

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: P912545

Luminaire Tested: DFN2DIP-TR3F0-030D030US850-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P912545  
REPORT IS A COMBINATION OF REPORTS P901791 AND P898751  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-030D030US850-FLLONL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

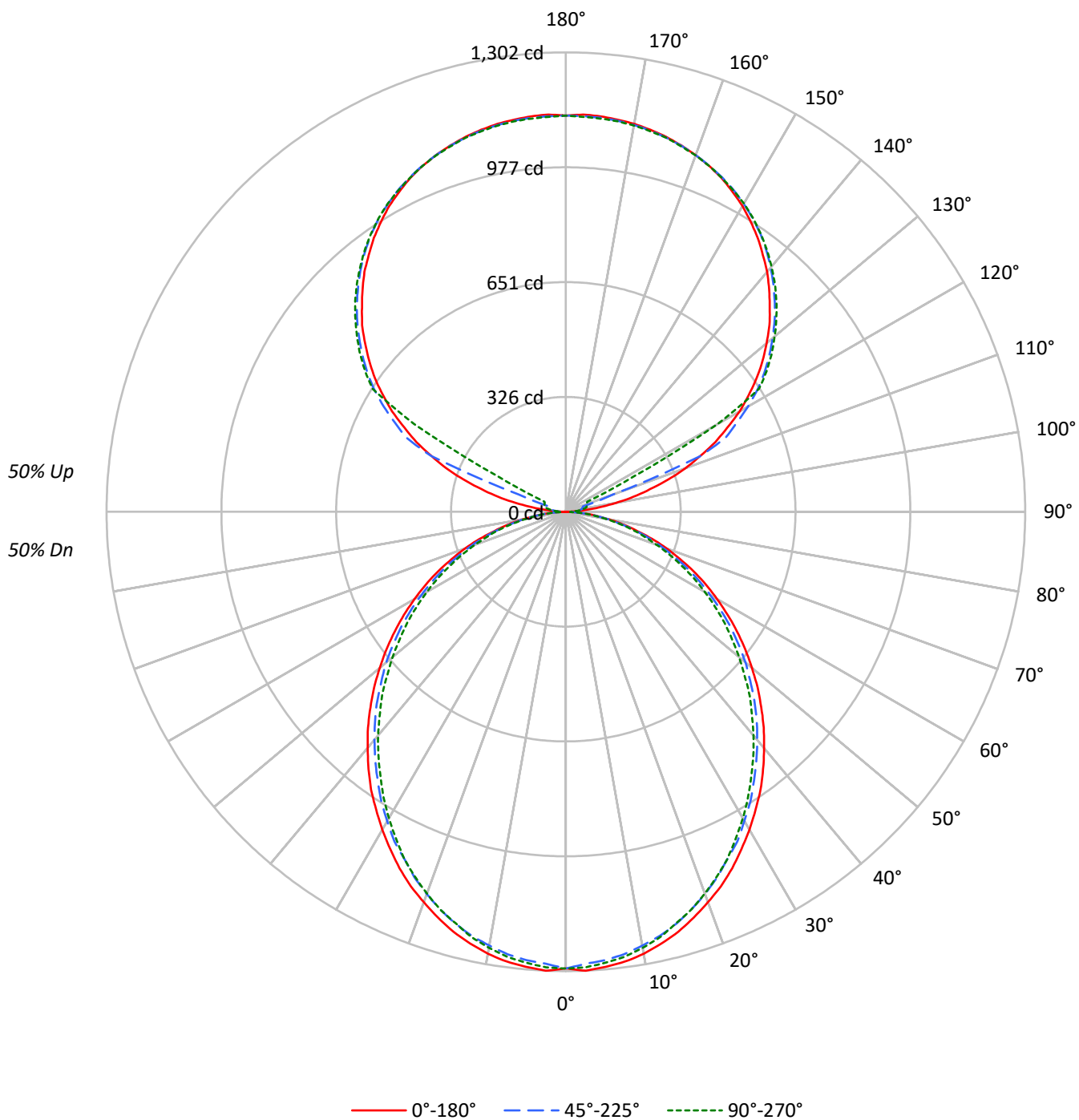
Lumens per Lamp: N/A  
Luminaire Lumens: 6587.5 lumens  
Efficiency: N/A  
Efficacy: 141.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 46.7  
Input Voltage (V): 120  
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: P912545

CATALOG NUMBER: DFN2DIP-TR3F0-030D030US850-FLONL

**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   | 107 | 107 | 107 | 107 | 99 | 99 | 99 | 99 | 83 | 83 | 83 | 69 | 69 | 69 | 56 | 56 | 56 |
| 1   | 98  | 93  | 90  | 86  | 90 | 86 | 83 | 80 | 73 | 71 | 68 | 61 | 59 | 58 | 50 | 48 | 47 |
| 2   | 89  | 82  | 75  | 70  | 82 | 76 | 70 | 66 | 64 | 60 | 57 | 53 | 51 | 48 | 44 | 42 | 40 |
| 3   | 81  | 72  | 64  | 59  | 75 | 66 | 60 | 55 | 56 | 52 | 48 | 47 | 44 | 41 | 39 | 36 | 34 |
| 4   | 74  | 64  | 56  | 50  | 68 | 59 | 52 | 47 | 50 | 45 | 41 | 42 | 38 | 35 | 35 | 32 | 29 |
| 5   | 68  | 57  | 48  | 42  | 63 | 53 | 45 | 40 | 45 | 39 | 35 | 38 | 34 | 30 | 31 | 28 | 26 |
| 6   | 63  | 51  | 43  | 37  | 58 | 47 | 40 | 35 | 40 | 35 | 31 | 34 | 30 | 27 | 28 | 25 | 23 |
| 7   | 58  | 46  | 38  | 32  | 53 | 43 | 36 | 30 | 37 | 31 | 27 | 31 | 27 | 23 | 26 | 23 | 20 |
| 8   | 54  | 42  | 34  | 29  | 50 | 39 | 32 | 27 | 33 | 28 | 24 | 28 | 24 | 21 | 24 | 20 | 18 |
| 9   | 50  | 38  | 30  | 25  | 46 | 35 | 29 | 24 | 31 | 25 | 21 | 26 | 22 | 19 | 22 | 19 | 16 |
| 10  | 47  | 35  | 28  | 23  | 43 | 33 | 26 | 22 | 28 | 23 | 19 | 24 | 20 | 17 | 20 | 17 | 15 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1613 | 1613 | 1613 |
| 5°  | 1615 | 1589 | 1600 |
| 10° | 1601 | 1567 | 1578 |
| 15° | 1576 | 1539 | 1543 |
| 20° | 1544 | 1502 | 1507 |
| 25° | 1511 | 1458 | 1466 |
| 30° | 1471 | 1417 | 1414 |
| 35° | 1432 | 1368 | 1359 |
| 40° | 1385 | 1319 | 1307 |
| 45° | 1338 | 1270 | 1253 |
| 50° | 1286 | 1219 | 1191 |
| 55° | 1232 | 1159 | 1134 |
| 60° | 1170 | 1088 | 1068 |
| 65° | 1104 | 1015 | 991  |
| 70° | 1018 | 925  | 907  |
| 75° | 900  | 818  | 828  |
| 80° | 757  | 680  | 681  |
| 85° | 535  | 448  | 440  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1338 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 121.8  | 1.8       |
| 10°-20°   | 342.8  | 5.2       |
| 20°-30°   | 503.8  | 7.6       |
| 30°-40°   | 585.2  | 8.9       |
| 40°-50°   | 584.4  | 8.9       |
| 50°-60°   | 509.6  | 7.7       |
| 60°-70°   | 376.7  | 5.7       |
| 70°-80°   | 213.1  | 3.2       |
| 80°-90°   | 58.2   | 0.9       |
| 90°-100°  | 37.0   | 0.6       |
| 100°-110° | 138.0  | 2.1       |
| 110°-120° | 366.1  | 5.6       |
| 120°-130° | 607.1  | 9.2       |
| 130°-140° | 644.9  | 9.8       |
| 140°-150° | 599.4  | 9.1       |
| 150°-160° | 481.9  | 7.3       |
| 160°-170° | 310.5  | 4.7       |
| 170°-180° | 106.9  | 1.6       |
| 0°-30°    | 968.5  | 14.7      |
| 0°-40°    | 1553.6 | 23.6      |
| 0°-60°    | 2647.7 | 40.2      |
| 0°-90°    | 3295.7 | 50.0      |
| 90°-120°  | 541.1  | 8.2       |
| 90°-150°  | 2392.5 | 36.3      |
| 90°-180°  | 3292.0 | 50.0      |
| 0°-180°   | 6587.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1294 | 1294  | 1294 | 1294  | 1294 |      |
| 5°   | 1294 | 1290  | 1276 | 1286  | 1283 | 123  |
| 15°  | 1232 | 1225  | 1209 | 1214  | 1208 | 347  |
| 25°  | 1115 | 1106  | 1084 | 1087  | 1084 | 513  |
| 35°  | 962  | 950   | 930  | 922   | 916  | 601  |
| 45°  | 783  | 774   | 756  | 742   | 737  | 604  |
| 55°  | 593  | 585   | 570  | 555   | 549  | 530  |
| 65°  | 400  | 392   | 380  | 368   | 362  | 395  |
| 75°  | 209  | 207   | 200  | 193   | 196  | 223  |
| 85°  | 51   | 50    | 49   | 45    | 44   | 57   |
| 90°  | 1    | 10    | 16   | 20    | 22   | 6    |
| 95°  | 53   | 26    | 32   | 36    | 35   | 63   |
| 105° | 247  | 271   | 50   | 58    | 62   | 264  |
| 115° | 467  | 481   | 501  | 125   | 67   | 460  |
| 125° | 660  | 671   | 687  | 692   | 695  | 589  |
| 135° | 817  | 830   | 838  | 846   | 844  | 631  |
| 145° | 948  | 947   | 961  | 967   | 963  | 593  |
| 155° | 1044 | 1037  | 1046 | 1051  | 1045 | 481  |
| 165° | 1100 | 1095  | 1098 | 1103  | 1098 | 311  |
| 175° | 1125 | 1120  | 1121 | 1127  | 1119 | 107  |
| 180° | 1123 | 1123  | 1123 | 1123  | 1123 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1294.5 | 1294.5 | 1294.5 | 1294.5 | 1294.5 |
| 2.5°   | 1302.1 | 1295.9 | 1282.1 | 1294.5 | 1292.2 |
| 5°     | 1294.5 | 1289.7 | 1275.9 | 1285.9 | 1283.4 |
| 7.5°   | 1285.9 | 1278.5 | 1264.7 | 1274.8 | 1272.2 |
| 10°    | 1272.2 | 1263.5 | 1248.6 | 1258.5 | 1254.8 |
| 12.5°  | 1253.5 | 1246.1 | 1231.2 | 1237.3 | 1234.9 |
| 15°    | 1232.3 | 1225.0 | 1208.7 | 1213.7 | 1207.5 |
| 17.5°  | 1206.1 | 1198.8 | 1182.5 | 1188.7 | 1182.5 |
| 20°    | 1177.5 | 1170.1 | 1152.7 | 1156.4 | 1151.5 |
| 22.5°  | 1149.0 | 1137.8 | 1121.5 | 1121.5 | 1119.0 |
| 25°    | 1115.3 | 1105.5 | 1084.3 | 1086.7 | 1084.3 |
| 27.5°  | 1077.9 | 1069.2 | 1053.1 | 1049.4 | 1043.2 |
| 30°    | 1040.7 | 1030.7 | 1012.1 | 1008.3 | 1003.3 |
| 32.5°  | 1000.9 | 993.4  | 973.5  | 965.9  | 960.9  |
| 35°    | 962.3  | 949.9  | 929.9  | 922.4  | 916.1  |
| 37.5°  | 918.7  | 907.5  | 887.5  | 878.8  | 872.6  |
| 40°    | 873.9  | 863.9  | 843.9  | 832.9  | 827.9  |
| 42.5°  | 830.3  | 820.3  | 800.5  | 787.9  | 780.5  |
| 45°    | 783.1  | 774.3  | 755.6  | 741.9  | 736.9  |
| 47.5°  | 736.9  | 728.3  | 708.3  | 694.6  | 687.1  |
| 50°    | 688.4  | 682.1  | 664.7  | 647.3  | 641.1  |
| 52.5°  | 641.1  | 632.4  | 616.3  | 602.5  | 593.8  |
| 55°    | 592.6  | 585.1  | 570.1  | 555.3  | 549.1  |
| 57.5°  | 544.0  | 537.8  | 521.6  | 506.6  | 501.6  |
| 60°    | 495.4  | 490.5  | 473.1  | 459.3  | 455.7  |
| 62.5°  | 448.1  | 439.4  | 427.0  | 414.5  | 409.6  |
| 65°    | 399.7  | 392.1  | 379.7  | 368.5  | 362.3  |
| 67.5°  | 349.9  | 343.6  | 332.4  | 323.7  | 318.7  |
| 70°    | 303.8  | 298.8  | 287.6  | 278.8  | 273.9  |
| 72.5°  | 256.5  | 251.4  | 245.2  | 236.5  | 232.9  |
| 75°    | 209.0  | 206.7  | 200.4  | 193.0  | 195.5  |
| 77.5°  | 166.8  | 161.8  | 159.3  | 155.6  | 151.9  |
| 80°    | 124.5  | 123.2  | 120.7  | 117.0  | 114.6  |
| 82.5°  | 84.6   | 84.6   | 83.5   | 78.4   | 78.4   |
| 85°    | 51.0   | 49.8   | 48.6   | 44.8   | 43.6   |
| 87.5°  | 22.4   | 20.0   | 17.4   | 13.8   | 12.4   |
| 90°    | 0.8    | 9.8    | 16.2   | 20.4   | 21.8   |
| 92.5°  | 20.4   | 17.1   | 19.5   | 21.2   | 21.8   |
| 95°    | 52.8   | 26.0   | 31.6   | 35.8   | 34.9   |
| 97.5°  | 95.0   | 28.5   | 41.4   | 43.9   | 44.7   |
| 100°   | 143.8  | 32.5   | 46.4   | 52.8   | 54.5   |
| 102.5° | 197.4  | 195.8  | 47.9   | 56.8   | 59.3   |
| 105°   | 247.0  | 271.4  | 49.6   | 58.4   | 61.8   |
| 107.5° | 304.6  | 324.9  | 51.2   | 60.1   | 63.4   |
| 110°   | 360.0  | 376.9  | 142.2  | 61.0   | 64.2   |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 412.0  | 426.5  | 412.8  | 62.5   | 65.0   |
| 115°   | 467.1  | 481.0  | 501.3  | 125.1  | 66.7   |
| 117.5° | 515.1  | 531.3  | 545.2  | 429.0  | 216.1  |
| 120°   | 568.7  | 580.9  | 595.5  | 605.3  | 495.6  |
| 122.5° | 614.2  | 627.3  | 643.6  | 648.3  | 649.2  |
| 125°   | 660.5  | 671.1  | 686.6  | 692.2  | 694.7  |
| 127.5° | 702.8  | 714.1  | 726.4  | 734.5  | 735.3  |
| 130°   | 742.6  | 755.7  | 764.5  | 773.4  | 772.8  |
| 132.5° | 783.2  | 793.8  | 802.7  | 810.0  | 809.2  |
| 135°   | 817.3  | 830.4  | 837.6  | 845.8  | 844.2  |
| 137.5° | 853.0  | 862.8  | 871.0  | 879.1  | 876.7  |
| 140°   | 888.0  | 894.5  | 903.4  | 910.7  | 906.7  |
| 142.5° | 917.4  | 923.0  | 933.6  | 940.0  | 936.0  |
| 145°   | 948.2  | 947.3  | 961.2  | 966.8  | 962.7  |
| 147.5° | 974.9  | 972.5  | 986.3  | 990.3  | 987.1  |
| 150°   | 1001.0 | 995.3  | 1008.3 | 1013.1 | 1009.1 |
| 152.5° | 1022.8 | 1016.4 | 1028.6 | 1033.5 | 1027.8 |
| 155°   | 1044.0 | 1036.8 | 1046.5 | 1051.3 | 1044.9 |
| 157.5° | 1061.1 | 1054.7 | 1062.0 | 1067.6 | 1061.1 |
| 160°   | 1075.7 | 1070.9 | 1075.7 | 1080.6 | 1074.8 |
| 162.5° | 1088.7 | 1083.8 | 1087.9 | 1093.6 | 1086.3 |
| 165°   | 1100.0 | 1095.2 | 1097.7 | 1103.3 | 1097.7 |
| 167.5° | 1109.0 | 1104.1 | 1106.6 | 1112.3 | 1105.0 |
| 170°   | 1116.3 | 1111.4 | 1113.1 | 1118.8 | 1111.4 |
| 172.5° | 1121.2 | 1116.3 | 1118.0 | 1123.6 | 1116.3 |
| 175°   | 1125.2 | 1119.5 | 1121.2 | 1126.9 | 1118.8 |
| 177.5° | 1126.9 | 1121.2 | 1122.1 | 1127.7 | 1120.4 |
| 180°   | 1122.9 | 1122.9 | 1122.9 | 1122.9 | 1122.9 |

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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 | 8.88             | 9.75  | 9.84  | 10.72 | 11.99 | 8.46           | 9.32  | 9.41  | 10.29 | 11.56 |
|                 | 3H   | 10.54            | 11.31 | 11.50 | 12.29 | 13.58 | 10.07          | 10.84 | 11.04 | 11.82 | 13.11 |
|                 | 4H   | 11.12            | 11.85 | 12.10 | 12.83 | 14.14 | 10.65          | 11.38 | 11.63 | 12.37 | 13.67 |
|                 | 6H   | 11.51            | 12.18 | 12.50 | 13.17 | 14.49 | 11.04          | 11.71 | 12.03 | 12.70 | 14.02 |
|                 | 8H   | 11.61            | 12.25 | 12.61 | 13.26 | 14.57 | 11.14          | 11.78 | 12.14 | 12.79 | 14.10 |
|                 | 12H  | 11.66            | 12.27 | 12.66 | 13.27 | 14.60 | 11.18          | 11.79 | 12.19 | 12.79 | 14.13 |
| 4H              | 2H   | 9.34             | 10.07 | 10.33 | 11.06 | 12.36 | 9.00           | 9.73  | 9.99  | 10.72 | 12.02 |
|                 | 3H   | 11.20            | 11.81 | 12.20 | 12.82 | 14.14 | 10.81          | 11.42 | 11.81 | 12.43 | 13.75 |
|                 | 4H   | 11.91            | 12.46 | 12.91 | 13.47 | 14.81 | 11.50          | 12.06 | 12.51 | 13.07 | 14.41 |
|                 | 6H   | 12.41            | 12.89 | 13.43 | 13.92 | 15.26 | 12.01          | 12.49 | 13.02 | 13.52 | 14.86 |
|                 | 8H   | 12.56            | 13.01 | 13.57 | 14.03 | 15.38 | 12.15          | 12.60 | 13.17 | 13.62 | 14.97 |
|                 | 12H  | 12.62            | 13.03 | 13.66 | 14.07 | 15.43 | 12.21          | 12.62 | 13.25 | 13.65 | 15.01 |
| 8H              | 4H   | 12.10            | 12.55 | 13.12 | 13.57 | 14.92 | 11.74          | 12.19 | 12.76 | 13.21 | 14.56 |
|                 | 6H   | 12.72            | 13.09 | 13.76 | 14.16 | 15.50 | 12.36          | 12.73 | 13.40 | 13.80 | 15.15 |
|                 | 8H   | 12.93            | 13.26 | 13.98 | 14.31 | 15.68 | 12.57          | 12.90 | 13.62 | 13.95 | 15.31 |
|                 | 12H  | 13.06            | 13.35 | 14.11 | 14.39 | 15.80 | 12.68          | 12.97 | 13.73 | 14.01 | 15.42 |
| 12H             | 4H   | 12.08            | 12.49 | 13.12 | 13.53 | 14.88 | 11.73          | 12.14 | 12.77 | 13.18 | 14.53 |
|                 | 6H   | 12.75            | 13.07 | 13.80 | 14.12 | 15.49 | 12.40          | 12.73 | 13.45 | 13.78 | 15.14 |
|                 | 8H   | 12.98            | 13.27 | 14.03 | 14.31 | 15.72 | 12.63          | 12.92 | 13.68 | 13.96 | 15.37 |