

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: P923622

Luminaire Tested: DFN2DIP-TR3F0-090D050US940-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P923622  
REPORT IS A COMBINATION OF REPORTS P900312 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-090D050US940-RLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

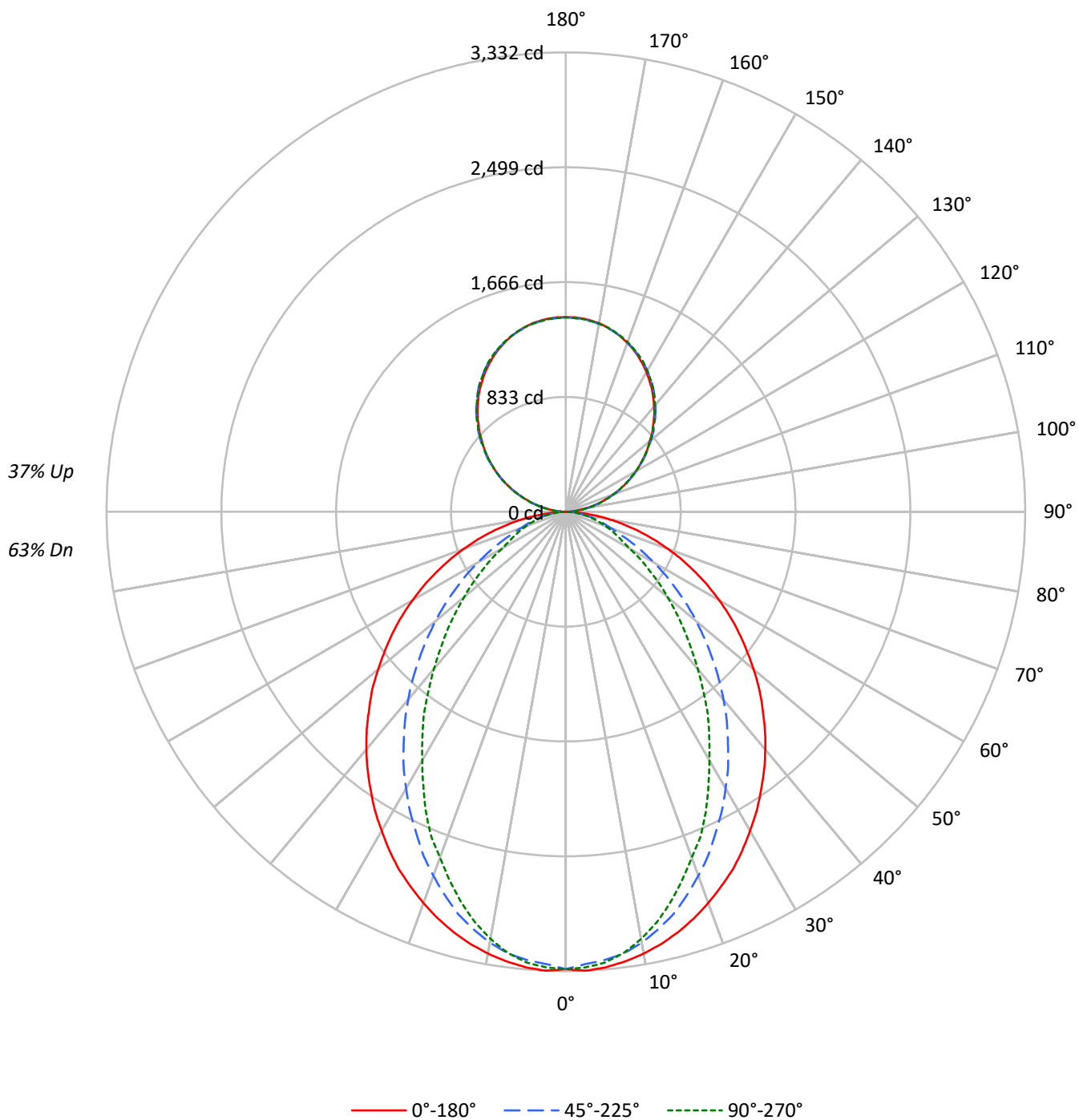
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10767.4 lumens  
Efficiency: N/A  
Efficacy: 81.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 132  
Input Voltage (V):  
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

TEST NUMBER: P923622

CATALOG NUMBER: DFN2DIP-TR3F0-090D050US940-RLLFLL

### Luminous Intensity Polar Plot



TEST NUMBER: P923622

CATALOG NUMBER: DFN2DIP-TR3F0-090D050US940-RLLFLL

**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   | 110 | 110 | 110 | 110 | 104 | 104 | 104 | 104 | 91 | 91 | 91 | 79 | 79 | 79 | 68 | 68 | 68 |
| 1   | 101 | 97  | 93  | 90  | 95  | 91  | 88  | 85  | 81 | 78 | 76 | 71 | 69 | 67 | 61 | 60 | 59 |
| 2   | 93  | 86  | 80  | 75  | 87  | 81  | 75  | 71  | 71 | 67 | 64 | 63 | 60 | 57 | 55 | 53 | 51 |
| 3   | 85  | 76  | 69  | 63  | 80  | 72  | 65  | 60  | 64 | 59 | 54 | 56 | 52 | 49 | 49 | 46 | 44 |
| 4   | 78  | 68  | 60  | 54  | 73  | 64  | 57  | 52  | 57 | 51 | 47 | 50 | 46 | 43 | 44 | 41 | 38 |
| 5   | 72  | 61  | 53  | 47  | 68  | 57  | 50  | 45  | 51 | 45 | 41 | 46 | 41 | 37 | 40 | 37 | 34 |
| 6   | 67  | 55  | 47  | 41  | 62  | 52  | 45  | 39  | 47 | 41 | 36 | 41 | 37 | 33 | 37 | 33 | 30 |
| 7   | 62  | 50  | 42  | 36  | 58  | 47  | 40  | 35  | 42 | 37 | 32 | 38 | 33 | 30 | 34 | 30 | 27 |
| 8   | 58  | 45  | 38  | 32  | 54  | 43  | 36  | 31  | 39 | 33 | 29 | 35 | 30 | 27 | 31 | 27 | 24 |
| 9   | 54  | 42  | 34  | 29  | 51  | 40  | 33  | 28  | 36 | 30 | 26 | 32 | 28 | 24 | 29 | 25 | 22 |
| 10  | 50  | 38  | 31  | 26  | 47  | 37  | 30  | 25  | 33 | 28 | 24 | 30 | 25 | 22 | 27 | 23 | 20 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4133 | 4133 | 4133 |
| 5°  | 4138 | 4064 | 4091 |
| 10° | 4094 | 3981 | 3955 |
| 15° | 4036 | 3846 | 3747 |
| 20° | 3959 | 3661 | 3492 |
| 25° | 3880 | 3455 | 3246 |
| 30° | 3775 | 3244 | 2935 |
| 35° | 3672 | 3017 | 2662 |
| 40° | 3567 | 2783 | 2350 |
| 45° | 3446 | 2523 | 2067 |
| 50° | 3320 | 2262 | 1790 |
| 55° | 3188 | 1982 | 1525 |
| 60° | 3035 | 1691 | 1253 |
| 65° | 2859 | 1396 | 1124 |
| 70° | 2646 | 1120 | 1013 |
| 75° | 2378 | 980  | 916  |
| 80° | 1990 | 811  | 786  |
| 85° | 1353 | 525  | 575  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3446 cd/sqm

TEST NUMBER: P923622

CATALOG NUMBER: DFN2DIP-TR3F0-090D050US940-RLLFLL

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 310.9   | 2.9       |
| 10°-20°   | 853.4   | 7.9       |
| 20°-30°   | 1198.1  | 11.1      |
| 30°-40°   | 1306.0  | 12.1      |
| 40°-50°   | 1200.4  | 11.1      |
| 50°-60°   | 942.7   | 8.8       |
| 60°-70°   | 613.6   | 5.7       |
| 70°-80°   | 315.9   | 2.9       |
| 80°-90°   | 84.6    | 0.8       |
| 90°-100°  | 87.3    | 0.8       |
| 100°-110° | 277.2   | 2.6       |
| 110°-120° | 474.5   | 4.4       |
| 120°-130° | 624.0   | 5.8       |
| 130°-140° | 700.4   | 6.5       |
| 140°-150° | 686.8   | 6.4       |
| 150°-160° | 576.1   | 5.4       |
| 160°-170° | 382.1   | 3.5       |
| 170°-180° | 133.5   | 1.2       |
| <hr/>     |         |           |
| 0°-30°    | 2362.4  | 21.9      |
| 0°-40°    | 3668.4  | 34.1      |
| 0°-60°    | 5811.5  | 54.0      |
| 0°-90°    | 6825.6  | 63.4      |
| 90°-120°  | 838.9   | 7.8       |
| 90°-150°  | 2850.1  | 26.5      |
| 90°-180°  | 3942.0  | 36.6      |
| 0°-180°   | 10767.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 3317 | 3317  | 3317 | 3317  | 3317 |      |
| 5°   | 3317 | 3302  | 3263 | 3290  | 3281 | 315  |
| 15°  | 3155 | 3122  | 3020 | 2963  | 2933 | 889  |
| 25°  | 2864 | 2768  | 2570 | 2446  | 2401 | 1317 |
| 35°  | 2468 | 2314  | 2050 | 1861  | 1795 | 1544 |
| 45°  | 2017 | 1816  | 1501 | 1288  | 1216 | 1558 |
| 55°  | 1534 | 1300  | 975  | 796   | 738  | 1371 |
| 65°  | 1036 | 792   | 522  | 420   | 411  | 1027 |
| 75°  | 552  | 342   | 240  | 219   | 216  | 584  |
| 85°  | 129  | 66    | 57   | 57    | 57   | 148  |
| 90°  | 1    | 15    | 42   | 39    | 40   | 11   |
| 95°  | 62   | 74    | 76   | 76    | 74   | 69   |
| 105° | 256  | 259   | 262  | 264   | 264  | 270  |
| 115° | 476  | 483   | 481  | 480   | 476  | 471  |
| 125° | 692  | 703   | 700  | 696   | 695  | 619  |
| 135° | 896  | 909   | 911  | 910   | 907  | 692  |
| 145° | 1087 | 1096  | 1103 | 1104  | 1099 | 679  |
| 155° | 1243 | 1247  | 1251 | 1257  | 1253 | 572  |
| 165° | 1353 | 1351  | 1351 | 1360  | 1354 | 382  |
| 175° | 1408 | 1404  | 1402 | 1410  | 1403 | 134  |
| 180° | 1410 | 1410  | 1410 | 1410  | 1410 |      |

TEST NUMBER: P923622

CATALOG NUMBER: DFN2DIP-TR3F0-090D050US940-RLLFLL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 3316.9 | 3316.9 | 3316.9 | 3316.9 | 3316.9 |
| 2.5°   | 3331.9 | 3316.9 | 3283.7 | 3314.0 | 3308.0 |
| 5°     | 3316.9 | 3301.9 | 3262.8 | 3289.8 | 3280.9 |
| 7.5°   | 3289.8 | 3272.0 | 3230.0 | 3241.7 | 3226.7 |
| 10°    | 3253.9 | 3232.8 | 3173.0 | 3163.7 | 3145.9 |
| 12.5°  | 3208.9 | 3181.9 | 3100.7 | 3082.8 | 3049.6 |
| 15°    | 3154.8 | 3121.7 | 3019.8 | 2962.7 | 2932.8 |
| 17.5°  | 3091.7 | 3043.7 | 2917.5 | 2851.6 | 2803.5 |
| 20°    | 3019.8 | 2959.6 | 2809.5 | 2734.7 | 2668.4 |
| 22.5°  | 2941.8 | 2872.6 | 2698.4 | 2596.5 | 2551.6 |
| 25°    | 2863.7 | 2767.5 | 2569.5 | 2446.5 | 2401.3 |
| 27.5°  | 2770.7 | 2668.4 | 2449.4 | 2308.3 | 2239.2 |
| 30°    | 2671.7 | 2557.3 | 2317.2 | 2164.4 | 2083.1 |
| 32.5°  | 2575.4 | 2437.2 | 2191.4 | 2011.2 | 1936.0 |
| 35°    | 2467.5 | 2314.3 | 2050.3 | 1861.2 | 1794.9 |
| 37.5°  | 2362.4 | 2197.2 | 1918.2 | 1710.8 | 1636.0 |
| 40°    | 2251.3 | 2071.4 | 1779.9 | 1566.9 | 1488.9 |
| 42.5°  | 2137.3 | 1945.3 | 1642.0 | 1419.8 | 1344.9 |
| 45°    | 2017.2 | 1816.0 | 1500.9 | 1287.5 | 1215.6 |
| 47.5°  | 1903.2 | 1690.1 | 1365.9 | 1152.5 | 1086.6 |
| 50°    | 1777.1 | 1564.0 | 1233.8 | 1026.4 | 963.7  |
| 52.5°  | 1653.9 | 1428.7 | 1107.7 | 909.5  | 852.6  |
| 55°    | 1533.7 | 1299.7 | 975.4  | 795.6  | 738.5  |
| 57.5°  | 1410.9 | 1170.7 | 858.6  | 690.5  | 642.4  |
| 60°    | 1284.7 | 1044.5 | 735.4  | 582.5  | 534.4  |
| 62.5°  | 1161.8 | 921.7  | 630.3  | 486.3  | 462.4  |
| 65°    | 1035.6 | 792.4  | 522.3  | 420.4  | 411.2  |
| 67.5°  | 915.6  | 672.3  | 420.4  | 369.1  | 360.2  |
| 70°    | 789.5  | 555.4  | 348.1  | 318.2  | 306.0  |
| 72.5°  | 669.4  | 447.1  | 291.1  | 267.2  | 261.2  |
| 75°    | 552.2  | 342.1  | 240.1  | 219.1  | 216.2  |
| 77.5°  | 435.3  | 243.0  | 189.1  | 177.1  | 171.0  |
| 80°    | 327.1  | 174.2  | 143.9  | 132.2  | 132.2  |
| 82.5°  | 228.0  | 117.2  | 99.1   | 93.0   | 93.0   |
| 85°    | 128.9  | 65.9   | 57.0   | 57.0   | 57.0   |
| 87.5°  | 48.1   | 23.9   | 23.9   | 21.0   | 21.0   |
| 90°    | 1.2    | 15.3   | 41.6   | 39.1   | 40.4   |
| 92.5°  | 26.4   | 35.7   | 37.0   | 38.3   | 38.3   |
| 95°    | 62.1   | 74.0   | 76.1   | 76.1   | 74.0   |
| 97.5°  | 103.3  | 114.3  | 119.0  | 119.0  | 119.0  |
| 100°   | 150.9  | 160.7  | 164.1  | 164.1  | 162.8  |
| 102.5° | 201.1  | 208.3  | 212.9  | 214.3  | 212.9  |
| 105°   | 255.9  | 259.3  | 261.9  | 263.9  | 263.9  |
| 107.5° | 310.3  | 315.4  | 315.4  | 316.3  | 310.3  |
| 110°   | 363.0  | 369.9  | 369.9  | 369.9  | 366.4  |

TEST NUMBER: P923622

CATALOG NUMBER: DFN2DIP-TR3F0-090D050US940-RLLFLL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 420.0  | 427.2  | 426.0  | 422.6  | 420.0  |
| 115°   | 476.1  | 483.0  | 480.8  | 479.6  | 476.1  |
| 117.5° | 531.8  | 541.2  | 535.2  | 531.8  | 528.4  |
| 120°   | 587.9  | 597.3  | 587.9  | 587.9  | 584.1  |
| 122.5° | 638.9  | 650.9  | 644.9  | 641.5  | 638.9  |
| 125°   | 692.5  | 703.1  | 699.7  | 695.9  | 694.6  |
| 127.5° | 744.8  | 758.0  | 753.3  | 748.1  | 744.8  |
| 130°   | 793.7  | 809.0  | 806.8  | 804.3  | 799.6  |
| 132.5° | 848.6  | 860.4  | 861.3  | 855.3  | 851.9  |
| 135°   | 895.7  | 908.8  | 911.4  | 910.2  | 906.8  |
| 137.5° | 948.4  | 959.0  | 961.2  | 960.3  | 955.2  |
| 140°   | 994.7  | 1005.4 | 1011.3 | 1011.3 | 1006.7 |
| 142.5° | 1042.3 | 1053.0 | 1056.4 | 1057.7 | 1053.0 |
| 145°   | 1087.4 | 1095.9 | 1102.7 | 1104.0 | 1099.3 |
| 147.5° | 1127.8 | 1138.4 | 1143.5 | 1145.7 | 1140.9 |
| 150°   | 1169.5 | 1176.7 | 1181.3 | 1185.2 | 1181.3 |
| 152.5° | 1206.5 | 1213.7 | 1219.6 | 1224.3 | 1219.6 |
| 155°   | 1243.4 | 1246.8 | 1250.6 | 1256.6 | 1252.8 |
| 157.5° | 1275.3 | 1277.8 | 1280.0 | 1288.5 | 1282.5 |
| 160°   | 1303.8 | 1306.4 | 1307.6 | 1314.8 | 1309.7 |
| 162.5° | 1330.2 | 1330.2 | 1331.4 | 1339.5 | 1333.6 |
| 165°   | 1352.7 | 1351.4 | 1351.4 | 1359.9 | 1354.0 |
| 167.5° | 1373.1 | 1369.2 | 1369.2 | 1377.8 | 1371.8 |
| 170°   | 1388.4 | 1385.0 | 1383.8 | 1392.2 | 1385.0 |
| 172.5° | 1399.0 | 1395.6 | 1394.4 | 1402.8 | 1395.6 |
| 175°   | 1407.6 | 1404.1 | 1401.6 | 1410.1 | 1402.8 |
| 177.5° | 1412.2 | 1408.8 | 1406.2 | 1413.5 | 1406.2 |
| 180°   | 1410.1 | 1410.1 | 1410.1 | 1410.1 | 1410.1 |

TEST NUMBER: P923622

CATALOG NUMBER: DFN2DIP-TR3F0-090D050US940-RLFL

**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 | 13.19            | 14.14 | 14.03 | 15.00 | 16.07 | 9.17           | 10.12 | 10.01 | 10.98 | 12.05 |
|                 | 3H   | 14.87            | 15.72 | 15.72 | 16.59 | 17.68 | 10.36          | 11.21 | 11.21 | 12.08 | 13.18 |
|                 | 4H   | 15.48            | 16.28 | 16.35 | 17.15 | 18.26 | 10.81          | 11.62 | 11.68 | 12.49 | 13.60 |
|                 | 6H   | 15.90            | 16.64 | 16.78 | 17.52 | 18.64 | 11.14          | 11.88 | 12.02 | 12.76 | 13.88 |
|                 | 8H   | 16.02            | 16.73 | 16.91 | 17.62 | 18.74 | 11.23          | 11.93 | 12.12 | 12.83 | 13.95 |
|                 | 12H  | 16.08            | 16.75 | 16.98 | 17.65 | 18.79 | 11.27          | 11.94 | 12.17 | 12.83 | 13.98 |
| 4H              | 2H   | 13.22            | 14.03 | 14.10 | 14.90 | 16.01 | 9.77           | 10.58 | 10.65 | 11.45 | 12.56 |
|                 | 3H   | 15.05            | 15.72 | 15.94 | 16.63 | 17.75 | 11.13          | 11.80 | 12.01 | 12.70 | 13.82 |
|                 | 4H   | 15.74            | 16.35 | 16.64 | 17.25 | 18.40 | 11.68          | 12.28 | 12.57 | 13.19 | 14.33 |
|                 | 6H   | 16.26            | 16.78 | 17.17 | 17.70 | 18.86 | 12.10          | 12.62 | 13.01 | 13.55 | 14.70 |
|                 | 8H   | 16.43            | 16.92 | 17.34 | 17.84 | 19.00 | 12.22          | 12.71 | 13.14 | 13.63 | 14.80 |
|                 | 12H  | 16.52            | 16.96 | 17.46 | 17.90 | 19.07 | 12.29          | 12.73 | 13.22 | 13.67 | 14.84 |
| 8H              | 4H   | 15.72            | 16.21 | 16.63 | 17.13 | 18.29 | 11.96          | 12.45 | 12.87 | 13.37 | 14.53 |
|                 | 6H   | 16.28            | 16.68 | 17.22 | 17.64 | 18.81 | 12.47          | 12.88 | 13.41 | 13.84 | 15.00 |
|                 | 8H   | 16.49            | 16.85 | 17.44 | 17.80 | 18.98 | 12.66          | 13.02 | 13.61 | 13.97 | 15.15 |
|                 | 12H  | 16.63            | 16.94 | 17.58 | 17.89 | 19.12 | 12.78          | 13.10 | 13.73 | 14.04 | 15.27 |
| 12H             | 4H   | 15.67            | 16.11 | 16.61 | 17.05 | 18.22 | 11.97          | 12.41 | 12.90 | 13.35 | 14.52 |
|                 | 6H   | 16.25            | 16.61 | 17.20 | 17.56 | 18.75 | 12.52          | 12.88 | 13.47 | 13.83 | 15.01 |
|                 | 8H   | 16.47            | 16.79 | 17.42 | 17.73 | 18.96 | 12.73          | 13.05 | 13.68 | 13.99 | 15.22 |