

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: P926117

Luminaire Tested: DFN2DIP-TR2F0-030D050US950-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P926117  
REPORT IS A COMBINATION OF REPORTS P901773 AND P897145  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR2F0-030D050US950-FLLONL  
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

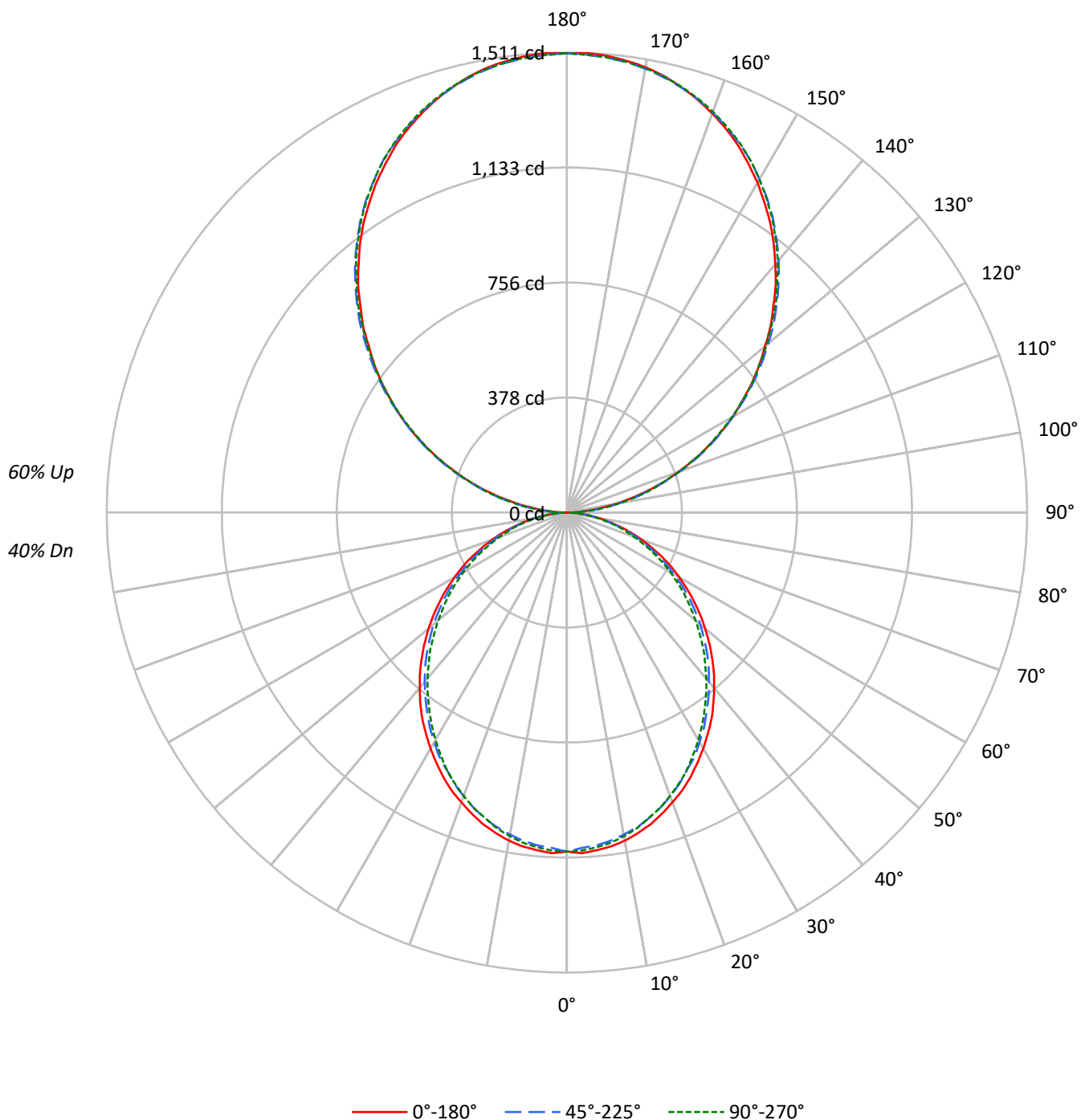
Lumens per Lamp: N/A  
Luminaire Lumens: 7054.8 lumens  
Efficiency: N/A  
Efficacy: 110.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 63.7  
Input Voltage (V): 120  
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

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### Luminous Intensity Polar Plot



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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| RF  | 20  |     |     |     | 20 |    |    |    | 20 |    |    |    | 20 |    |    |    | 20 |
| RC  | 80  |     |     |     | 70 |    |    |    | 50 |    |    |    | 30 |    |    |    | 10 |
| RW  | 70  | 50  | 30  | 10  | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 |
| RCR |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 0   | 105 | 105 | 105 | 105 | 95 | 95 | 95 | 95 | 78 | 78 | 78 | 62 | 62 | 62 | 47 | 47 | 47 |
| 1   | 96  | 91  | 87  | 84  | 87 | 83 | 80 | 77 | 68 | 66 | 64 | 54 | 53 | 51 | 42 | 41 | 40 |
| 2   | 87  | 80  | 74  | 69  | 79 | 73 | 68 | 63 | 60 | 56 | 53 | 48 | 45 | 43 | 37 | 35 | 33 |
| 3   | 79  | 70  | 63  | 57  | 72 | 64 | 58 | 53 | 53 | 48 | 44 | 42 | 39 | 36 | 32 | 30 | 28 |
| 4   | 73  | 62  | 54  | 48  | 66 | 57 | 50 | 45 | 47 | 42 | 38 | 38 | 34 | 31 | 29 | 27 | 25 |
| 5   | 67  | 55  | 47  | 41  | 60 | 51 | 44 | 38 | 42 | 37 | 33 | 34 | 30 | 27 | 26 | 23 | 21 |
| 6   | 61  | 49  | 41  | 36  | 56 | 45 | 38 | 33 | 38 | 32 | 28 | 30 | 27 | 24 | 24 | 21 | 19 |
| 7   | 57  | 45  | 37  | 31  | 51 | 41 | 34 | 29 | 34 | 29 | 25 | 28 | 24 | 21 | 22 | 19 | 17 |
| 8   | 52  | 40  | 33  | 28  | 48 | 37 | 30 | 26 | 31 | 26 | 22 | 25 | 21 | 18 | 20 | 17 | 15 |
| 9   | 49  | 37  | 29  | 24  | 44 | 34 | 27 | 23 | 28 | 23 | 20 | 23 | 19 | 17 | 18 | 16 | 14 |
| 10  | 46  | 34  | 27  | 22  | 41 | 31 | 25 | 20 | 26 | 21 | 18 | 21 | 18 | 15 | 17 | 14 | 12 |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2484 | 2484 | 2484 |
| 5°  | 2484 | 2444 | 2461 |
| 10° | 2460 | 2405 | 2424 |
| 15° | 2420 | 2360 | 2367 |
| 20° | 2368 | 2300 | 2310 |
| 25° | 2315 | 2228 | 2244 |
| 30° | 2251 | 2162 | 2162 |
| 35° | 2189 | 2084 | 2075 |
| 40° | 2114 | 2005 | 1992 |
| 45° | 2038 | 1926 | 1906 |
| 50° | 1956 | 1842 | 1808 |
| 55° | 1869 | 1746 | 1717 |
| 60° | 1771 | 1633 | 1612 |
| 65° | 1663 | 1514 | 1489 |
| 70° | 1526 | 1370 | 1354 |
| 75° | 1338 | 1197 | 1226 |
| 80° | 1109 | 976  | 990  |
| 85° | 757  | 616  | 616  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2038 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 104.8  | 1.5       |
| 10°-20°   | 294.9  | 4.2       |
| 20°-30°   | 433.4  | 6.1       |
| 30°-40°   | 503.4  | 7.1       |
| 40°-50°   | 502.7  | 7.1       |
| 50°-60°   | 438.4  | 6.2       |
| 60°-70°   | 324.1  | 4.6       |
| 70°-80°   | 183.3  | 2.6       |
| 80°-90°   | 52.7   | 0.7       |
| 90°-100°  | 93.4   | 1.3       |
| 100°-110° | 296.6  | 4.2       |
| 110°-120° | 507.6  | 7.2       |
| 120°-130° | 667.5  | 9.5       |
| 130°-140° | 749.3  | 10.6      |
| 140°-150° | 734.8  | 10.4      |
| 150°-160° | 616.4  | 8.7       |
| 160°-170° | 408.8  | 5.8       |
| 170°-180° | 142.9  | 2.0       |
| 0°-30°    | 833.1  | 11.8      |
| 0°-40°    | 1336.5 | 18.9      |
| 0°-60°    | 2277.6 | 32.3      |
| 0°-90°    | 2837.7 | 40.2      |
| 90°-120°  | 897.5  | 12.7      |
| 90°-150°  | 3049.2 | 43.2      |
| 90°-180°  | 4217.0 | 59.8      |
| 0°-180°   | 7054.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1114 | 1114  | 1114 | 1114  | 1114 |      |
| 5°   | 1114 | 1109  | 1098 | 1106  | 1104 | 106  |
| 15°  | 1060 | 1054  | 1040 | 1044  | 1039 | 299  |
| 25°  | 959  | 951   | 933  | 935   | 933  | 441  |
| 35°  | 828  | 817   | 800  | 793   | 788  | 517  |
| 45°  | 674  | 666   | 650  | 638   | 634  | 520  |
| 55°  | 510  | 503   | 490  | 478   | 472  | 456  |
| 65°  | 344  | 337   | 327  | 317   | 312  | 340  |
| 75°  | 180  | 178   | 172  | 166   | 168  | 192  |
| 85°  | 44   | 43    | 42   | 38    | 38   | 49   |
| 90°  | 1    | 16    | 45   | 42    | 43   | 7    |
| 95°  | 66   | 79    | 81   | 81    | 79   | 74   |
| 105° | 274  | 277   | 280  | 282   | 282  | 289  |
| 115° | 509  | 517   | 514  | 513   | 509  | 504  |
| 125° | 741  | 752   | 749  | 744   | 743  | 662  |
| 135° | 958  | 972   | 975  | 974   | 970  | 741  |
| 145° | 1163 | 1172  | 1180 | 1181  | 1176 | 727  |
| 155° | 1330 | 1334  | 1338 | 1344  | 1340 | 612  |
| 165° | 1447 | 1446  | 1446 | 1455  | 1449 | 408  |
| 175° | 1506 | 1502  | 1500 | 1509  | 1501 | 143  |
| 180° | 1509 | 1509  | 1509 | 1509  | 1509 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1113.6 | 1113.6 | 1113.6 | 1113.6 | 1113.6 |
| 2.5°   | 1120.1 | 1114.7 | 1102.9 | 1113.6 | 1111.6 |
| 5°     | 1113.6 | 1109.4 | 1097.6 | 1106.2 | 1104.1 |
| 7.5°   | 1106.2 | 1099.8 | 1087.9 | 1096.6 | 1094.4 |
| 10°    | 1094.4 | 1086.9 | 1074.1 | 1082.6 | 1079.5 |
| 12.5°  | 1078.3 | 1071.9 | 1059.1 | 1064.4 | 1062.3 |
| 15°    | 1060.1 | 1053.8 | 1039.8 | 1044.1 | 1038.7 |
| 17.5°  | 1037.6 | 1031.3 | 1017.3 | 1022.6 | 1017.3 |
| 20°    | 1013.0 | 1006.6 | 991.6  | 994.7  | 990.5  |
| 22.5°  | 988.4  | 978.8  | 964.8  | 964.8  | 962.6  |
| 25°    | 959.4  | 950.9  | 932.7  | 934.8  | 932.7  |
| 27.5°  | 927.3  | 919.8  | 905.9  | 902.8  | 897.4  |
| 30°    | 895.2  | 886.6  | 870.6  | 867.4  | 863.1  |
| 32.5°  | 861.0  | 854.6  | 837.4  | 830.9  | 826.6  |
| 35°    | 827.8  | 817.1  | 799.9  | 793.4  | 788.1  |
| 37.5°  | 790.3  | 780.7  | 763.5  | 755.9  | 750.6  |
| 40°    | 751.8  | 743.2  | 726.0  | 716.5  | 712.2  |
| 42.5°  | 714.3  | 705.7  | 688.6  | 677.8  | 671.4  |
| 45°    | 673.6  | 666.1  | 650.0  | 638.2  | 633.9  |
| 47.5°  | 633.9  | 626.5  | 609.3  | 597.5  | 591.1  |
| 50°    | 592.1  | 586.8  | 571.8  | 556.8  | 551.5  |
| 52.5°  | 551.5  | 544.0  | 530.1  | 518.3  | 510.8  |
| 55°    | 509.8  | 503.3  | 490.5  | 477.7  | 472.3  |
| 57.5°  | 467.9  | 462.6  | 448.7  | 435.8  | 431.5  |
| 60°    | 426.2  | 422.0  | 407.0  | 395.1  | 392.0  |
| 62.5°  | 385.5  | 378.0  | 367.3  | 356.6  | 352.3  |
| 65°    | 343.8  | 337.3  | 326.6  | 317.0  | 311.7  |
| 67.5°  | 301.0  | 295.5  | 285.9  | 278.5  | 274.2  |
| 70°    | 261.3  | 257.0  | 247.4  | 239.8  | 235.6  |
| 72.5°  | 220.7  | 216.3  | 210.9  | 203.5  | 200.3  |
| 75°    | 179.8  | 177.8  | 172.4  | 166.0  | 168.2  |
| 77.5°  | 143.5  | 139.2  | 137.0  | 133.8  | 130.7  |
| 80°    | 107.1  | 106.0  | 103.8  | 100.6  | 98.5   |
| 82.5°  | 72.8   | 72.8   | 71.8   | 67.4   | 67.4   |
| 85°    | 43.9   | 42.8   | 41.8   | 38.5   | 37.5   |
| 87.5°  | 19.3   | 17.2   | 15.0   | 11.8   | 10.7   |
| 90°    | 1.3    | 16.4   | 44.6   | 41.9   | 43.2   |
| 92.5°  | 28.2   | 38.2   | 39.6   | 40.9   | 40.9   |
| 95°    | 66.4   | 79.2   | 81.4   | 81.4   | 79.2   |
| 97.5°  | 110.5  | 122.3  | 127.4  | 127.4  | 127.4  |
| 100°   | 161.4  | 171.9  | 175.5  | 175.5  | 174.2  |
| 102.5° | 215.1  | 222.9  | 227.8  | 229.2  | 227.8  |
| 105°   | 273.8  | 277.4  | 280.2  | 282.4  | 282.4  |
| 107.5° | 332.0  | 337.4  | 337.4  | 338.4  | 332.0  |
| 110°   | 388.4  | 395.7  | 395.7  | 395.7  | 392.0  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 449.3  | 457.1  | 455.7  | 452.1  | 449.3  |
| 115°   | 509.3  | 516.7  | 514.4  | 513.1  | 509.3  |
| 117.5° | 569.0  | 579.0  | 572.6  | 569.0  | 565.3  |
| 120°   | 629.0  | 639.0  | 629.0  | 629.0  | 624.9  |
| 122.5° | 683.5  | 696.3  | 689.9  | 686.3  | 683.5  |
| 125°   | 740.9  | 752.2  | 748.6  | 744.5  | 743.2  |
| 127.5° | 796.8  | 810.9  | 805.9  | 800.4  | 796.8  |
| 130°   | 849.2  | 865.5  | 863.2  | 860.5  | 855.5  |
| 132.5° | 907.8  | 920.5  | 921.5  | 915.1  | 911.5  |
| 135°   | 958.3  | 972.3  | 975.1  | 973.7  | 970.1  |
| 137.5° | 1014.7 | 1026.0 | 1028.3 | 1027.4 | 1021.9 |
| 140°   | 1064.2 | 1075.6 | 1081.9 | 1081.9 | 1077.0 |
| 142.5° | 1115.1 | 1126.6 | 1130.2 | 1131.5 | 1126.6 |
| 145°   | 1163.4 | 1172.5 | 1179.7 | 1181.1 | 1176.1 |
| 147.5° | 1206.6 | 1218.0 | 1223.4 | 1225.7 | 1220.6 |
| 150°   | 1251.2 | 1258.9 | 1263.9 | 1268.0 | 1263.9 |
| 152.5° | 1290.8 | 1298.5 | 1304.8 | 1309.8 | 1304.8 |
| 155°   | 1330.3 | 1333.9 | 1338.0 | 1344.4 | 1340.3 |
| 157.5° | 1364.4 | 1367.1 | 1369.4 | 1378.5 | 1372.1 |
| 160°   | 1394.8 | 1397.6 | 1398.9 | 1406.7 | 1401.2 |
| 162.5° | 1423.1 | 1423.1 | 1424.4 | 1433.1 | 1426.7 |
| 165°   | 1447.2 | 1445.8 | 1445.8 | 1454.9 | 1448.6 |
| 167.5° | 1469.0 | 1464.9 | 1464.9 | 1474.0 | 1467.6 |
| 170°   | 1485.4 | 1481.8 | 1480.4 | 1489.5 | 1481.8 |
| 172.5° | 1496.7 | 1493.1 | 1491.8 | 1500.8 | 1493.1 |
| 175°   | 1505.9 | 1502.2 | 1499.5 | 1508.6 | 1500.8 |
| 177.5° | 1510.8 | 1507.2 | 1504.5 | 1512.2 | 1504.5 |
| 180°   | 1508.6 | 1508.6 | 1508.6 | 1508.6 | 1508.6 |

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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 | 9.32             | 10.10 | 10.36 | 11.15 | 12.55 | 8.90           | 9.68  | 9.94  | 10.72 | 12.13 |
|                 | 3H   | 10.96            | 11.65 | 12.00 | 12.71 | 14.13 | 10.49          | 11.19 | 11.54 | 12.25 | 13.67 |
|                 | 4H   | 11.52            | 12.19 | 12.58 | 13.24 | 14.67 | 11.06          | 11.73 | 12.12 | 12.78 | 14.21 |
|                 | 6H   | 11.90            | 12.51 | 12.97 | 13.57 | 15.01 | 11.44          | 12.05 | 12.51 | 13.11 | 14.55 |
|                 | 8H   | 11.99            | 12.57 | 13.07 | 13.65 | 15.09 | 11.54          | 12.12 | 12.61 | 13.19 | 14.63 |
|                 | 12H  | 12.03            | 12.58 | 13.11 | 13.65 | 15.11 | 11.57          | 12.12 | 12.65 | 13.19 | 14.65 |
| 4H              | 2H   | 9.77             | 10.43 | 10.83 | 11.48 | 12.91 | 9.43           | 10.09 | 10.49 | 11.15 | 12.58 |
|                 | 3H   | 11.60            | 12.15 | 12.67 | 13.23 | 14.68 | 11.21          | 11.77 | 12.29 | 12.85 | 14.29 |
|                 | 4H   | 12.29            | 12.80 | 13.37 | 13.87 | 15.34 | 11.90          | 12.40 | 12.97 | 13.48 | 14.94 |
|                 | 6H   | 12.78            | 13.21 | 13.87 | 14.31 | 15.77 | 12.38          | 12.82 | 13.47 | 13.91 | 15.37 |
|                 | 8H   | 12.92            | 13.32 | 14.00 | 14.41 | 15.88 | 12.52          | 12.92 | 13.60 | 14.01 | 15.49 |
|                 | 12H  | 12.97            | 13.34 | 14.08 | 14.44 | 15.92 | 12.57          | 12.94 | 13.67 | 14.04 | 15.52 |
| 8H              | 4H   | 12.47            | 12.88 | 13.56 | 13.97 | 15.44 | 12.12          | 12.53 | 13.21 | 13.61 | 15.09 |
|                 | 6H   | 13.07            | 13.41 | 14.18 | 14.54 | 16.01 | 12.72          | 13.05 | 13.83 | 14.18 | 15.66 |
|                 | 8H   | 13.27            | 13.57 | 14.39 | 14.68 | 16.17 | 12.92          | 13.21 | 14.03 | 14.32 | 15.82 |
|                 | 12H  | 13.39            | 13.65 | 14.51 | 14.75 | 16.28 | 13.02          | 13.28 | 14.14 | 14.38 | 15.91 |
| 12H             | 4H   | 12.45            | 12.82 | 13.55 | 13.92 | 15.40 | 12.11          | 12.47 | 13.21 | 13.58 | 15.06 |
|                 | 6H   | 13.10            | 13.39 | 14.21 | 14.50 | 15.99 | 12.75          | 13.05 | 13.87 | 14.16 | 15.65 |
|                 | 8H   | 13.32            | 13.57 | 14.44 | 14.68 | 16.21 | 12.97          | 13.23 | 14.09 | 14.34 | 15.87 |