

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: P925846

Luminaire Tested: DFN2DIP-SQ4F0-080D090US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925846
REPORT IS A COMBINATION OF REPORTS P900118 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D090US950-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

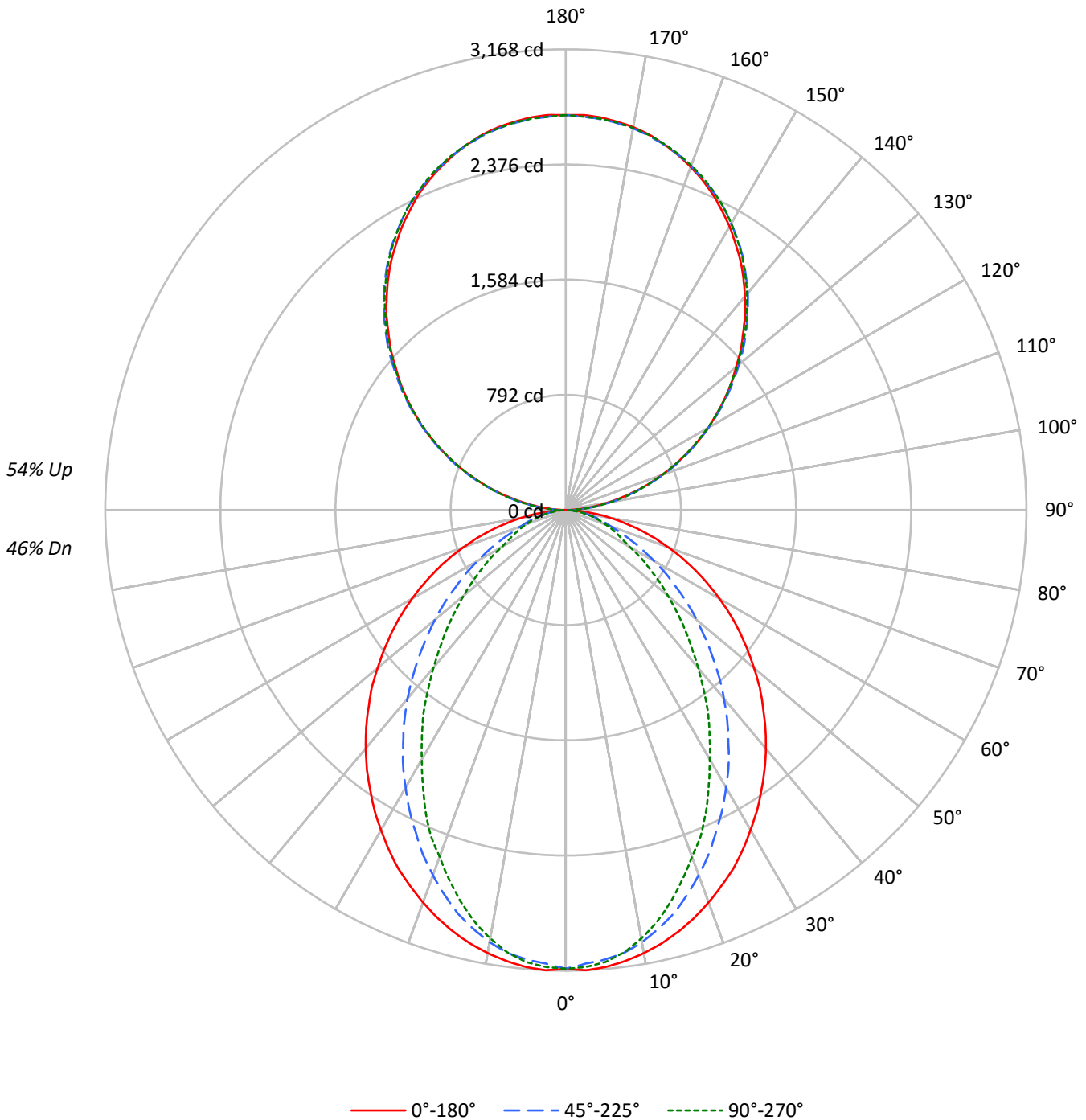
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14085.8 lumens
Efficiency: N/A
Efficacy: 102.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 138.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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: P925846

CATALOG NUMBER: DFN2DIP-SQ4F0-080D090US950-RLLFLL

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 | 81 | 81 | 81 | 66 | 66 | 66 | 53 | 53 | 53 | 46 | | | 46 |
| 1 | 97 | 93 | 90 | 86 | 89 | 86 | 83 | 80 | 72 | 70 | 68 | 59 | 57 | 56 | 47 | 46 | 45 | 40 | | | 40 |
| 2 | 89 | 82 | 76 | 71 | 82 | 75 | 70 | 66 | 63 | 60 | 57 | 52 | 50 | 47 | 42 | 40 | 39 | 34 | | | 34 |
| 3 | 81 | 72 | 65 | 60 | 75 | 67 | 61 | 56 | 56 | 52 | 48 | 47 | 43 | 41 | 38 | 35 | 33 | 29 | | | 29 |
| 4 | 75 | 64 | 57 | 51 | 68 | 59 | 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 | 22 | | | 22 |
| 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 | 26 | 22 | 20 | 22 | 19 | 17 | 15 | | | 15 |
| 10 | 48 | 36 | 29 | 24 | 44 | 33 | 27 | 23 | 29 | 24 | 20 | 25 | 21 | 18 | 20 | 17 | 15 | 13 | | | 13 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2213 | 2213 | 2213 |
| 5° | 2217 | 2179 | 2193 |
| 10° | 2195 | 2136 | 2122 |
| 15° | 2165 | 2066 | 2012 |
| 20° | 2125 | 1969 | 1877 |
| 25° | 2084 | 1860 | 1747 |
| 30° | 2029 | 1749 | 1582 |
| 35° | 1975 | 1629 | 1436 |
| 40° | 1920 | 1505 | 1270 |
| 45° | 1856 | 1367 | 1119 |
| 50° | 1790 | 1228 | 971 |
| 55° | 1722 | 1079 | 829 |
| 60° | 1642 | 924 | 683 |
| 65° | 1550 | 765 | 615 |
| 70° | 1439 | 618 | 558 |
| 75° | 1300 | 546 | 509 |
| 80° | 1098 | 459 | 443 |
| 85° | 765 | 309 | 338 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2138 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 295.6 | 2.1 |
| 10°-20° | 811.5 | 5.8 |
| 20°-30° | 1139.4 | 8.1 |
| 30°-40° | 1242.0 | 8.8 |
| 40°-50° | 1141.5 | 8.1 |
| 50°-60° | 896.5 | 6.4 |
| 60°-70° | 583.5 | 4.1 |
| 70°-80° | 300.4 | 2.1 |
| 80°-90° | 84.4 | 0.6 |
| 90°-100° | 168.0 | 1.2 |
| 100°-110° | 533.9 | 3.8 |
| 110°-120° | 913.7 | 6.5 |
| 120°-130° | 1201.6 | 8.5 |
| 130°-140° | 1348.7 | 9.6 |
| 140°-150° | 1322.6 | 9.4 |
| 150°-160° | 1109.5 | 7.9 |
| 160°-170° | 735.8 | 5.2 |
| 170°-180° | 257.2 | 1.8 |
| 0°-30° | 2246.6 | 15.9 |
| 0°-40° | 3488.6 | 24.8 |
| 0°-60° | 5526.6 | 39.2 |
| 0°-90° | 6494.9 | 46.1 |
| 90°-120° | 1615.6 | 11.5 |
| 90°-150° | 5488.5 | 39.0 |
| 90°-180° | 7591.0 | 53.9 |
| 0°-180° | 14085.8 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 3154 | 3154 | 3154 | 3154 | 3154 | |
| 5° | 3154 | 3140 | 3103 | 3128 | 3120 | 299 |
| 15° | 3000 | 2969 | 2872 | 2818 | 2789 | 845 |
| 25° | 2723 | 2632 | 2444 | 2327 | 2284 | 1252 |
| 35° | 2347 | 2201 | 1950 | 1770 | 1707 | 1469 |
| 45° | 1918 | 1727 | 1427 | 1224 | 1156 | 1481 |
| 55° | 1459 | 1236 | 928 | 756 | 702 | 1303 |
| 65° | 985 | 754 | 497 | 400 | 391 | 976 |
| 75° | 525 | 325 | 228 | 208 | 206 | 555 |
| 85° | 123 | 63 | 54 | 54 | 54 | 141 |
| 90° | 2 | 30 | 80 | 75 | 78 | 14 |
| 95° | 120 | 142 | 146 | 146 | 142 | 133 |
| 105° | 493 | 499 | 504 | 508 | 508 | 520 |
| 115° | 917 | 930 | 926 | 924 | 917 | 907 |
| 125° | 1334 | 1354 | 1348 | 1340 | 1338 | 1192 |
| 135° | 1725 | 1750 | 1755 | 1753 | 1746 | 1333 |
| 145° | 2094 | 2110 | 2124 | 2126 | 2117 | 1308 |
| 155° | 2394 | 2401 | 2408 | 2420 | 2413 | 1102 |
| 165° | 2605 | 2602 | 2602 | 2619 | 2607 | 735 |
| 175° | 2710 | 2704 | 2699 | 2716 | 2702 | 258 |
| 180° | 2716 | 2716 | 2716 | 2716 | 2716 | |



TEST NUMBER: P925846

CATALOG NUMBER: DFN2DIP-SQ4F0-080D090US950-RLFL

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 3154.3 | 3154.3 | 3154.3 | 3154.3 | 3154.3 |
| 2.5° | 3168.5 | 3154.3 | 3122.8 | 3151.5 | 3145.8 |
| 5° | 3154.3 | 3140.1 | 3102.8 | 3128.5 | 3120.1 |
| 7.5° | 3128.5 | 3111.6 | 3071.6 | 3082.9 | 3068.5 |
| 10° | 3094.3 | 3074.4 | 3017.4 | 3008.6 | 2991.6 |
| 12.5° | 3051.7 | 3025.9 | 2948.6 | 2931.6 | 2900.2 |
| 15° | 3000.1 | 2968.7 | 2871.7 | 2817.5 | 2789.0 |
| 17.5° | 2940.1 | 2894.4 | 2774.5 | 2711.8 | 2666.0 |
| 20° | 2871.7 | 2814.5 | 2671.9 | 2600.7 | 2537.6 |
| 22.5° | 2797.5 | 2731.8 | 2566.2 | 2469.2 | 2426.5 |
| 25° | 2723.3 | 2631.9 | 2443.5 | 2326.6 | 2283.6 |
| 27.5° | 2634.9 | 2537.6 | 2329.3 | 2195.2 | 2129.4 |
| 30° | 2540.7 | 2431.9 | 2203.6 | 2058.3 | 1981.0 |
| 32.5° | 2449.2 | 2317.8 | 2084.0 | 1912.6 | 1841.1 |
| 35° | 2346.6 | 2200.9 | 1949.8 | 1770.0 | 1706.9 |
| 37.5° | 2246.6 | 2089.5 | 1824.1 | 1627.0 | 1555.8 |
| 40° | 2141.0 | 1969.8 | 1692.7 | 1490.1 | 1415.8 |
| 42.5° | 2032.5 | 1849.9 | 1561.5 | 1350.2 | 1278.9 |
| 45° | 1918.3 | 1726.9 | 1427.4 | 1224.5 | 1156.1 |
| 47.5° | 1809.9 | 1607.3 | 1299.0 | 1096.1 | 1033.4 |
| 50° | 1689.9 | 1487.4 | 1173.3 | 976.1 | 916.4 |
| 52.5° | 1572.8 | 1358.6 | 1053.3 | 865.0 | 810.8 |
| 55° | 1458.6 | 1236.0 | 927.7 | 756.5 | 702.3 |
| 57.5° | 1341.7 | 1113.3 | 816.5 | 656.6 | 610.8 |
| 60° | 1221.7 | 993.4 | 699.3 | 553.9 | 508.2 |
| 62.5° | 1104.8 | 876.4 | 599.4 | 462.5 | 439.8 |
| 65° | 984.9 | 753.5 | 496.7 | 399.8 | 390.9 |
| 67.5° | 870.7 | 639.4 | 399.8 | 351.0 | 342.6 |
| 70° | 750.8 | 528.2 | 331.0 | 302.5 | 291.1 |
| 72.5° | 636.6 | 425.2 | 276.9 | 254.1 | 248.3 |
| 75° | 525.2 | 325.3 | 228.4 | 208.4 | 205.7 |
| 77.5° | 414.0 | 231.1 | 179.9 | 168.4 | 162.7 |
| 80° | 311.0 | 165.7 | 136.9 | 125.6 | 125.6 |
| 82.5° | 216.8 | 111.4 | 94.2 | 88.4 | 88.4 |
| 85° | 122.7 | 62.7 | 54.2 | 54.2 | 54.2 |
| 87.5° | 45.7 | 22.7 | 22.7 | 20.0 | 20.0 |
| 90° | 2.5 | 29.5 | 80.2 | 75.3 | 77.8 |
| 92.5° | 50.8 | 68.8 | 71.3 | 73.6 | 73.6 |
| 95° | 119.5 | 142.4 | 146.5 | 146.5 | 142.4 |
| 97.5° | 198.9 | 220.2 | 229.2 | 229.2 | 229.2 |
| 100° | 290.6 | 309.5 | 316.0 | 316.0 | 313.6 |
| 102.5° | 387.2 | 401.2 | 410.1 | 412.6 | 410.1 |
| 105° | 492.8 | 499.3 | 504.3 | 508.4 | 508.4 |
| 107.5° | 597.6 | 607.4 | 607.4 | 609.0 | 597.6 |
| 110° | 699.1 | 712.3 | 712.3 | 712.3 | 705.7 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 808.8 | 822.7 | 820.2 | 813.8 | 808.8 |
| 115° | 916.9 | 930.0 | 925.9 | 923.5 | 916.9 |
| 117.5° | 1024.1 | 1042.1 | 1030.7 | 1024.1 | 1017.5 |
| 120° | 1132.2 | 1150.1 | 1132.2 | 1132.2 | 1124.8 |
| 122.5° | 1230.4 | 1253.4 | 1241.9 | 1235.3 | 1230.4 |
| 125° | 1333.6 | 1354.0 | 1347.5 | 1340.1 | 1337.7 |
| 127.5° | 1434.2 | 1459.6 | 1450.7 | 1440.8 | 1434.2 |
| 130° | 1528.4 | 1557.9 | 1553.8 | 1548.8 | 1539.9 |
| 132.5° | 1634.0 | 1656.9 | 1658.5 | 1647.1 | 1640.6 |
| 135° | 1724.8 | 1750.2 | 1755.2 | 1752.7 | 1746.2 |
| 137.5° | 1826.3 | 1846.8 | 1851.0 | 1849.3 | 1839.5 |
| 140° | 1915.6 | 1936.0 | 1947.5 | 1947.5 | 1938.5 |
| 142.5° | 2007.3 | 2027.7 | 2034.3 | 2036.8 | 2027.7 |
| 145° | 2094.1 | 2110.4 | 2123.5 | 2126.0 | 2117.0 |
| 147.5° | 2171.9 | 2192.3 | 2202.1 | 2206.2 | 2197.3 |
| 150° | 2252.1 | 2266.0 | 2275.0 | 2282.3 | 2275.0 |
| 152.5° | 2323.3 | 2337.2 | 2348.7 | 2357.7 | 2348.7 |
| 155° | 2394.5 | 2401.0 | 2408.5 | 2419.9 | 2412.6 |
| 157.5° | 2455.9 | 2460.8 | 2464.9 | 2481.3 | 2469.8 |
| 160° | 2510.7 | 2515.7 | 2518.2 | 2532.0 | 2522.2 |
| 162.5° | 2561.5 | 2561.5 | 2564.0 | 2579.5 | 2568.1 |
| 165° | 2604.9 | 2602.4 | 2602.4 | 2618.8 | 2607.4 |
| 167.5° | 2644.2 | 2636.9 | 2636.9 | 2653.2 | 2641.7 |
| 170° | 2673.7 | 2667.1 | 2664.7 | 2681.0 | 2667.1 |
| 172.5° | 2694.1 | 2687.6 | 2685.1 | 2701.5 | 2687.6 |
| 175° | 2710.5 | 2703.9 | 2699.1 | 2715.5 | 2701.5 |
| 177.5° | 2719.5 | 2713.0 | 2708.0 | 2722.0 | 2708.0 |
| 180° | 2715.5 | 2715.5 | 2715.5 | 2715.5 | 2715.5 |



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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 | 9.54 | 10.34 | 10.54 | 11.35 | 12.67 | 5.50 | 6.30 | 6.50 | 7.31 | 8.63 |
| | 3H | 11.22 | 11.94 | 12.23 | 12.95 | 14.30 | 6.69 | 7.41 | 7.70 | 8.42 | 9.77 |
| | 4H | 11.83 | 12.51 | 12.85 | 13.52 | 14.88 | 7.14 | 7.82 | 8.16 | 8.83 | 10.19 |
| | 6H | 12.26 | 12.88 | 13.29 | 13.90 | 15.27 | 7.46 | 8.08 | 8.49 | 9.10 | 10.47 |
| | 8H | 12.38 | 12.98 | 13.42 | 14.01 | 15.38 | 7.55 | 8.14 | 8.59 | 9.18 | 10.54 |
| | 12H | 12.45 | 13.01 | 13.49 | 14.04 | 15.43 | 7.59 | 8.16 | 8.63 | 9.19 | 10.57 |
| 4H | 2H | 9.56 | 10.23 | 10.58 | 11.25 | 12.61 | 6.10 | 6.77 | 7.12 | 7.79 | 9.15 |
| | 3H | 11.39 | 11.95 | 12.42 | 13.00 | 14.37 | 7.45 | 8.01 | 8.48 | 9.05 | 10.42 |
| | 4H | 12.08 | 12.60 | 13.12 | 13.63 | 15.03 | 7.99 | 8.51 | 9.03 | 9.54 | 10.94 |
| | 6H | 12.60 | 13.04 | 13.65 | 14.10 | 15.49 | 8.41 | 8.85 | 9.46 | 9.91 | 11.30 |
| | 8H | 12.78 | 13.19 | 13.83 | 14.24 | 15.65 | 8.54 | 8.95 | 9.59 | 10.00 | 11.41 |
| | 12H | 12.87 | 13.25 | 13.94 | 14.31 | 15.72 | 8.60 | 8.98 | 9.67 | 10.04 | 11.45 |
| 8H | 4H | 12.05 | 12.46 | 13.10 | 13.51 | 14.92 | 8.27 | 8.69 | 9.33 | 9.74 | 11.14 |
| | 6H | 12.62 | 12.96 | 13.69 | 14.05 | 15.45 | 8.79 | 9.13 | 9.87 | 10.23 | 11.63 |
| | 8H | 12.84 | 13.14 | 13.92 | 14.21 | 15.63 | 8.98 | 9.28 | 10.07 | 10.36 | 11.78 |
| | 12H | 12.98 | 13.24 | 14.06 | 14.31 | 15.78 | 9.10 | 9.37 | 10.19 | 10.44 | 11.90 |
| 12H | 4H | 12.00 | 12.37 | 13.07 | 13.44 | 14.85 | 8.28 | 8.65 | 9.35 | 9.72 | 11.13 |
| | 6H | 12.59 | 12.89 | 13.68 | 13.97 | 15.39 | 8.84 | 9.14 | 9.92 | 10.22 | 11.64 |
| | 8H | 12.82 | 13.08 | 13.90 | 14.15 | 15.61 | 9.05 | 9.32 | 10.14 | 10.39 | 11.85 |