

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: P926139

Luminaire Tested: DFN2DIP-TR2F0-040D050US950-RLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P926139  
REPORT IS A COMBINATION OF REPORTS P901776 AND P897145  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR2F0-040D050US950-RLLONL  
Description: 2 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

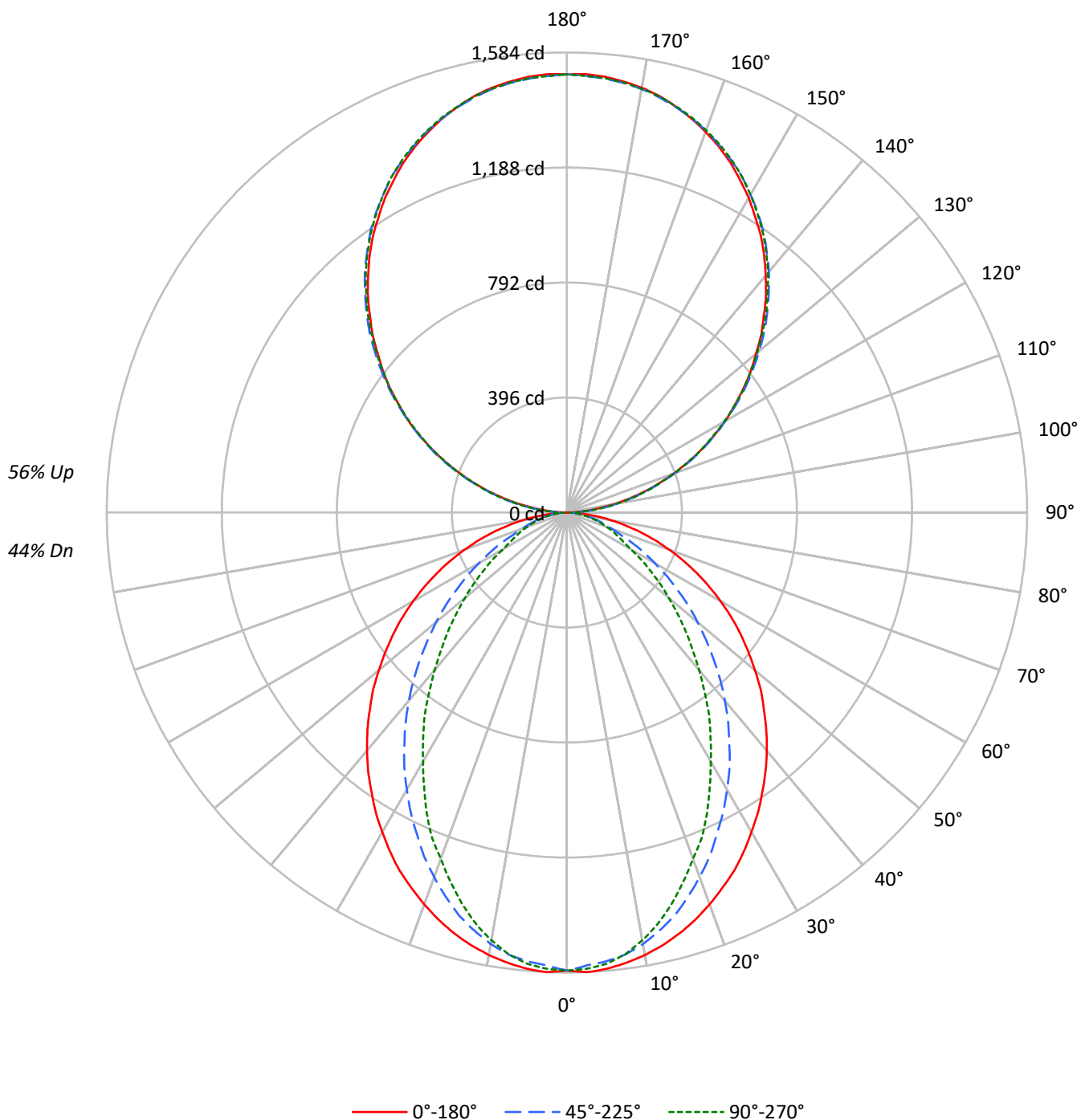
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7465.1 lumens  
Efficiency: N/A  
Efficacy: 100.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 74.5  
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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### 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   | 106 | 106 | 106 | 106 | 97 | 97 | 97 | 97 | 80 | 80 | 80 | 64 | 64 | 64 | 50 | 50 | 50 |
| 1   | 97  | 93  | 89  | 86  | 88 | 85 | 82 | 79 | 70 | 68 | 66 | 57 | 56 | 54 | 45 | 44 | 43 |
| 2   | 88  | 81  | 75  | 71  | 81 | 75 | 70 | 65 | 62 | 59 | 55 | 51 | 48 | 46 | 40 | 38 | 37 |
| 3   | 81  | 72  | 65  | 59  | 74 | 66 | 60 | 55 | 55 | 51 | 47 | 45 | 42 | 39 | 36 | 34 | 32 |
| 4   | 74  | 64  | 56  | 50  | 68 | 59 | 52 | 47 | 49 | 44 | 40 | 41 | 37 | 34 | 32 | 30 | 28 |
| 5   | 68  | 57  | 49  | 43  | 62 | 53 | 46 | 41 | 44 | 39 | 35 | 37 | 33 | 30 | 29 | 27 | 25 |
| 6   | 63  | 51  | 43  | 38  | 57 | 47 | 41 | 35 | 40 | 35 | 31 | 33 | 29 | 26 | 27 | 24 | 22 |
| 7   | 58  | 46  | 39  | 33  | 53 | 43 | 36 | 31 | 36 | 31 | 27 | 30 | 26 | 23 | 25 | 22 | 20 |
| 8   | 54  | 42  | 35  | 30  | 50 | 39 | 32 | 28 | 33 | 28 | 24 | 28 | 24 | 21 | 23 | 20 | 18 |
| 9   | 50  | 39  | 31  | 26  | 46 | 36 | 29 | 25 | 31 | 25 | 22 | 26 | 22 | 19 | 21 | 18 | 16 |
| 10  | 47  | 35  | 28  | 24  | 43 | 33 | 27 | 22 | 28 | 23 | 20 | 24 | 20 | 17 | 19 | 17 | 15 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3518 | 3518 | 3518 |
| 5°  | 3518 | 3454 | 3478 |
| 10° | 3478 | 3379 | 3359 |
| 15° | 3425 | 3259 | 3179 |
| 20° | 3356 | 3098 | 2959 |
| 25° | 3286 | 2919 | 2747 |
| 30° | 3194 | 2736 | 2481 |
| 35° | 3103 | 2540 | 2247 |
| 40° | 3010 | 2338 | 1980 |
| 45° | 2903 | 2115 | 1738 |
| 50° | 2791 | 1890 | 1502 |
| 55° | 2674 | 1651 | 1277 |
| 60° | 2538 | 1403 | 1045 |
| 65° | 2383 | 1151 | 934  |
| 70° | 2193 | 917  | 836  |
| 75° | 1953 | 793  | 749  |
| 80° | 1610 | 643  | 632  |
| 85° | 1057 | 399  | 445  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
Vertical Angle: 45°  
Luminance: 2903 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 147.8  | 2.0       |
| 10°-20°   | 405.8  | 5.4       |
| 20°-30°   | 569.7  | 7.6       |
| 30°-40°   | 621.0  | 8.3       |
| 40°-50°   | 570.8  | 7.6       |
| 50°-60°   | 448.2  | 6.0       |
| 60°-70°   | 291.8  | 3.9       |
| 70°-80°   | 150.2  | 2.0       |
| 80°-90°   | 42.6   | 0.6       |
| 90°-100°  | 93.4   | 1.3       |
| 100°-110° | 296.6  | 4.0       |
| 110°-120° | 507.6  | 6.8       |
| 120°-130° | 667.5  | 8.9       |
| 130°-140° | 749.3  | 10.0      |
| 140°-150° | 734.8  | 9.8       |
| 150°-160° | 616.4  | 8.3       |
| 160°-170° | 408.8  | 5.5       |
| 170°-180° | 142.9  | 1.9       |
| 0°-30°    | 1123.3 | 15.0      |
| 0°-40°    | 1744.3 | 23.4      |
| 0°-60°    | 2763.3 | 37.0      |
| 0°-90°    | 3247.9 | 43.5      |
| 90°-120°  | 897.5  | 12.0      |
| 90°-150°  | 3049.2 | 40.8      |
| 90°-180°  | 4217.0 | 56.5      |
| 0°-180°   | 7465.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1577 | 1577  | 1577 | 1577  | 1577 |      |
| 5°   | 1577 | 1570  | 1551 | 1564  | 1560 | 150  |
| 15°  | 1500 | 1484  | 1436 | 1409  | 1395 | 423  |
| 25°  | 1362 | 1316  | 1222 | 1163  | 1142 | 626  |
| 35°  | 1173 | 1100  | 975  | 885   | 853  | 734  |
| 45°  | 959  | 864   | 714  | 612   | 578  | 741  |
| 55°  | 729  | 618   | 464  | 378   | 351  | 652  |
| 65°  | 492  | 377   | 248  | 200   | 196  | 488  |
| 75°  | 262  | 163   | 114  | 104   | 103  | 278  |
| 85°  | 61   | 31    | 27   | 27    | 27   | 70   |
| 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°     | 1577.2 | 1577.2 | 1577.2 | 1577.2 | 1577.2 |
| 2.5°   | 1584.3 | 1577.2 | 1561.4 | 1575.8 | 1572.9 |
| 5°     | 1577.2 | 1570.0 | 1551.4 | 1564.3 | 1560.1 |
| 7.5°   | 1564.3 | 1555.8 | 1535.8 | 1541.4 | 1534.3 |
| 10°    | 1547.2 | 1537.2 | 1508.7 | 1504.3 | 1495.9 |
| 12.5°  | 1525.8 | 1512.9 | 1474.3 | 1465.8 | 1450.1 |
| 15°    | 1500.1 | 1484.3 | 1435.9 | 1408.8 | 1394.6 |
| 17.5°  | 1470.1 | 1447.2 | 1387.2 | 1355.9 | 1333.0 |
| 20°    | 1435.9 | 1407.2 | 1335.9 | 1300.3 | 1268.8 |
| 22.5°  | 1398.8 | 1365.9 | 1283.0 | 1234.6 | 1213.3 |
| 25°    | 1361.6 | 1315.9 | 1221.7 | 1163.3 | 1141.7 |
| 27.5°  | 1317.5 | 1268.8 | 1164.6 | 1097.6 | 1064.7 |
| 30°    | 1270.3 | 1216.0 | 1101.8 | 1029.1 | 990.5  |
| 32.5°  | 1224.6 | 1158.9 | 1042.0 | 956.3  | 920.5  |
| 35°    | 1173.3 | 1100.4 | 974.9  | 884.9  | 853.4  |
| 37.5°  | 1123.3 | 1044.7 | 912.0  | 813.5  | 777.9  |
| 40°    | 1070.5 | 984.9  | 846.4  | 745.1  | 708.0  |
| 42.5°  | 1016.2 | 924.9  | 780.8  | 675.1  | 639.5  |
| 45°    | 959.2  | 863.5  | 713.7  | 612.3  | 578.0  |
| 47.5°  | 905.0  | 803.6  | 649.5  | 548.1  | 516.7  |
| 50°    | 845.0  | 743.6  | 586.6  | 488.1  | 458.2  |
| 52.5°  | 786.4  | 679.3  | 526.7  | 432.4  | 405.4  |
| 55°    | 729.3  | 618.0  | 463.8  | 378.3  | 351.2  |
| 57.5°  | 670.9  | 556.7  | 408.2  | 328.3  | 305.5  |
| 60°    | 610.8  | 496.7  | 349.6  | 276.9  | 254.1  |
| 62.5°  | 552.5  | 438.3  | 299.7  | 231.2  | 219.9  |
| 65°    | 492.5  | 376.7  | 248.3  | 199.9  | 195.5  |
| 67.5°  | 435.4  | 319.7  | 199.9  | 175.5  | 171.2  |
| 70°    | 375.4  | 264.1  | 165.5  | 151.3  | 145.5  |
| 72.5°  | 318.3  | 212.6  | 138.4  | 127.1  | 124.2  |
| 75°    | 262.5  | 162.7  | 114.2  | 104.2  | 102.8  |
| 77.5°  | 207.0  | 115.5  | 90.0   | 84.2   | 81.3   |
| 80°    | 155.5  | 82.8   | 68.4   | 62.9   | 62.9   |
| 82.5°  | 108.5  | 55.7   | 47.1   | 44.2   | 44.2   |
| 85°    | 61.3   | 31.4   | 27.1   | 27.1   | 27.1   |
| 87.5°  | 22.9   | 11.4   | 11.4   | 10.0   | 10.0   |
| 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 | 10.75            | 11.53 | 11.77 | 12.55 | 13.91 | 6.73           | 7.51  | 7.75  | 8.53  | 9.90  |
|                 | 3H   | 12.40            | 13.10 | 13.43 | 14.13 | 15.51 | 7.90           | 8.60  | 8.93  | 9.63  | 11.01 |
|                 | 4H   | 12.99            | 13.65 | 14.03 | 14.68 | 16.07 | 8.34           | 9.00  | 9.38  | 10.03 | 11.42 |
|                 | 6H   | 13.39            | 14.00 | 14.44 | 15.03 | 16.44 | 8.64           | 9.25  | 9.69  | 10.29 | 11.69 |
|                 | 8H   | 13.50            | 14.08 | 14.56 | 15.13 | 16.53 | 8.72           | 9.30  | 9.78  | 10.35 | 11.75 |
|                 | 12H  | 13.55            | 14.10 | 14.61 | 15.15 | 16.57 | 8.76           | 9.31  | 9.82  | 10.35 | 11.78 |
| 4H              | 2H   | 10.76            | 11.42 | 11.80 | 12.45 | 13.84 | 7.31           | 7.97  | 8.35  | 9.00  | 10.39 |
|                 | 3H   | 12.56            | 13.10 | 13.61 | 14.17 | 15.57 | 8.63           | 9.18  | 9.69  | 10.24 | 11.65 |
|                 | 4H   | 13.23            | 13.73 | 14.29 | 14.78 | 16.21 | 9.17           | 9.67  | 10.23 | 10.72 | 12.15 |
|                 | 6H   | 13.72            | 14.15 | 14.79 | 15.22 | 16.65 | 9.57           | 10.00 | 10.64 | 11.07 | 12.49 |
|                 | 8H   | 13.88            | 14.28 | 14.95 | 15.35 | 16.78 | 9.68           | 10.09 | 10.75 | 11.16 | 12.59 |
|                 | 12H  | 13.96            | 14.32 | 15.04 | 15.40 | 16.84 | 9.74           | 10.10 | 10.83 | 11.18 | 12.63 |
| 8H              | 4H   | 13.19            | 13.59 | 14.26 | 14.66 | 16.09 | 9.43           | 9.83  | 10.50 | 10.90 | 12.34 |
|                 | 6H   | 13.73            | 14.06 | 14.82 | 15.17 | 16.60 | 9.92           | 10.26 | 11.02 | 11.37 | 12.80 |
|                 | 8H   | 13.93            | 14.22 | 15.03 | 15.31 | 16.76 | 10.10          | 10.39 | 11.20 | 11.49 | 12.94 |
|                 | 12H  | 14.05            | 14.30 | 15.15 | 15.39 | 16.88 | 10.21          | 10.46 | 11.31 | 11.55 | 13.04 |
| 12H             | 4H   | 13.14            | 13.50 | 14.22 | 14.58 | 16.02 | 9.43           | 9.79  | 10.51 | 10.87 | 12.31 |
|                 | 6H   | 13.70            | 13.99 | 14.80 | 15.08 | 16.54 | 9.97           | 10.26 | 11.07 | 11.35 | 12.80 |
|                 | 8H   | 13.90            | 14.16 | 15.00 | 15.25 | 16.74 | 10.16          | 10.42 | 11.26 | 11.51 | 13.00 |