

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: P915481

Luminaire Tested: DFN2DIP-TR4F0-040D100US927-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915481
REPORT IS A COMBINATION OF REPORTS P901998 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D100US927-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

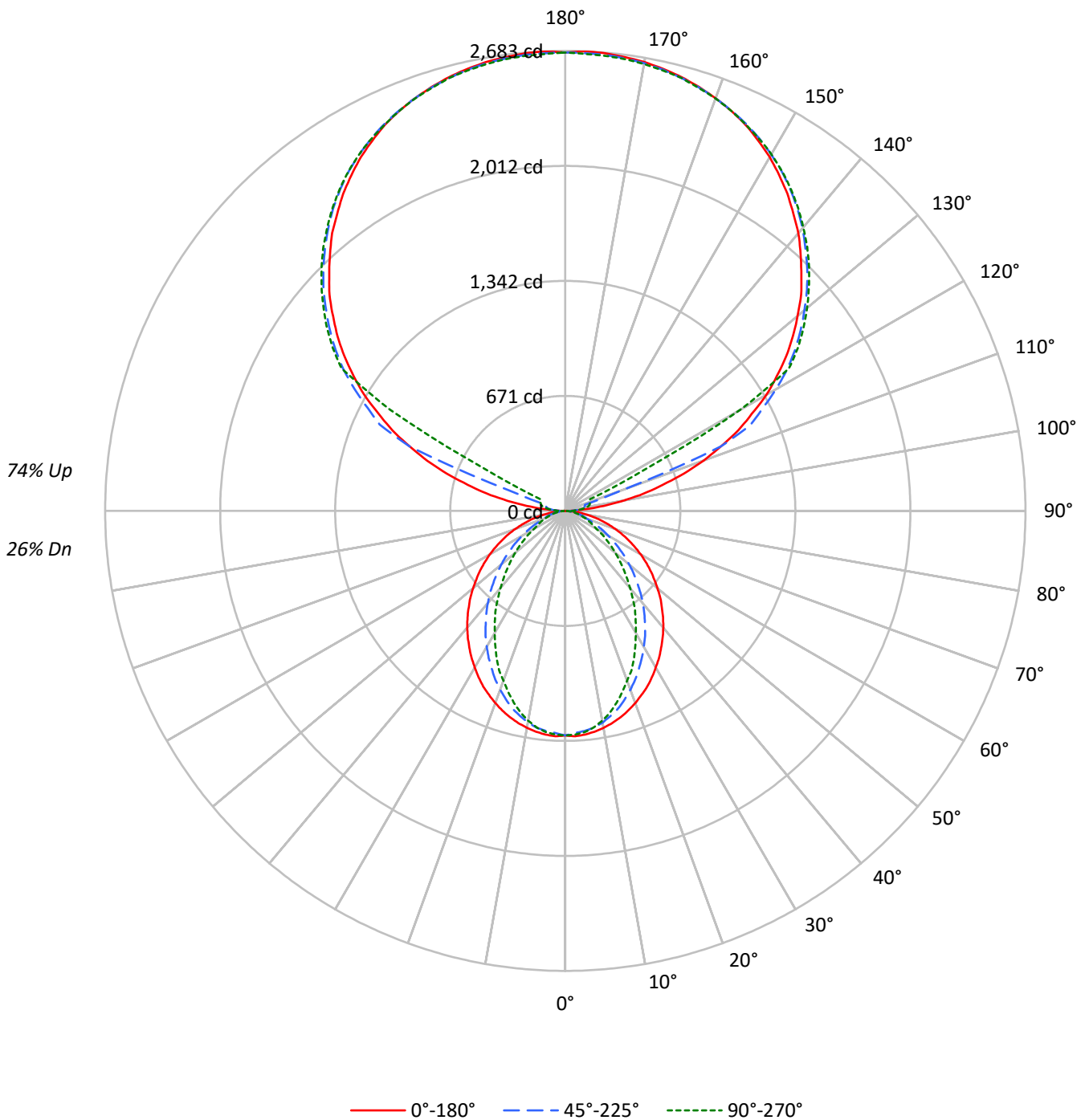
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10536.0 lumens
Efficiency: N/A
Efficacy: 97.3 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: Semi-Indirect

Input Watts (W): 108.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P915481
CATALOG NUMBER: DFN2DIP-TR4F0-040D100US927-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P915481
 CATALOG NUMBER: DFN2DIP-TR4F0-040D100US927-RLLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| RF | 20 | | | | 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 | 101 | 101 | 101 | 101 | 90 | 90 | 90 | 90 | 70 | 70 | 70 | 51 | 51 | 51 | 34 | 34 | 34 | 26 | | | | 26 |
| 1 | 93 | 88 | 85 | 82 | 82 | 79 | 76 | 73 | 61 | 59 | 58 | 45 | 44 | 43 | 30 | 29 | 29 | 22 | | | | 22 |
| 2 | 84 | 77 | 72 | 67 | 75 | 69 | 65 | 60 | 54 | 51 | 48 | 40 | 38 | 36 | 27 | 26 | 25 | 19 | | | | 19 |
| 3 | 77 | 68 | 61 | 56 | 69 | 61 | 55 | 51 | 48 | 44 | 41 | 35 | 33 | 31 | 24 | 23 | 21 | 16 | | | | 16 |
| 4 | 71 | 60 | 53 | 47 | 63 | 54 | 48 | 43 | 43 | 38 | 35 | 32 | 29 | 26 | 22 | 20 | 19 | 14 | | | | 14 |
| 5 | 65 | 54 | 46 | 41 | 58 | 48 | 42 | 37 | 38 | 33 | 30 | 28 | 25 | 23 | 19 | 18 | 16 | 12 | | | | 12 |
| 6 | 60 | 48 | 41 | 35 | 53 | 43 | 37 | 32 | 34 | 30 | 26 | 26 | 23 | 20 | 18 | 16 | 14 | 11 | | | | 11 |
| 7 | 55 | 43 | 36 | 31 | 49 | 39 | 33 | 28 | 31 | 26 | 23 | 23 | 20 | 18 | 16 | 14 | 13 | 10 | | | | 10 |
| 8 | 51 | 39 | 32 | 27 | 45 | 36 | 29 | 25 | 28 | 24 | 20 | 21 | 18 | 16 | 15 | 13 | 12 | 9 | | | | 9 |
| 9 | 47 | 36 | 29 | 24 | 42 | 32 | 26 | 22 | 26 | 21 | 18 | 20 | 16 | 14 | 14 | 12 | 10 | 8 | | | | 8 |
| 10 | 44 | 33 | 26 | 21 | 39 | 30 | 24 | 20 | 24 | 19 | 16 | 18 | 15 | 13 | 13 | 11 | 10 | 7 | | | | 7 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 1040 | 1040 | 1040 |
| 5° | 1042 | 1024 | 1030 |
| 10° | 1032 | 1004 | 997 |
| 15° | 1018 | 971 | 945 |
| 20° | 999 | 925 | 881 |
| 25° | 980 | 874 | 820 |
| 30° | 954 | 821 | 742 |
| 35° | 928 | 764 | 674 |
| 40° | 903 | 706 | 595 |
| 45° | 873 | 641 | 524 |
| 50° | 842 | 576 | 454 |
| 55° | 810 | 506 | 388 |
| 60° | 772 | 432 | 319 |
| 65° | 729 | 358 | 287 |
| 70° | 677 | 289 | 260 |
| 75° | 611 | 254 | 236 |
| 80° | 517 | 213 | 205 |
| 85° | 360 | 142 | 154 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1418 cd/sqm



TEST NUMBER: P915481

CATALOG NUMBER: DFN2DIP-TR4F0-040D100US927-RLONL

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 122.7 | 1.2 |
| 10°-20° | 336.9 | 3.2 |
| 20°-30° | 473.1 | 4.5 |
| 30°-40° | 515.7 | 4.9 |
| 40°-50° | 473.9 | 4.5 |
| 50°-60° | 372.2 | 3.5 |
| 60°-70° | 242.3 | 2.3 |
| 70°-80° | 124.7 | 1.2 |
| 80°-90° | 36.5 | 0.3 |
| 90°-100° | 88.1 | 0.8 |
| 100°-110° | 328.6 | 3.1 |
| 110°-120° | 871.6 | 8.3 |
| 120°-130° | 1445.6 | 13.7 |
| 130°-140° | 1535.6 | 14.6 |
| 140°-150° | 1427.1 | 13.5 |
| 150°-160° | 1147.4 | 10.9 |
| 160°-170° | 739.3 | 7.0 |
| 170°-180° | 254.5 | 2.4 |
| 0°-30° | 932.7 | 8.9 |
| 0°-40° | 1448.4 | 13.7 |
| 0°-60° | 2294.6 | 21.8 |
| 0°-90° | 2698.1 | 25.6 |
| 90°-120° | 1288.4 | 12.2 |
| 90°-150° | 5696.7 | 54.1 |
| 90°-180° | 7838.0 | 74.4 |
| 0°-180° | 10536.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1310 | 1310 | 1310 | 1310 | 1310 | |
| 5° | 1310 | 1304 | 1288 | 1299 | 1296 | 124 |
| 15° | 1246 | 1233 | 1192 | 1170 | 1158 | 351 |
| 25° | 1131 | 1093 | 1014 | 966 | 948 | 520 |
| 35° | 974 | 914 | 810 | 735 | 709 | 610 |
| 45° | 796 | 717 | 593 | 508 | 480 | 615 |
| 55° | 606 | 513 | 385 | 314 | 292 | 541 |
| 65° | 409 | 313 | 206 | 166 | 162 | 405 |
| 75° | 218 | 135 | 95 | 86 | 85 | 231 |
| 85° | 51 | 26 | 22 | 22 | 22 | 58 |
| 90° | 2 | 23 | 39 | 48 | 52 | 10 |
| 95° | 126 | 62 | 75 | 85 | 83 | 149 |
| 105° | 588 | 646 | 118 | 139 | 147 | 628 |
| 115° | 1112 | 1145 | 1194 | 298 | 159 | 1095 |
| 125° | 1573 | 1598 | 1635 | 1648 | 1654 | 1403 |
| 135° | 1946 | 1977 | 1994 | 2014 | 2010 | 1503 |
| 145° | 2258 | 2256 | 2288 | 2302 | 2292 | 1412 |
| 155° | 2486 | 2469 | 2492 | 2503 | 2488 | 1146 |
| 165° | 2619 | 2608 | 2614 | 2627 | 2614 | 740 |
| 175° | 2679 | 2666 | 2670 | 2683 | 2664 | 255 |
| 180° | 2674 | 2674 | 2674 | 2674 | 2674 | |



TEST NUMBER: P915481

CATALOG NUMBER: DFN2DIP-TR4F0-040D100US927-RLLONL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1309.6 | 1309.6 | 1309.6 | 1309.6 | 1309.6 |
| 2.5° | 1315.6 | 1309.6 | 1296.6 | 1308.5 | 1306.1 |
| 5° | 1309.6 | 1303.7 | 1288.2 | 1298.9 | 1295.5 |
| 7.5° | 1298.9 | 1291.9 | 1275.3 | 1279.9 | 1274.1 |
| 10° | 1284.8 | 1276.4 | 1252.8 | 1249.1 | 1242.1 |
| 12.5° | 1267.0 | 1256.3 | 1224.2 | 1217.2 | 1204.1 |
| 15° | 1245.6 | 1232.6 | 1192.3 | 1169.8 | 1158.0 |
| 17.5° | 1220.8 | 1201.7 | 1151.9 | 1125.9 | 1106.9 |
| 20° | 1192.3 | 1168.5 | 1109.3 | 1079.7 | 1053.6 |
| 22.5° | 1161.5 | 1134.2 | 1065.4 | 1025.2 | 1007.5 |
| 25° | 1130.7 | 1092.7 | 1014.5 | 966.0 | 948.1 |
| 27.5° | 1094.0 | 1053.6 | 967.1 | 911.4 | 884.1 |
| 30° | 1054.9 | 1009.7 | 914.9 | 854.5 | 822.5 |
| 32.5° | 1016.9 | 962.3 | 865.2 | 794.1 | 764.4 |
| 35° | 974.3 | 913.8 | 809.5 | 734.8 | 708.7 |
| 37.5° | 932.8 | 867.5 | 757.3 | 675.5 | 645.9 |
| 40° | 888.9 | 817.8 | 702.8 | 618.7 | 587.9 |
| 42.5° | 843.8 | 768.0 | 648.3 | 560.5 | 531.0 |
| 45° | 796.5 | 717.0 | 592.6 | 508.4 | 480.0 |
| 47.5° | 751.5 | 667.3 | 539.3 | 455.1 | 429.0 |
| 50° | 701.6 | 617.5 | 487.1 | 405.3 | 380.5 |
| 52.5° | 653.0 | 564.1 | 437.4 | 359.1 | 336.6 |
| 55° | 605.6 | 513.2 | 385.2 | 314.1 | 291.6 |
| 57.5° | 557.1 | 462.2 | 339.0 | 272.6 | 253.7 |
| 60° | 507.2 | 412.4 | 290.3 | 230.0 | 211.0 |
| 62.5° | 458.8 | 363.9 | 248.8 | 192.0 | 182.6 |
| 65° | 408.9 | 312.8 | 206.2 | 166.0 | 162.3 |
| 67.5° | 361.6 | 265.5 | 166.0 | 145.8 | 142.2 |
| 70° | 311.7 | 219.3 | 137.4 | 125.6 | 120.8 |
| 72.5° | 264.4 | 176.6 | 114.9 | 105.5 | 103.1 |
| 75° | 218.0 | 135.1 | 94.8 | 86.5 | 85.4 |
| 77.5° | 171.9 | 95.9 | 74.7 | 69.9 | 67.5 |
| 80° | 129.1 | 68.8 | 56.8 | 52.2 | 52.2 |
| 82.5° | 90.1 | 46.3 | 39.1 | 36.7 | 36.7 |
| 85° | 50.9 | 26.1 | 22.5 | 22.5 | 22.5 |
| 87.5° | 19.0 | 9.4 | 9.4 | 8.3 | 8.3 |
| 90° | 1.8 | 23.2 | 38.6 | 48.5 | 52.1 |
| 92.5° | 48.5 | 40.6 | 46.4 | 50.3 | 52.1 |
| 95° | 125.6 | 61.8 | 75.3 | 85.2 | 83.2 |
| 97.5° | 226.2 | 67.7 | 98.5 | 104.5 | 106.4 |
| 100° | 342.5 | 77.4 | 110.3 | 125.6 | 129.6 |
| 102.5° | 470.0 | 466.4 | 114.2 | 135.3 | 141.2 |
| 105° | 588.1 | 646.2 | 118.1 | 139.2 | 147.0 |
| 107.5° | 725.5 | 773.7 | 122.0 | 143.1 | 150.9 |
| 110° | 857.1 | 897.5 | 338.6 | 145.2 | 152.7 |



TEST NUMBER: P915481

CATALOG NUMBER: DFN2DIP-TR4F0-040D100US927-RLLONL

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 980.9 | 1015.6 | 982.8 | 148.9 | 154.9 |
| 115° | 1112.3 | 1145.2 | 1193.7 | 297.9 | 158.8 |
| 117.5° | 1226.5 | 1265.1 | 1298.1 | 1021.4 | 514.6 |
| 120° | 1354.2 | 1383.1 | 1418.1 | 1441.3 | 1180.1 |
| 122.5° | 1462.4 | 1493.4 | 1532.2 | 1543.7 | 1545.8 |
| 125° | 1572.7 | 1598.0 | 1634.7 | 1648.3 | 1654.0 |
| 127.5° | 1673.3 | 1700.4 | 1729.6 | 1748.9 | 1750.7 |
| 130° | 1768.1 | 1799.2 | 1820.4 | 1841.7 | 1839.8 |
| 132.5° | 1864.9 | 1890.1 | 1911.3 | 1928.7 | 1926.9 |
| 135° | 1946.2 | 1977.2 | 1994.5 | 2014.0 | 2010.1 |
| 137.5° | 2031.2 | 2054.4 | 2073.9 | 2093.3 | 2087.5 |
| 140° | 2114.3 | 2130.0 | 2151.1 | 2168.6 | 2158.9 |
| 142.5° | 2184.2 | 2197.7 | 2222.8 | 2238.1 | 2228.6 |
| 145° | 2257.7 | 2255.7 | 2288.5 | 2302.1 | 2292.4 |
| 147.5° | 2321.3 | 2315.6 | 2348.4 | 2358.1 | 2350.6 |
| 150° | 2383.4 | 2369.8 | 2400.9 | 2412.4 | 2402.7 |
| 152.5° | 2435.5 | 2420.1 | 2449.1 | 2460.8 | 2447.2 |
| 155° | 2485.9 | 2468.6 | 2491.8 | 2503.3 | 2487.9 |
| 157.5° | 2526.5 | 2511.1 | 2528.6 | 2542.1 | 2526.5 |
| 160° | 2561.4 | 2549.7 | 2561.4 | 2572.9 | 2559.4 |
| 162.5° | 2592.2 | 2580.7 | 2590.4 | 2603.9 | 2586.5 |
| 165° | 2619.3 | 2607.8 | 2613.6 | 2627.1 | 2613.6 |
| 167.5° | 2640.7 | 2628.9 | 2635.0 | 2648.5 | 2631.0 |
| 170° | 2658.1 | 2646.4 | 2650.3 | 2663.9 | 2646.4 |
| 172.5° | 2669.6 | 2658.1 | 2662.0 | 2675.6 | 2658.1 |
| 175° | 2679.2 | 2665.7 | 2669.6 | 2683.2 | 2663.9 |
| 177.5° | 2683.2 | 2669.6 | 2671.7 | 2685.3 | 2667.7 |
| 180° | 2673.5 | 2673.5 | 2673.5 | 2673.5 | 2673.5 |



TEST NUMBER: P915481
 CATALOG NUMBER: DFN2DIP-TR4F0-040D100US927-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 | 4.40 | 5.07 | 5.55 | 6.20 | 7.78 | 0.38 | 1.04 | 1.52 | 2.17 | 3.76 |
| | 3H | 6.07 | 6.66 | 7.22 | 7.80 | 9.40 | 1.55 | 2.15 | 2.71 | 3.29 | 4.89 |
| | 4H | 6.67 | 7.23 | 7.83 | 8.37 | 9.98 | 2.00 | 2.56 | 3.16 | 3.70 | 5.31 |
| | 6H | 7.08 | 7.60 | 8.25 | 8.74 | 10.36 | 2.31 | 2.83 | 3.48 | 3.97 | 5.59 |
| | 8H | 7.20 | 7.70 | 8.38 | 8.85 | 10.46 | 2.40 | 2.89 | 3.57 | 4.05 | 5.65 |
| | 12H | 7.26 | 7.73 | 8.44 | 8.88 | 10.51 | 2.44 | 2.90 | 3.61 | 4.05 | 5.68 |
| 4H | 2H | 4.40 | 4.97 | 5.57 | 6.11 | 7.71 | 0.95 | 1.52 | 2.12 | 2.66 | 4.26 |
| | 3H | 6.22 | 6.69 | 7.39 | 7.85 | 9.47 | 2.29 | 2.76 | 3.46 | 3.92 | 5.54 |
| | 4H | 6.90 | 7.33 | 8.08 | 8.49 | 10.12 | 2.83 | 3.26 | 4.01 | 4.42 | 6.05 |
| | 6H | 7.41 | 7.78 | 8.59 | 8.95 | 10.58 | 3.24 | 3.61 | 4.42 | 4.79 | 6.41 |
| | 8H | 7.58 | 7.92 | 8.76 | 9.09 | 10.73 | 3.37 | 3.71 | 4.55 | 4.88 | 6.52 |
| | 12H | 7.67 | 7.98 | 8.86 | 9.16 | 10.80 | 3.43 | 3.74 | 4.62 | 4.92 | 6.56 |
| 8H | 4H | 6.86 | 7.20 | 8.04 | 8.37 | 10.01 | 3.10 | 3.44 | 4.28 | 4.61 | 6.25 |
| | 6H | 7.42 | 7.70 | 8.62 | 8.91 | 10.55 | 3.61 | 3.90 | 4.81 | 5.11 | 6.74 |
| | 8H | 7.63 | 7.88 | 8.84 | 9.07 | 10.73 | 3.80 | 4.05 | 5.01 | 5.24 | 6.90 |
| | 12H | 7.76 | 7.98 | 8.97 | 9.17 | 10.86 | 3.91 | 4.13 | 5.12 | 5.32 | 7.01 |
| 12H | 4H | 6.80 | 7.11 | 8.00 | 8.29 | 9.94 | 3.10 | 3.41 | 4.29 | 4.59 | 6.23 |
| | 6H | 7.39 | 7.64 | 8.60 | 8.83 | 10.49 | 3.66 | 3.91 | 4.86 | 5.10 | 6.75 |
| | 8H | 7.61 | 7.82 | 8.81 | 9.01 | 10.70 | 3.86 | 4.08 | 5.07 | 5.27 | 6.96 |