

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: P907017

Luminaire Tested: DFN2DIP-TR2F0-030D040US835-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P907017  
REPORT IS A COMBINATION OF REPORTS P901763 AND P897145  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR2F0-030D040US835-FLLONL  
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

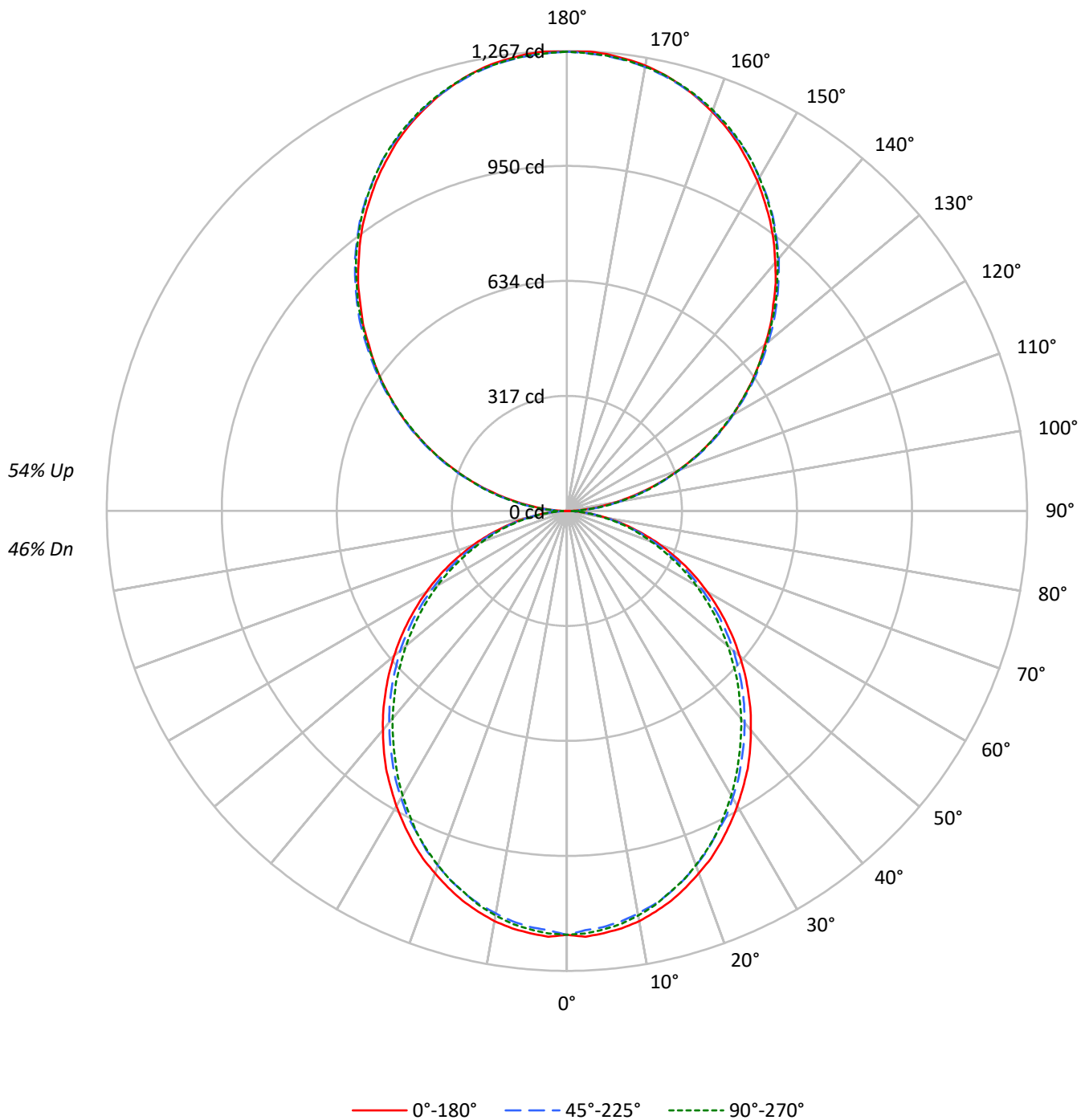
Lumens per Lamp: N/A  
Luminaire Lumens: 6510.0 lumens  
Efficiency: N/A  
Efficacy: 119.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 54.6  
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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CATALOG NUMBER: DFN2DIP-TR2F0-030D040US835-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 | 50 | 30 | 10 |
| RCR |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 0   | 106 | 106 | 106 | 106 | 97 | 97 | 97 | 97 | 81 | 81 | 81 | 66 | 66 | 66 | 52 | 52 | 52 |    |    | 46 |
| 1   | 97  | 93  | 89  | 85  | 89 | 85 | 82 | 79 | 71 | 69 | 66 | 58 | 56 | 55 | 46 | 45 | 44 |    |    | 38 |
| 2   | 88  | 81  | 75  | 70  | 81 | 74 | 69 | 65 | 62 | 58 | 55 | 51 | 48 | 46 | 41 | 39 | 37 |    |    | 32 |
| 3   | 80  | 71  | 64  | 58  | 73 | 65 | 59 | 54 | 55 | 50 | 46 | 45 | 42 | 39 | 36 | 34 | 32 |    |    | 27 |
| 4   | 74  | 63  | 55  | 49  | 67 | 58 | 51 | 46 | 49 | 43 | 39 | 40 | 36 | 33 | 32 | 29 | 27 |    |    | 23 |
| 5   | 67  | 56  | 48  | 42  | 62 | 52 | 45 | 39 | 44 | 38 | 34 | 36 | 32 | 29 | 29 | 26 | 24 |    |    | 20 |
| 6   | 62  | 50  | 42  | 36  | 57 | 46 | 39 | 34 | 39 | 34 | 30 | 33 | 28 | 25 | 26 | 23 | 21 |    |    | 18 |
| 7   | 57  | 45  | 37  | 32  | 53 | 42 | 35 | 30 | 36 | 30 | 26 | 30 | 25 | 22 | 24 | 21 | 19 |    |    | 16 |
| 8   | 53  | 41  | 33  | 28  | 49 | 38 | 31 | 26 | 32 | 27 | 23 | 27 | 23 | 20 | 22 | 19 | 17 |    |    | 14 |
| 9   | 50  | 37  | 30  | 25  | 45 | 35 | 28 | 24 | 30 | 24 | 21 | 25 | 21 | 18 | 20 | 17 | 15 |    |    | 13 |
| 10  | 46  | 34  | 27  | 22  | 42 | 32 | 25 | 21 | 27 | 22 | 19 | 23 | 19 | 16 | 19 | 16 | 14 |    |    | 12 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2604 | 2604 | 2604 |
| 5°  | 2604 | 2561 | 2580 |
| 10° | 2579 | 2521 | 2541 |
| 15° | 2537 | 2474 | 2482 |
| 20° | 2482 | 2410 | 2421 |
| 25° | 2427 | 2336 | 2352 |
| 30° | 2359 | 2266 | 2266 |
| 35° | 2295 | 2184 | 2175 |
| 40° | 2216 | 2102 | 2088 |
| 45° | 2137 | 2019 | 1998 |
| 50° | 2050 | 1931 | 1895 |
| 55° | 1960 | 1830 | 1800 |
| 60° | 1856 | 1712 | 1690 |
| 65° | 1744 | 1587 | 1560 |
| 70° | 1600 | 1436 | 1420 |
| 75° | 1403 | 1255 | 1285 |
| 80° | 1163 | 1023 | 1039 |
| 85° | 793  | 645  | 645  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
Vertical Angle: 45°  
Luminance: 2137 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 109.9  | 1.7       |
| 10°-20°   | 309.1  | 4.7       |
| 20°-30°   | 454.3  | 7.0       |
| 30°-40°   | 527.6  | 8.1       |
| 40°-50°   | 527.0  | 8.1       |
| 50°-60°   | 459.5  | 7.1       |
| 60°-70°   | 339.7  | 5.2       |
| 70°-80°   | 192.2  | 3.0       |
| 80°-90°   | 54.3   | 0.8       |
| 90°-100°  | 78.3   | 1.2       |
| 100°-110° | 248.7  | 3.8       |
| 110°-120° | 425.6  | 6.5       |
| 120°-130° | 559.8  | 8.6       |
| 130°-140° | 628.3  | 9.7       |
| 140°-150° | 616.2  | 9.5       |
| 150°-160° | 516.9  | 7.9       |
| 160°-170° | 342.8  | 5.3       |
| 170°-180° | 119.8  | 1.8       |
| 0°-30°    | 873.3  | 13.4      |
| 0°-40°    | 1400.9 | 21.5      |
| 0°-60°    | 2387.4 | 36.7      |
| 0°-90°    | 2973.6 | 45.7      |
| 90°-120°  | 752.7  | 11.6      |
| 90°-150°  | 2556.9 | 39.3      |
| 90°-180°  | 3536.0 | 54.3      |
| 0°-180°   | 6510.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1167 | 1167  | 1167 | 1167  | 1167 |      |
| 5°   | 1167 | 1163  | 1150 | 1160  | 1157 | 111  |
| 15°  | 1111 | 1105  | 1090 | 1094  | 1089 | 313  |
| 25°  | 1006 | 997   | 978  | 980   | 978  | 463  |
| 35°  | 868  | 856   | 838  | 832   | 826  | 542  |
| 45°  | 706  | 698   | 681  | 669   | 664  | 545  |
| 55°  | 534  | 528   | 514  | 501   | 495  | 478  |
| 65°  | 360  | 354   | 342  | 332   | 327  | 356  |
| 75°  | 188  | 186   | 181  | 174   | 176  | 201  |
| 85°  | 46   | 45    | 44   | 40    | 39   | 51   |
| 90°  | 1    | 14    | 37   | 35    | 36   | 6    |
| 95°  | 56   | 66    | 68   | 68    | 66   | 62   |
| 105° | 230  | 233   | 235  | 237   | 237  | 242  |
| 115° | 427  | 433   | 431  | 430   | 427  | 422  |
| 125° | 621  | 631   | 628  | 624   | 623  | 555  |
| 135° | 804  | 815   | 818  | 816   | 814  | 621  |
| 145° | 976  | 983   | 989  | 990   | 986  | 610  |
| 155° | 1116 | 1119  | 1122 | 1127  | 1124 | 513  |
| 165° | 1214 | 1212  | 1212 | 1220  | 1215 | 342  |
| 175° | 1263 | 1260  | 1257 | 1265  | 1259 | 120  |
| 180° | 1265 | 1265  | 1265 | 1265  | 1265 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1167.3 | 1167.3 | 1167.3 | 1167.3 | 1167.3 |
| 2.5°   | 1174.1 | 1168.5 | 1156.1 | 1167.3 | 1165.2 |
| 5°     | 1167.3 | 1162.9 | 1150.5 | 1159.5 | 1157.3 |
| 7.5°   | 1159.5 | 1152.8 | 1140.4 | 1149.5 | 1147.2 |
| 10°    | 1147.2 | 1139.3 | 1125.9 | 1134.8 | 1131.5 |
| 12.5°  | 1130.3 | 1123.6 | 1110.2 | 1115.7 | 1113.5 |
| 15°    | 1111.2 | 1104.6 | 1089.9 | 1094.4 | 1088.8 |
| 17.5°  | 1087.6 | 1081.0 | 1066.3 | 1071.9 | 1066.3 |
| 20°    | 1061.8 | 1055.1 | 1039.4 | 1042.7 | 1038.3 |
| 22.5°  | 1036.1 | 1026.0 | 1011.3 | 1011.3 | 1009.0 |
| 25°    | 1005.7 | 996.8  | 977.7  | 979.9  | 977.7  |
| 27.5°  | 972.0  | 964.1  | 949.6  | 946.3  | 940.7  |
| 30°    | 938.4  | 929.4  | 912.6  | 909.2  | 904.7  |
| 32.5°  | 902.5  | 895.8  | 877.8  | 871.0  | 866.5  |
| 35°    | 867.7  | 856.5  | 838.5  | 831.7  | 826.1  |
| 37.5°  | 828.4  | 818.3  | 800.3  | 792.4  | 786.8  |
| 40°    | 788.0  | 779.0  | 761.0  | 751.0  | 746.5  |
| 42.5°  | 748.7  | 739.7  | 721.8  | 710.5  | 703.8  |
| 45°    | 706.1  | 698.2  | 681.3  | 669.0  | 664.5  |
| 47.5°  | 664.5  | 656.7  | 638.7  | 626.3  | 619.6  |
| 50°    | 620.7  | 615.1  | 599.4  | 583.7  | 578.1  |
| 52.5°  | 578.1  | 570.2  | 555.7  | 543.3  | 535.4  |
| 55°    | 534.4  | 527.6  | 514.1  | 500.7  | 495.1  |
| 57.5°  | 490.5  | 484.9  | 470.3  | 456.8  | 452.3  |
| 60°    | 446.7  | 442.3  | 426.6  | 414.2  | 410.9  |
| 62.5°  | 404.1  | 396.2  | 385.0  | 373.8  | 369.3  |
| 65°    | 360.4  | 353.6  | 342.4  | 332.3  | 326.7  |
| 67.5°  | 315.5  | 309.8  | 299.7  | 291.9  | 287.4  |
| 70°    | 273.9  | 269.4  | 259.3  | 251.4  | 247.0  |
| 72.5°  | 231.3  | 226.7  | 221.1  | 213.3  | 210.0  |
| 75°    | 188.5  | 186.4  | 180.7  | 174.0  | 176.3  |
| 77.5°  | 150.4  | 145.9  | 143.6  | 140.3  | 137.0  |
| 80°    | 112.3  | 111.1  | 108.8  | 105.5  | 103.3  |
| 82.5°  | 76.3   | 76.3   | 75.3   | 70.7   | 70.7   |
| 85°    | 46.0   | 44.9   | 43.8   | 40.4   | 39.3   |
| 87.5°  | 20.2   | 18.0   | 15.7   | 12.4   | 11.2   |
| 90°    | 1.1    | 13.7   | 37.4   | 35.1   | 36.2   |
| 92.5°  | 23.6   | 32.0   | 33.2   | 34.3   | 34.3   |
| 95°    | 55.7   | 66.4   | 68.3   | 68.3   | 66.4   |
| 97.5°  | 92.7   | 102.6  | 106.8  | 106.8  | 106.8  |
| 100°   | 135.4  | 144.2  | 147.2  | 147.2  | 146.1  |
| 102.5° | 180.4  | 186.9  | 191.1  | 192.2  | 191.1  |
| 105°   | 229.6  | 232.6  | 234.9  | 236.8  | 236.8  |
| 107.5° | 278.4  | 283.0  | 283.0  | 283.7  | 278.4  |
| 110°   | 325.7  | 331.8  | 331.8  | 331.8  | 328.8  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 376.8  | 383.3  | 382.1  | 379.1  | 376.8  |
| 115°   | 427.1  | 433.3  | 431.3  | 430.2  | 427.1  |
| 117.5° | 477.1  | 485.5  | 480.2  | 477.1  | 474.1  |
| 120°   | 527.5  | 535.8  | 527.5  | 527.5  | 524.0  |
| 122.5° | 573.2  | 583.9  | 578.6  | 575.5  | 573.2  |
| 125°   | 621.3  | 630.8  | 627.8  | 624.3  | 623.2  |
| 127.5° | 668.2  | 680.0  | 675.8  | 671.2  | 668.2  |
| 130°   | 712.0  | 725.8  | 723.9  | 721.6  | 717.4  |
| 132.5° | 761.2  | 771.9  | 772.7  | 767.3  | 764.3  |
| 135°   | 803.6  | 815.4  | 817.7  | 816.5  | 813.5  |
| 137.5° | 850.9  | 860.4  | 862.3  | 861.5  | 857.0  |
| 140°   | 892.4  | 902.0  | 907.3  | 907.3  | 903.1  |
| 142.5° | 935.2  | 944.7  | 947.7  | 948.9  | 944.7  |
| 145°   | 975.6  | 983.2  | 989.3  | 990.5  | 986.3  |
| 147.5° | 1011.8 | 1021.3 | 1025.9 | 1027.8 | 1023.6 |
| 150°   | 1049.2 | 1055.7 | 1059.9 | 1063.3 | 1059.9 |
| 152.5° | 1082.4 | 1088.8 | 1094.2 | 1098.4 | 1094.2 |
| 155°   | 1115.5 | 1118.6 | 1122.0 | 1127.4 | 1123.9 |
| 157.5° | 1144.2 | 1146.4 | 1148.3 | 1156.0 | 1150.6 |
| 160°   | 1169.7 | 1172.0 | 1173.1 | 1179.6 | 1175.0 |
| 162.5° | 1193.3 | 1193.3 | 1194.5 | 1201.7 | 1196.4 |
| 165°   | 1213.6 | 1212.4 | 1212.4 | 1220.0 | 1214.7 |
| 167.5° | 1231.9 | 1228.4 | 1228.4 | 1236.1 | 1230.7 |
| 170°   | 1245.6 | 1242.5 | 1241.4 | 1249.0 | 1242.5 |
| 172.5° | 1255.1 | 1252.1 | 1250.9 | 1258.6 | 1252.1 |
| 175°   | 1262.8 | 1259.7 | 1257.4 | 1265.0 | 1258.6 |
| 177.5° | 1267.0 | 1263.9 | 1261.6 | 1268.1 | 1261.6 |
| 180°   | 1265.0 | 1265.0 | 1265.0 | 1265.0 | 1265.0 |

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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 | 10.05            | 10.88 | 11.05 | 11.88 | 13.21 | 9.63           | 10.45 | 10.62 | 11.46 | 12.79 |
|                 | 3H   | 11.69            | 12.43 | 12.69 | 13.44 | 14.79 | 11.23          | 11.96 | 12.23 | 12.98 | 14.33 |
|                 | 4H   | 12.26            | 12.96 | 13.27 | 13.97 | 15.33 | 11.80          | 12.50 | 12.81 | 13.51 | 14.87 |
|                 | 6H   | 12.64            | 13.28 | 13.66 | 14.30 | 15.68 | 12.18          | 12.82 | 13.20 | 13.84 | 15.22 |
|                 | 8H   | 12.73            | 13.34 | 13.76 | 14.38 | 15.75 | 12.27          | 12.89 | 13.31 | 13.92 | 15.29 |
|                 | 12H  | 12.77            | 13.35 | 13.81 | 14.38 | 15.78 | 12.31          | 12.89 | 13.34 | 13.92 | 15.31 |
| 4H              | 2H   | 10.50            | 11.20 | 11.52 | 12.22 | 13.58 | 10.16          | 10.86 | 11.18 | 11.88 | 13.24 |
|                 | 3H   | 12.34            | 12.92 | 13.37 | 13.97 | 15.34 | 11.95          | 12.54 | 12.98 | 13.58 | 14.95 |
|                 | 4H   | 13.03            | 13.56 | 14.07 | 14.60 | 16.00 | 12.64          | 13.17 | 13.67 | 14.21 | 15.60 |
|                 | 6H   | 13.52            | 13.98 | 14.57 | 15.04 | 16.43 | 13.12          | 13.58 | 14.17 | 14.65 | 16.04 |
|                 | 8H   | 13.66            | 14.09 | 14.71 | 15.14 | 16.55 | 13.26          | 13.69 | 14.31 | 14.74 | 16.15 |
|                 | 12H  | 13.72            | 14.11 | 14.79 | 15.17 | 16.59 | 13.31          | 13.70 | 14.38 | 14.77 | 16.18 |
| 8H              | 4H   | 13.21            | 13.64 | 14.26 | 14.70 | 16.10 | 12.86          | 13.29 | 13.91 | 14.34 | 15.75 |
|                 | 6H   | 13.81            | 14.17 | 14.89 | 15.27 | 16.67 | 13.46          | 13.82 | 14.54 | 14.91 | 16.32 |
|                 | 8H   | 14.02            | 14.33 | 15.10 | 15.41 | 16.83 | 13.66          | 13.98 | 14.74 | 15.05 | 16.48 |
|                 | 12H  | 14.13            | 14.41 | 15.22 | 15.48 | 16.95 | 13.76          | 14.04 | 14.85 | 15.11 | 16.58 |
| 12H             | 4H   | 13.19            | 13.58 | 14.26 | 14.65 | 16.06 | 12.85          | 13.24 | 13.92 | 14.31 | 15.72 |
|                 | 6H   | 13.84            | 14.15 | 14.92 | 15.23 | 16.66 | 13.50          | 13.81 | 14.58 | 14.89 | 16.31 |
|                 | 8H   | 14.06            | 14.34 | 15.15 | 15.41 | 16.88 | 13.72          | 13.99 | 14.80 | 15.07 | 16.53 |