39 | 11.87 | 12.44 | 13.84 | 6.01 | 6.59 | 7.07 | 7.64 | 9.04 |
| | 12H | 10.87 | 11.42 | 11.93 | 12.47 | 13.89 | 6.05 | 6.60 | 7.11 | 7.65 | 9.07 |
| 4H | 2H | 8.02 | 8.68 | 9.07 | 9.72 | 11.11 | 4.57 | 5.23 | 5.62 | 6.27 | 7.66 |
| | 3H | 9.84 | 10.39 | 10.89 | 11.45 | 12.85 | 5.91 | 6.46 | 6.97 | 7.52 | 8.93 |
| | 4H | 10.52 | 11.02 | 11.58 | 12.08 | 13.50 | 6.45 | 6.96 | 7.51 | 8.01 | 9.44 |
| | 6H | 11.03 | 11.46 | 12.10 | 12.53 | 13.96 | 6.87 | 7.30 | 7.94 | 8.37 | 9.79 |
| | 8H | 11.20 | 11.60 | 12.27 | 12.67 | 14.10 | 6.99 | 7.39 | 8.06 | 8.46 | 9.90 |
| | 12H | 11.29 | 11.65 | 12.37 | 12.73 | 14.17 | 7.05 | 7.41 | 8.14 | 8.50 | 9.94 |
| 8H | 4H | 10.49 | 10.89 | 11.56 | 11.96 | 13.39 | 6.73 | 7.13 | 7.80 | 8.20 | 9.63 |
| | 6H | 11.04 | 11.37 | 12.13 | 12.48 | 13.92 | 7.24 | 7.57 | 8.33 | 8.68 | 10.11 |
| | 8H | 11.25 | 11.54 | 12.35 | 12.64 | 14.09 | 7.42 | 7.71 | 8.52 | 8.81 | 10.26 |
| | 12H | 11.38 | 11.64 | 12.49 | 12.73 | 14.22 | 7.54 | 7.79 | 8.64 | 8.88 | 10.37 |
| 12H | 4H | 10.43 | 10.80 | 11.52 | 11.88 | 13.32 | 6.73 | 7.09 | 7.81 | 8.17 | 9.62 |
| | 6H | 11.02 | 11.31 | 12.12 | 12.40 | 13.85 | 7.28 | 7.58 | 8.38 | 8.67 | 10.12 |
| | 8H | 11.23 | 11.49 | 12.33 | 12.57 | 14.07 | 7.49 | 7.74 | 8.59 | 8.83 | 10.33 |