

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: P924345

Luminaire Tested: DFN2DIP-HX3F0-030D030US950-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924345
REPORT IS A COMBINATION OF REPORTS P900722 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-030D030US950-RLONL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

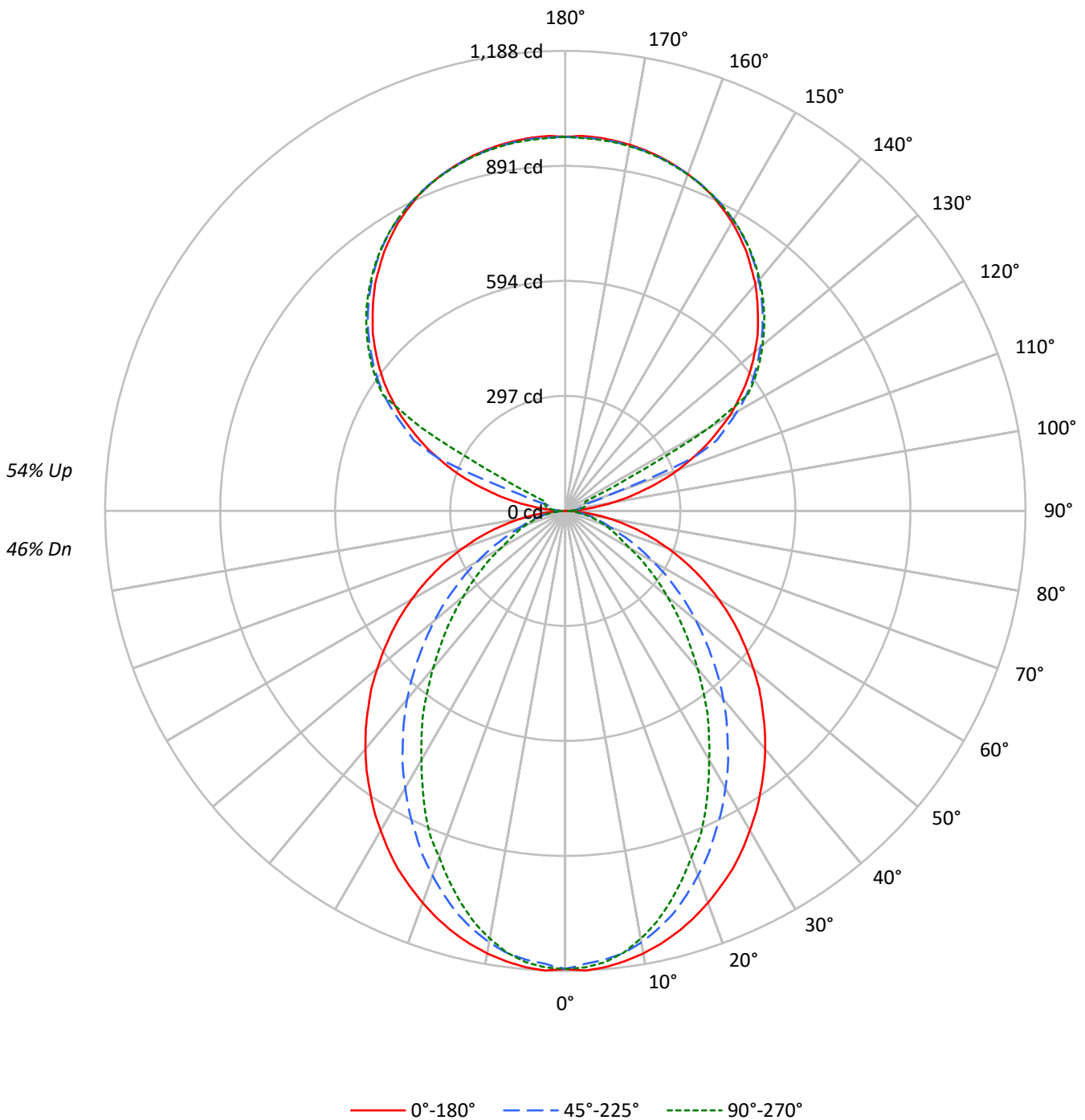
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5266.1 lumens
Efficiency: N/A
Efficacy: 113.0 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: General Diffuse

Input Watts (W): 46.6
Input Voltage (V):
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P924345
CATALOG NUMBER: DFN2DIP-HX3F0-030D030US950-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P924345
 CATALOG NUMBER: DFN2DIP-HX3F0-030D030US950-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 | 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° | 1370 | 1370 | 1370 |
| 5° | 1372 | 1348 | 1356 |
| 10° | 1358 | 1320 | 1311 |
| 15° | 1338 | 1276 | 1243 |
| 20° | 1313 | 1214 | 1158 |
| 25° | 1287 | 1146 | 1077 |
| 30° | 1252 | 1076 | 974 |
| 35° | 1218 | 1001 | 883 |
| 40° | 1184 | 924 | 780 |
| 45° | 1144 | 838 | 686 |
| 50° | 1102 | 751 | 594 |
| 55° | 1058 | 659 | 506 |
| 60° | 1008 | 562 | 416 |
| 65° | 950 | 464 | 374 |
| 70° | 880 | 373 | 337 |
| 75° | 791 | 327 | 305 |
| 80° | 664 | 271 | 262 |
| 85° | 453 | 176 | 192 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1144 cd/sqm



TEST NUMBER: P924345

CATALOG NUMBER: DFN2DIP-HX3F0-030D030US950-RLLONL

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 110.9 | 2.1 |
| 10°-20° | 304.3 | 5.8 |
| 20°-30° | 427.3 | 8.1 |
| 30°-40° | 465.7 | 8.8 |
| 40°-50° | 428.1 | 8.1 |
| 50°-60° | 336.2 | 6.4 |
| 60°-70° | 218.8 | 4.2 |
| 70°-80° | 112.6 | 2.1 |
| 80°-90° | 30.5 | 0.6 |
| 90°-100° | 31.9 | 0.6 |
| 100°-110° | 118.7 | 2.3 |
| 110°-120° | 314.9 | 6.0 |
| 120°-130° | 522.3 | 9.9 |
| 130°-140° | 554.8 | 10.5 |
| 140°-150° | 515.6 | 9.8 |
| 150°-160° | 414.5 | 7.9 |
| 160°-170° | 267.1 | 5.1 |
| 170°-180° | 91.9 | 1.7 |
| 0°-30° | 842.5 | 16.0 |
| 0°-40° | 1308.2 | 24.8 |
| 0°-60° | 2072.5 | 39.4 |
| 0°-90° | 2434.4 | 46.2 |
| 90°-120° | 465.5 | 8.8 |
| 90°-150° | 2058.1 | 39.1 |
| 90°-180° | 2832.0 | 53.8 |
| 0°-180° | 5266.1 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1183 | 1183 | 1183 | 1183 | 1183 | |
| 5° | 1183 | 1178 | 1164 | 1173 | 1170 | 112 |
| 15° | 1125 | 1113 | 1077 | 1057 | 1046 | 317 |
| 25° | 1021 | 987 | 916 | 872 | 856 | 470 |
| 35° | 880 | 825 | 731 | 664 | 640 | 551 |
| 45° | 719 | 648 | 535 | 459 | 434 | 556 |
| 55° | 547 | 464 | 348 | 284 | 263 | 489 |
| 65° | 369 | 283 | 186 | 150 | 147 | 366 |
| 75° | 197 | 122 | 86 | 78 | 77 | 208 |
| 85° | 46 | 24 | 20 | 20 | 20 | 53 |
| 90° | 1 | 8 | 14 | 18 | 19 | 5 |
| 95° | 45 | 22 | 27 | 31 | 30 | 54 |
| 105° | 212 | 233 | 43 | 50 | 53 | 227 |
| 115° | 402 | 414 | 431 | 108 | 57 | 396 |
| 125° | 568 | 577 | 591 | 596 | 598 | 507 |
| 135° | 703 | 714 | 721 | 728 | 726 | 543 |
| 145° | 816 | 815 | 827 | 832 | 828 | 510 |
| 155° | 898 | 892 | 900 | 904 | 899 | 414 |
| 165° | 946 | 942 | 944 | 949 | 944 | 267 |
| 175° | 968 | 963 | 964 | 969 | 962 | 92 |
| 180° | 966 | 966 | 966 | 966 | 966 | |



TEST NUMBER: P924345

CATALOG NUMBER: DFN2DIP-HX3F0-030D030US950-RLONL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1182.9 | 1182.9 | 1182.9 | 1182.9 | 1182.9 |
| 2.5° | 1188.2 | 1182.9 | 1171.0 | 1181.8 | 1179.7 |
| 5° | 1182.9 | 1177.5 | 1163.6 | 1173.2 | 1170.0 |
| 7.5° | 1173.2 | 1166.8 | 1151.9 | 1156.1 | 1150.7 |
| 10° | 1160.4 | 1152.9 | 1131.5 | 1128.2 | 1121.9 |
| 12.5° | 1144.3 | 1134.7 | 1105.8 | 1099.4 | 1087.6 |
| 15° | 1125.1 | 1113.2 | 1076.9 | 1056.6 | 1045.9 |
| 17.5° | 1102.5 | 1085.5 | 1040.4 | 1017.0 | 999.8 |
| 20° | 1076.9 | 1055.4 | 1001.9 | 975.3 | 951.6 |
| 22.5° | 1049.1 | 1024.4 | 962.3 | 926.0 | 909.9 |
| 25° | 1021.3 | 986.9 | 916.3 | 872.4 | 856.3 |
| 27.5° | 988.1 | 951.6 | 873.5 | 823.2 | 798.5 |
| 30° | 952.8 | 912.0 | 826.4 | 771.9 | 742.9 |
| 32.5° | 918.4 | 869.2 | 781.5 | 717.2 | 690.4 |
| 35° | 880.0 | 825.3 | 731.1 | 663.7 | 640.1 |
| 37.5° | 842.5 | 783.5 | 684.0 | 610.1 | 583.5 |
| 40° | 802.9 | 738.7 | 634.8 | 558.8 | 531.0 |
| 42.5° | 762.2 | 693.7 | 585.6 | 506.3 | 479.6 |
| 45° | 719.4 | 647.6 | 535.3 | 459.2 | 433.5 |
| 47.5° | 678.7 | 602.7 | 487.1 | 411.0 | 387.5 |
| 50° | 633.7 | 557.7 | 440.0 | 366.0 | 343.6 |
| 52.5° | 589.8 | 509.5 | 395.1 | 324.4 | 304.0 |
| 55° | 546.9 | 463.5 | 347.8 | 283.7 | 263.4 |
| 57.5° | 503.1 | 417.5 | 306.2 | 246.2 | 229.1 |
| 60° | 458.1 | 372.5 | 262.3 | 207.7 | 190.6 |
| 62.5° | 414.3 | 328.7 | 224.8 | 173.4 | 164.9 |
| 65° | 369.3 | 282.6 | 186.2 | 149.9 | 146.6 |
| 67.5° | 326.6 | 239.7 | 149.9 | 131.7 | 128.4 |
| 70° | 281.5 | 198.1 | 124.1 | 113.4 | 109.1 |
| 72.5° | 238.7 | 159.4 | 103.8 | 95.3 | 93.1 |
| 75° | 196.9 | 122.0 | 85.7 | 78.1 | 77.1 |
| 77.5° | 155.2 | 86.6 | 67.4 | 63.2 | 61.0 |
| 80° | 116.7 | 62.1 | 51.3 | 47.1 | 47.1 |
| 82.5° | 81.3 | 41.8 | 35.3 | 33.2 | 33.2 |
| 85° | 46.0 | 23.5 | 20.3 | 20.3 | 20.3 |
| 87.5° | 17.2 | 8.5 | 8.5 | 7.5 | 7.5 |
| 90° | 0.7 | 8.4 | 13.9 | 17.6 | 18.8 |
| 92.5° | 17.6 | 14.7 | 16.8 | 18.2 | 18.8 |
| 95° | 45.4 | 22.3 | 27.2 | 30.8 | 30.1 |
| 97.5° | 81.8 | 24.5 | 35.6 | 37.8 | 38.4 |
| 100° | 123.7 | 28.0 | 39.9 | 45.4 | 46.8 |
| 102.5° | 169.8 | 168.5 | 41.2 | 48.8 | 51.0 |
| 105° | 212.5 | 233.4 | 42.6 | 50.3 | 53.1 |
| 107.5° | 262.1 | 279.5 | 44.1 | 51.7 | 54.6 |
| 110° | 309.7 | 324.3 | 122.3 | 52.5 | 55.2 |



TEST NUMBER: P924345

CATALOG NUMBER: DFN2DIP-HX3F0-030D030US950-RLONL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 112.5° | 354.4 | 366.9 | 355.1 | 53.8 | 55.9 |
| 115° | 401.8 | 413.7 | 431.2 | 107.6 | 57.3 |
| 117.5° | 443.1 | 457.1 | 469.0 | 369.0 | 185.9 |
| 120° | 489.2 | 499.7 | 512.3 | 520.7 | 426.3 |
| 122.5° | 528.3 | 539.6 | 553.6 | 557.7 | 558.5 |
| 125° | 568.2 | 577.3 | 590.6 | 595.5 | 597.6 |
| 127.5° | 604.5 | 614.3 | 624.9 | 631.8 | 632.5 |
| 130° | 638.8 | 650.1 | 657.7 | 665.3 | 664.7 |
| 132.5° | 673.7 | 682.9 | 690.5 | 696.8 | 696.1 |
| 135° | 703.1 | 714.4 | 720.6 | 727.6 | 726.2 |
| 137.5° | 733.8 | 742.2 | 749.3 | 756.2 | 754.1 |
| 140° | 763.9 | 769.5 | 777.1 | 783.4 | 780.0 |
| 142.5° | 789.1 | 794.0 | 803.1 | 808.6 | 805.2 |
| 145° | 815.7 | 814.9 | 826.8 | 831.7 | 828.2 |
| 147.5° | 838.7 | 836.6 | 848.5 | 851.9 | 849.2 |
| 150° | 861.1 | 856.2 | 867.4 | 871.5 | 868.0 |
| 152.5° | 879.9 | 874.3 | 884.8 | 889.0 | 884.2 |
| 155° | 898.1 | 891.9 | 900.2 | 904.4 | 898.9 |
| 157.5° | 912.8 | 907.3 | 913.6 | 918.4 | 912.8 |
| 160° | 925.4 | 921.2 | 925.4 | 929.6 | 924.6 |
| 162.5° | 936.5 | 932.3 | 935.9 | 940.7 | 934.4 |
| 165° | 946.3 | 942.2 | 944.3 | 949.1 | 944.3 |
| 167.5° | 954.0 | 949.8 | 951.9 | 956.9 | 950.6 |
| 170° | 960.3 | 956.1 | 957.5 | 962.4 | 956.1 |
| 172.5° | 964.5 | 960.3 | 961.7 | 966.6 | 960.3 |
| 175° | 967.9 | 963.1 | 964.5 | 969.4 | 962.4 |
| 177.5° | 969.4 | 964.5 | 965.3 | 970.1 | 963.8 |
| 180° | 965.9 | 965.9 | 965.9 | 965.9 | 965.9 |



TEST NUMBER: P924345
 CATALOG NUMBER: DFN2DIP-HX3F0-030D030US950-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 | 7.83 | 8.64 | 8.83 | 9.64 | 10.96 | 3.81 | 4.61 | 4.81 | 5.61 | 6.94 |
| | 3H | 9.50 | 10.22 | 10.51 | 11.23 | 12.58 | 4.99 | 5.71 | 6.00 | 6.72 | 8.07 |
| | 4H | 10.10 | 10.78 | 11.12 | 11.80 | 13.15 | 5.44 | 6.11 | 6.46 | 7.13 | 8.49 |
| | 6H | 10.52 | 11.14 | 11.55 | 12.16 | 13.53 | 5.75 | 6.38 | 6.78 | 7.40 | 8.76 |
| | 8H | 10.64 | 11.23 | 11.67 | 12.27 | 13.63 | 5.84 | 6.43 | 6.88 | 7.47 | 8.83 |
| | 12H | 10.70 | 11.26 | 11.74 | 12.29 | 13.68 | 5.88 | 6.44 | 6.92 | 7.47 | 8.86 |
| 4H | 2H | 7.85 | 8.52 | 8.87 | 9.54 | 10.90 | 4.40 | 5.07 | 5.42 | 6.09 | 7.44 |
| | 3H | 9.67 | 10.23 | 10.70 | 11.27 | 12.64 | 5.74 | 6.30 | 6.77 | 7.35 | 8.71 |
| | 4H | 10.35 | 10.87 | 11.39 | 11.90 | 13.29 | 6.28 | 6.80 | 7.32 | 7.83 | 9.22 |
| | 6H | 10.86 | 11.30 | 11.91 | 12.36 | 13.74 | 6.70 | 7.14 | 7.75 | 8.20 | 9.58 |
| | 8H | 11.03 | 11.44 | 12.08 | 12.49 | 13.89 | 6.82 | 7.23 | 7.87 | 8.28 | 9.69 |
| | 12H | 11.12 | 11.49 | 12.18 | 12.55 | 13.96 | 6.88 | 7.25 | 7.95 | 8.32 | 9.73 |
| 8H | 4H | 10.32 | 10.73 | 11.37 | 11.78 | 13.18 | 6.56 | 6.97 | 7.61 | 8.02 | 9.42 |
| | 6H | 10.87 | 11.21 | 11.95 | 12.30 | 13.70 | 7.07 | 7.41 | 8.14 | 8.50 | 9.90 |
| | 8H | 11.08 | 11.38 | 12.16 | 12.46 | 13.88 | 7.25 | 7.55 | 8.34 | 8.63 | 10.05 |
| | 12H | 11.21 | 11.48 | 12.30 | 12.55 | 14.01 | 7.37 | 7.63 | 8.45 | 8.70 | 10.16 |
| 12H | 4H | 10.27 | 10.64 | 11.33 | 11.70 | 13.11 | 6.56 | 6.93 | 7.63 | 8.00 | 9.40 |
| | 6H | 10.85 | 11.15 | 11.93 | 12.22 | 13.64 | 7.11 | 7.41 | 8.20 | 8.49 | 9.91 |
| | 8H | 11.06 | 11.32 | 12.14 | 12.39 | 13.86 | 7.32 | 7.58 | 8.40 | 8.65 | 10.11 |