

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: P907658

Luminaire Tested: DFN2DIP-4P3F0-030D040US840-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P907658  
REPORT IS A COMBINATION OF REPORTS P899051 AND P895917  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P3F0-030D040US840-FLLFLL  
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

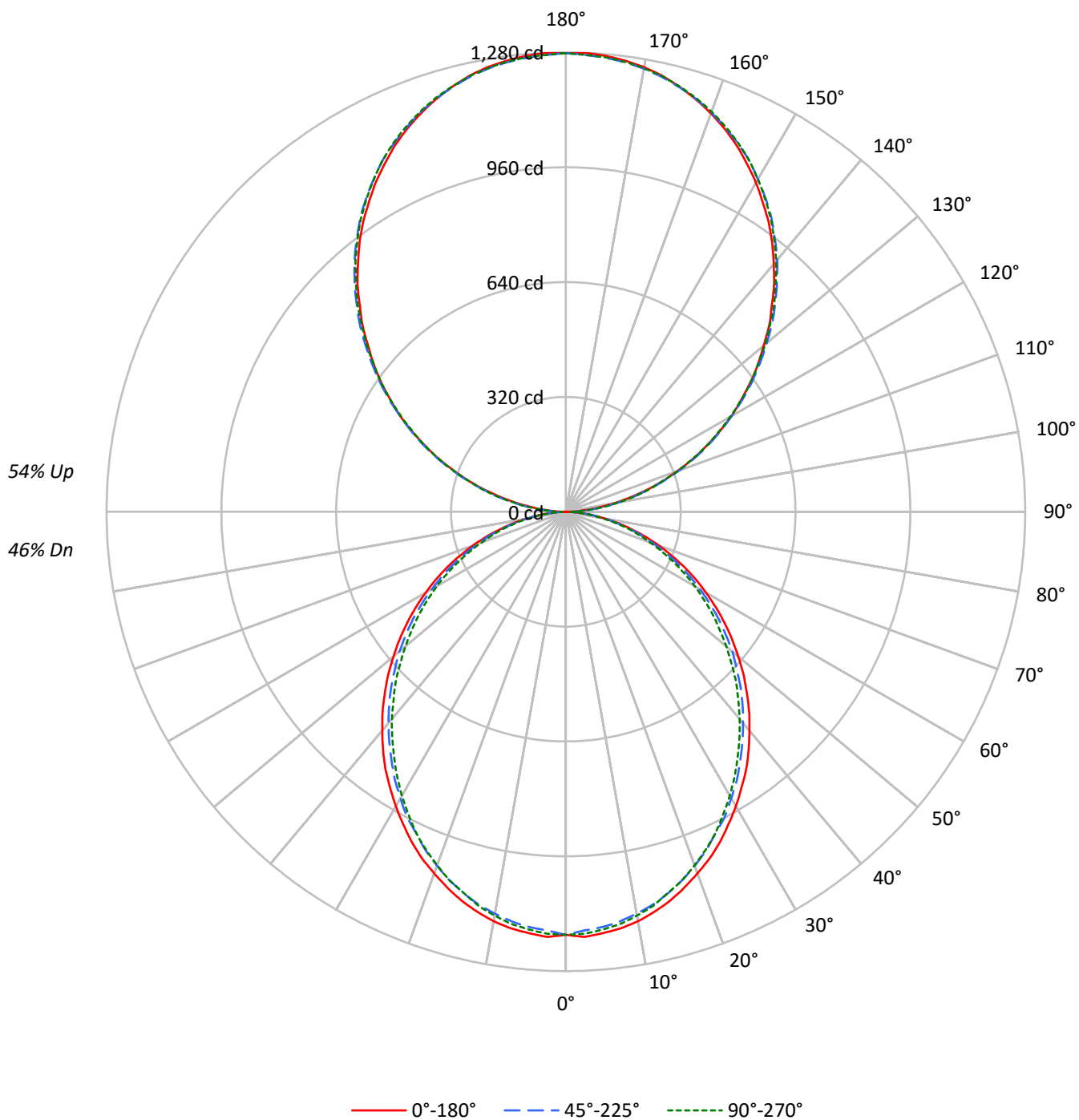
Lumens per Lamp: N/A  
Luminaire Lumens: 6574.3 lumens  
Efficiency: N/A  
Efficacy: 118.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 55.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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CATALOG NUMBER: DFN2DIP-4P3F0-030D040US840-FLLFLL

### Luminous Intensity Polar Plot



TEST NUMBER: P907658

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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 | 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°  | 1343 | 1343 | 1343 |
| 5°  | 1345 | 1324 | 1333 |
| 10° | 1333 | 1305 | 1315 |
| 15° | 1313 | 1283 | 1286 |
| 20° | 1285 | 1252 | 1257 |
| 25° | 1258 | 1215 | 1223 |
| 30° | 1224 | 1181 | 1180 |
| 35° | 1192 | 1141 | 1135 |
| 40° | 1152 | 1101 | 1092 |
| 45° | 1113 | 1060 | 1047 |
| 50° | 1070 | 1017 | 996  |
| 55° | 1025 | 968  | 949  |
| 60° | 973  | 909  | 895  |
| 65° | 918  | 849  | 832  |
| 70° | 846  | 775  | 763  |
| 75° | 748  | 686  | 699  |
| 80° | 628  | 572  | 578  |
| 85° | 443  | 379  | 378  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1282 cd/sqm

TEST NUMBER: P907658

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 111.0  | 1.7       |
| 10°-20°   | 312.2  | 4.7       |
| 20°-30°   | 458.8  | 7.0       |
| 30°-40°   | 532.8  | 8.1       |
| 40°-50°   | 532.2  | 8.1       |
| 50°-60°   | 464.1  | 7.1       |
| 60°-70°   | 343.1  | 5.2       |
| 70°-80°   | 194.1  | 3.0       |
| 80°-90°   | 54.8   | 0.8       |
| 90°-100°  | 79.1   | 1.2       |
| 100°-110° | 251.2  | 3.8       |
| 110°-120° | 429.8  | 6.5       |
| 120°-130° | 565.3  | 8.6       |
| 130°-140° | 634.5  | 9.7       |
| 140°-150° | 622.2  | 9.5       |
| 150°-160° | 522.0  | 7.9       |
| 160°-170° | 346.2  | 5.3       |
| 170°-180° | 121.0  | 1.8       |
| 0°-30°    | 881.9  | 13.4      |
| 0°-40°    | 1414.7 | 21.5      |
| 0°-60°    | 2411.0 | 36.7      |
| 0°-90°    | 3003.0 | 45.7      |
| 90°-120°  | 760.1  | 11.6      |
| 90°-150°  | 2582.2 | 39.3      |
| 90°-180°  | 3571.0 | 54.3      |
| 0°-180°   | 6574.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1179 | 1179  | 1179 | 1179  | 1179 |      |
| 5°   | 1179 | 1174  | 1162 | 1171  | 1169 | 112  |
| 15°  | 1122 | 1116  | 1101 | 1105  | 1100 | 316  |
| 25°  | 1016 | 1007  | 987  | 990   | 987  | 467  |
| 35°  | 876  | 865   | 847  | 840   | 834  | 547  |
| 45°  | 713  | 705   | 688  | 676   | 671  | 550  |
| 55°  | 540  | 533   | 519  | 506   | 500  | 482  |
| 65°  | 364  | 357   | 346  | 336   | 330  | 360  |
| 75°  | 190  | 188   | 182  | 176   | 178  | 203  |
| 85°  | 46   | 45    | 44   | 41    | 40   | 52   |
| 90°  | 1    | 14    | 38   | 35    | 37   | 6    |
| 95°  | 56   | 67    | 69   | 69    | 67   | 63   |
| 105° | 232  | 235   | 237  | 239   | 239  | 245  |
| 115° | 431  | 438   | 436  | 434   | 431  | 427  |
| 125° | 627  | 637   | 634  | 630   | 629  | 561  |
| 135° | 812  | 823   | 826  | 825   | 822  | 627  |
| 145° | 985  | 993   | 999  | 1000  | 996  | 616  |
| 155° | 1126 | 1130  | 1133 | 1138  | 1135 | 519  |
| 165° | 1226 | 1224  | 1224 | 1232  | 1227 | 346  |
| 175° | 1275 | 1272  | 1270 | 1278  | 1271 | 121  |
| 180° | 1278 | 1278  | 1278 | 1278  | 1278 |      |

TEST NUMBER: P907658

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1178.8 | 1178.8 | 1178.8 | 1178.8 | 1178.8 |
| 2.5°   | 1185.7 | 1180.0 | 1167.5 | 1178.8 | 1176.7 |
| 5°     | 1178.8 | 1174.4 | 1161.9 | 1170.9 | 1168.7 |
| 7.5°   | 1170.9 | 1164.2 | 1151.7 | 1160.8 | 1158.5 |
| 10°    | 1158.5 | 1150.5 | 1137.0 | 1146.0 | 1142.7 |
| 12.5°  | 1141.5 | 1134.7 | 1121.2 | 1126.7 | 1124.5 |
| 15°    | 1122.2 | 1115.5 | 1100.7 | 1105.2 | 1099.5 |
| 17.5°  | 1098.3 | 1091.7 | 1076.8 | 1082.5 | 1076.8 |
| 20°    | 1072.3 | 1065.5 | 1049.7 | 1053.0 | 1048.5 |
| 22.5°  | 1046.3 | 1036.1 | 1021.3 | 1021.3 | 1019.0 |
| 25°    | 1015.6 | 1006.6 | 987.3  | 989.6  | 987.3  |
| 27.5°  | 981.6  | 973.6  | 959.0  | 955.6  | 950.0  |
| 30°    | 947.7  | 938.6  | 921.6  | 918.2  | 913.6  |
| 32.5°  | 911.4  | 904.6  | 886.5  | 879.6  | 875.0  |
| 35°    | 876.3  | 864.9  | 846.8  | 839.9  | 834.2  |
| 37.5°  | 836.6  | 826.4  | 808.2  | 800.2  | 794.6  |
| 40°    | 795.8  | 786.7  | 768.5  | 758.4  | 753.9  |
| 42.5°  | 756.1  | 747.0  | 728.9  | 717.5  | 710.7  |
| 45°    | 713.1  | 705.1  | 688.0  | 675.6  | 671.1  |
| 47.5°  | 671.1  | 663.2  | 645.0  | 632.5  | 625.7  |
| 50°    | 626.8  | 621.2  | 605.3  | 589.5  | 583.8  |
| 52.5°  | 583.8  | 575.8  | 561.2  | 548.7  | 540.7  |
| 55°    | 539.7  | 532.8  | 519.2  | 505.6  | 500.0  |
| 57.5°  | 495.3  | 489.7  | 474.9  | 461.3  | 456.8  |
| 60°    | 451.1  | 446.7  | 430.8  | 418.3  | 415.0  |
| 62.5°  | 408.1  | 400.1  | 388.8  | 377.5  | 372.9  |
| 65°    | 364.0  | 357.1  | 345.8  | 335.6  | 329.9  |
| 67.5°  | 318.6  | 312.9  | 302.7  | 294.8  | 290.2  |
| 70°    | 276.6  | 272.1  | 261.9  | 253.9  | 249.4  |
| 72.5°  | 233.6  | 228.9  | 223.3  | 215.4  | 212.1  |
| 75°    | 190.4  | 188.2  | 182.5  | 175.7  | 178.0  |
| 77.5°  | 151.9  | 147.3  | 145.0  | 141.7  | 138.4  |
| 80°    | 113.4  | 112.2  | 109.9  | 106.5  | 104.3  |
| 82.5°  | 77.1   | 77.1   | 76.0   | 71.4   | 71.4   |
| 85°    | 46.5   | 45.3   | 44.2   | 40.8   | 39.7   |
| 87.5°  | 20.4   | 18.2   | 15.9   | 12.5   | 11.3   |
| 90°    | 1.1    | 13.8   | 37.8   | 35.4   | 36.6   |
| 92.5°  | 23.8   | 32.3   | 33.5   | 34.6   | 34.6   |
| 95°    | 56.2   | 67.1   | 69.0   | 69.0   | 67.1   |
| 97.5°  | 93.6   | 103.6  | 107.9  | 107.9  | 107.9  |
| 100°   | 136.7  | 145.6  | 148.7  | 148.7  | 147.5  |
| 102.5° | 182.2  | 188.7  | 193.0  | 194.1  | 193.0  |
| 105°   | 231.9  | 234.9  | 237.2  | 239.1  | 239.1  |
| 107.5° | 281.1  | 285.8  | 285.8  | 286.5  | 281.1  |
| 110°   | 328.9  | 335.1  | 335.1  | 335.1  | 332.0  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 380.5  | 387.1  | 385.9  | 382.8  | 380.5  |
| 115°   | 431.3  | 437.6  | 435.6  | 434.4  | 431.3  |
| 117.5° | 481.8  | 490.3  | 484.9  | 481.8  | 478.8  |
| 120°   | 532.7  | 541.1  | 532.7  | 532.7  | 529.2  |
| 122.5° | 578.9  | 589.7  | 584.3  | 581.2  | 578.9  |
| 125°   | 627.4  | 637.0  | 634.0  | 630.5  | 629.3  |
| 127.5° | 674.8  | 686.7  | 682.5  | 677.8  | 674.8  |
| 130°   | 719.0  | 733.0  | 731.0  | 728.7  | 724.5  |
| 132.5° | 768.7  | 779.5  | 780.3  | 774.9  | 771.8  |
| 135°   | 811.5  | 823.4  | 825.8  | 824.6  | 821.5  |
| 137.5° | 859.3  | 868.9  | 870.8  | 870.0  | 865.5  |
| 140°   | 901.2  | 910.9  | 916.3  | 916.3  | 912.0  |
| 142.5° | 944.4  | 954.0  | 957.0  | 958.3  | 954.0  |
| 145°   | 985.2  | 992.9  | 999.1  | 1000.3 | 996.0  |
| 147.5° | 1021.8 | 1031.4 | 1036.0 | 1037.9 | 1033.7 |
| 150°   | 1059.6 | 1066.1 | 1070.4 | 1073.8 | 1070.4 |
| 152.5° | 1093.1 | 1099.5 | 1105.0 | 1109.2 | 1105.0 |
| 155°   | 1126.5 | 1129.6 | 1133.1 | 1138.5 | 1135.0 |
| 157.5° | 1155.5 | 1157.7 | 1159.6 | 1167.4 | 1162.0 |
| 160°   | 1181.2 | 1183.6 | 1184.7 | 1191.2 | 1186.6 |
| 162.5° | 1205.1 | 1205.1 | 1206.3 | 1213.6 | 1208.2 |
| 165°   | 1225.6 | 1224.4 | 1224.4 | 1232.0 | 1226.7 |
| 167.5° | 1244.1 | 1240.5 | 1240.5 | 1248.3 | 1242.8 |
| 170°   | 1257.9 | 1254.8 | 1253.6 | 1261.3 | 1254.8 |
| 172.5° | 1267.5 | 1264.5 | 1263.2 | 1271.0 | 1264.5 |
| 175°   | 1275.3 | 1272.1 | 1269.8 | 1277.5 | 1271.0 |
| 177.5° | 1279.5 | 1276.4 | 1274.0 | 1280.6 | 1274.0 |
| 180°   | 1277.5 | 1277.5 | 1277.5 | 1277.5 | 1277.5 |

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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 | 7.85             | 8.67  | 8.84  | 9.68  | 11.01 | 7.40           | 8.23  | 8.40  | 9.23  | 10.56 |
|                 | 3H   | 9.50             | 10.24 | 10.51 | 11.25 | 12.61 | 9.01           | 9.75  | 10.02 | 10.76 | 12.12 |
|                 | 4H   | 10.09            | 10.78 | 11.10 | 11.80 | 13.16 | 9.59           | 10.29 | 10.61 | 11.31 | 12.67 |
|                 | 6H   | 10.48            | 11.12 | 11.51 | 12.15 | 13.52 | 9.98           | 10.62 | 11.01 | 11.65 | 13.02 |
|                 | 8H   | 10.58            | 11.20 | 11.61 | 12.23 | 13.60 | 10.08          | 10.69 | 11.11 | 11.73 | 13.10 |
|                 | 12H  | 10.63            | 11.21 | 11.66 | 12.24 | 13.64 | 10.12          | 10.70 | 11.16 | 11.73 | 13.13 |
| 4H              | 2H   | 8.30             | 9.00  | 9.32  | 10.02 | 11.38 | 7.95           | 8.65  | 8.97  | 9.66  | 11.02 |
|                 | 3H   | 10.16            | 10.74 | 11.19 | 11.79 | 13.16 | 9.75           | 10.33 | 10.78 | 11.38 | 12.75 |
|                 | 4H   | 10.87            | 11.40 | 11.91 | 12.44 | 13.84 | 10.44          | 10.98 | 11.48 | 12.02 | 13.41 |
|                 | 6H   | 11.38            | 11.84 | 12.43 | 12.90 | 14.29 | 10.94          | 11.40 | 11.99 | 12.47 | 13.86 |
|                 | 8H   | 11.52            | 11.95 | 12.57 | 13.01 | 14.41 | 11.09          | 11.52 | 12.14 | 12.57 | 13.98 |
|                 | 12H  | 11.59            | 11.98 | 12.66 | 13.05 | 14.46 | 11.14          | 11.53 | 12.21 | 12.60 | 14.01 |
| 8H              | 4H   | 11.06            | 11.49 | 12.11 | 12.54 | 13.95 | 10.68          | 11.11 | 11.73 | 12.16 | 13.57 |
|                 | 6H   | 11.68            | 12.04 | 12.75 | 13.13 | 14.54 | 11.30          | 11.65 | 12.37 | 12.75 | 14.15 |
|                 | 8H   | 11.90            | 12.21 | 12.98 | 13.29 | 14.71 | 11.50          | 11.82 | 12.59 | 12.90 | 14.32 |
|                 | 12H  | 12.02            | 12.30 | 13.11 | 13.37 | 14.84 | 11.61          | 11.89 | 12.70 | 12.96 | 14.43 |
| 12H             | 4H   | 11.04            | 11.43 | 12.11 | 12.50 | 13.91 | 10.67          | 11.06 | 11.74 | 12.13 | 13.54 |
|                 | 6H   | 11.71            | 12.02 | 12.79 | 13.10 | 14.52 | 11.34          | 11.65 | 12.42 | 12.73 | 14.15 |
|                 | 8H   | 11.94            | 12.22 | 13.03 | 13.29 | 14.76 | 11.56          | 11.84 | 12.65 | 12.91 | 14.38 |