

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: P920132

Luminaire Tested: DFN2DIP-SQ3F0-080D060US935-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P920132  
REPORT IS A COMBINATION OF REPORTS P899905 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-080D060US935-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

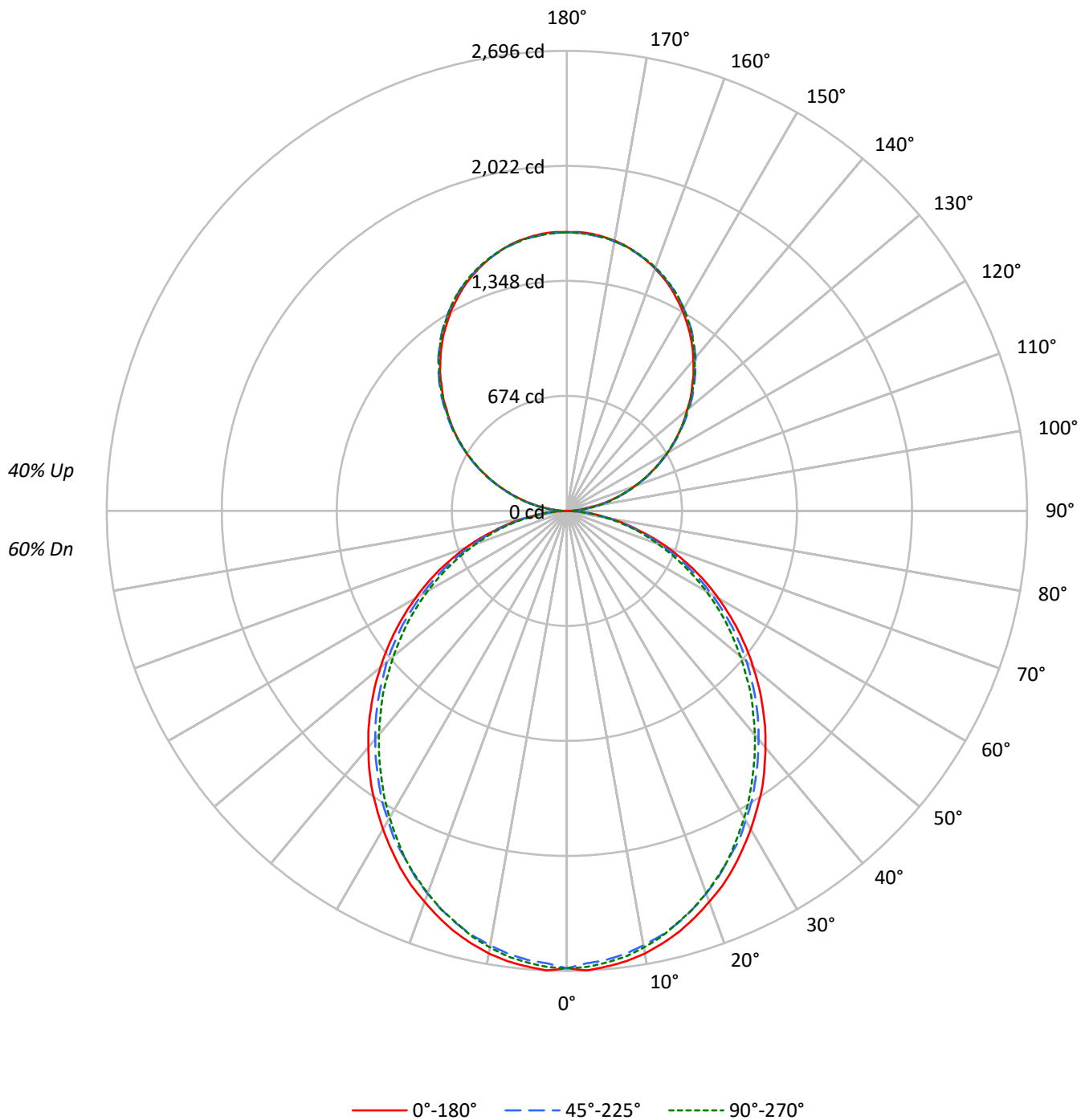
Lumens per Lamp: N/A  
Luminaire Lumens: 11391.0 lumens  
Efficiency: N/A  
Efficacy: 93.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 121.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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CATALOG NUMBER: DFN2DIP-SQ3F0-080D060US935-FLLFLL

### Luminous Intensity Polar Plot



TEST NUMBER: P920132

CATALOG NUMBER: DFN2DIP-SQ3F0-080D060US935-FLLFL

**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 | 102 | 102 | 102 | 102 | 89 | 89 | 89 | 77 | 77 | 77 | 65 | 65 | 65 |
| 1   | 100 | 96  | 92  | 88  | 93  | 89  | 86  | 83  | 78 | 75 | 73 | 67 | 66 | 64 | 58 | 56 | 55 |
| 2   | 91  | 84  | 77  | 72  | 85  | 78  | 73  | 68  | 68 | 64 | 61 | 59 | 56 | 53 | 51 | 48 | 46 |
| 3   | 83  | 73  | 66  | 60  | 77  | 69  | 62  | 57  | 60 | 55 | 51 | 52 | 48 | 45 | 45 | 42 | 40 |
| 4   | 76  | 65  | 57  | 51  | 71  | 61  | 54  | 48  | 54 | 48 | 43 | 47 | 42 | 39 | 40 | 37 | 34 |
| 5   | 70  | 58  | 50  | 44  | 65  | 55  | 47  | 42  | 48 | 42 | 38 | 42 | 37 | 34 | 36 | 33 | 30 |
| 6   | 64  | 52  | 44  | 38  | 60  | 49  | 42  | 36  | 43 | 37 | 33 | 38 | 33 | 29 | 33 | 29 | 26 |
| 7   | 60  | 47  | 39  | 33  | 56  | 44  | 37  | 32  | 39 | 33 | 29 | 35 | 30 | 26 | 30 | 26 | 23 |
| 8   | 55  | 43  | 35  | 30  | 52  | 40  | 33  | 28  | 36 | 30 | 26 | 32 | 27 | 23 | 28 | 24 | 21 |
| 9   | 52  | 39  | 32  | 26  | 48  | 37  | 30  | 25  | 33 | 27 | 23 | 29 | 24 | 21 | 26 | 22 | 19 |
| 10  | 48  | 36  | 29  | 24  | 45  | 34  | 27  | 23  | 30 | 25 | 21 | 27 | 22 | 19 | 24 | 20 | 17 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3071 | 3071 | 3071 |
| 5°  | 3074 | 3026 | 3048 |
| 10° | 3047 | 2983 | 3005 |
| 15° | 3000 | 2932 | 2940 |
| 20° | 2938 | 2862 | 2873 |
| 25° | 2876 | 2778 | 2796 |
| 30° | 2798 | 2700 | 2697 |
| 35° | 2724 | 2609 | 2594 |
| 40° | 2634 | 2516 | 2495 |
| 45° | 2544 | 2423 | 2394 |
| 50° | 2445 | 2325 | 2277 |
| 55° | 2342 | 2212 | 2169 |
| 60° | 2225 | 2078 | 2046 |
| 65° | 2097 | 1939 | 1900 |
| 70° | 1934 | 1770 | 1744 |
| 75° | 1708 | 1567 | 1597 |
| 80° | 1436 | 1307 | 1320 |
| 85° | 1011 | 867  | 864  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2544 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 252.3   | 2.2       |
| 10°-20°   | 709.8   | 6.2       |
| 20°-30°   | 1043.1  | 9.2       |
| 30°-40°   | 1211.4  | 10.6      |
| 40°-50°   | 1209.9  | 10.6      |
| 50°-60°   | 1055.0  | 9.3       |
| 60°-70°   | 779.9   | 6.8       |
| 70°-80°   | 441.2   | 3.9       |
| 80°-90°   | 121.1   | 1.1       |
| 90°-100°  | 101.1   | 0.9       |
| 100°-110° | 321.2   | 2.8       |
| 110°-120° | 549.7   | 4.8       |
| 120°-130° | 723.0   | 6.3       |
| 130°-140° | 811.5   | 7.1       |
| 140°-150° | 795.8   | 7.0       |
| 150°-160° | 667.5   | 5.9       |
| 160°-170° | 442.7   | 3.9       |
| 170°-180° | 154.7   | 1.4       |
| 0°-30°    | 2005.1  | 17.6      |
| 0°-40°    | 3216.5  | 28.2      |
| 0°-60°    | 5481.5  | 48.1      |
| 0°-90°    | 6823.7  | 59.9      |
| 90°-120°  | 972.0   | 8.5       |
| 90°-150°  | 3302.3  | 29.0      |
| 90°-180°  | 4567.0  | 40.1      |
| 0°-180°   | 11391.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2680 | 2680  | 2680 | 2680  | 2680 |      |
| 5°   | 2680 | 2670  | 2642 | 2662  | 2657 | 254  |
| 15°  | 2551 | 2536  | 2502 | 2513  | 2500 | 719  |
| 25°  | 2309 | 2289  | 2245 | 2250  | 2245 | 1063 |
| 35°  | 1992 | 1966  | 1925 | 1910  | 1897 | 1244 |
| 45°  | 1621 | 1603  | 1564 | 1536  | 1526 | 1251 |
| 55°  | 1227 | 1211  | 1180 | 1150  | 1137 | 1097 |
| 65°  | 827  | 812   | 786  | 763   | 750  | 818  |
| 75°  | 433  | 428   | 415  | 400   | 405  | 462  |
| 85°  | 106  | 103   | 101  | 93    | 90   | 118  |
| 90°  | 2    | 18    | 48   | 45    | 47   | 11   |
| 95°  | 72   | 86    | 88   | 88    | 86   | 80   |
| 105° | 296  | 300   | 303  | 306   | 306  | 313  |
| 115° | 552  | 560   | 557  | 556   | 552  | 546  |
| 125° | 802  | 815   | 811  | 806   | 805  | 717  |
| 135° | 1038 | 1053  | 1056 | 1055  | 1051 | 802  |
| 145° | 1260 | 1270  | 1278 | 1279  | 1274 | 787  |
| 155° | 1441 | 1445  | 1449 | 1456  | 1452 | 663  |
| 165° | 1567 | 1566  | 1566 | 1576  | 1569 | 442  |
| 175° | 1631 | 1627  | 1624 | 1634  | 1625 | 155  |
| 180° | 1634 | 1634  | 1634 | 1634  | 1634 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2680.1 | 2680.1 | 2680.1 | 2680.1 | 2680.1 |
| 2.5°   | 2695.7 | 2682.9 | 2654.5 | 2680.1 | 2675.2 |
| 5°     | 2680.1 | 2670.0 | 2641.6 | 2662.1 | 2657.2 |
| 7.5°   | 2662.1 | 2646.8 | 2618.4 | 2639.1 | 2634.0 |
| 10°    | 2634.0 | 2615.9 | 2585.0 | 2605.5 | 2597.9 |
| 12.5°  | 2595.1 | 2579.8 | 2548.9 | 2561.7 | 2556.6 |
| 15°    | 2551.4 | 2536.1 | 2502.4 | 2512.8 | 2500.0 |
| 17.5°  | 2497.2 | 2481.9 | 2448.2 | 2461.2 | 2448.2 |
| 20°    | 2437.9 | 2422.6 | 2386.5 | 2394.2 | 2384.0 |
| 22.5°  | 2378.9 | 2355.6 | 2321.9 | 2321.9 | 2316.8 |
| 25°    | 2309.1 | 2288.6 | 2244.9 | 2249.8 | 2244.9 |
| 27.5°  | 2231.7 | 2213.7 | 2180.3 | 2172.6 | 2159.8 |
| 30°    | 2154.6 | 2133.8 | 2095.3 | 2087.7 | 2077.2 |
| 32.5°  | 2072.1 | 2056.8 | 2015.4 | 1999.8 | 1989.5 |
| 35°    | 1992.2 | 1966.5 | 1925.2 | 1909.6 | 1896.8 |
| 37.5°  | 1901.9 | 1878.7 | 1837.5 | 1819.4 | 1806.5 |
| 40°    | 1809.3 | 1788.5 | 1747.2 | 1724.2 | 1713.8 |
| 42.5°  | 1719.1 | 1698.2 | 1657.2 | 1631.2 | 1616.0 |
| 45°    | 1621.2 | 1603.1 | 1564.3 | 1536.1 | 1525.8 |
| 47.5°  | 1525.8 | 1507.7 | 1466.4 | 1438.0 | 1422.6 |
| 50°    | 1425.1 | 1412.3 | 1376.1 | 1340.1 | 1327.2 |
| 52.5°  | 1327.2 | 1309.1 | 1275.8 | 1247.4 | 1229.3 |
| 55°    | 1226.8 | 1211.3 | 1180.4 | 1149.5 | 1136.6 |
| 57.5°  | 1126.3 | 1113.4 | 1079.8 | 1048.9 | 1038.4 |
| 60°    | 1025.6 | 1015.5 | 979.4  | 951.0  | 943.3  |
| 62.5°  | 927.7  | 909.7  | 884.0  | 858.3  | 847.9  |
| 65°    | 827.4  | 811.8  | 786.1  | 762.8  | 750.0  |
| 67.5°  | 724.3  | 711.2  | 688.2  | 670.2  | 659.8  |
| 70°    | 628.9  | 618.5  | 595.3  | 577.2  | 567.1  |
| 72.5°  | 531.0  | 520.6  | 507.7  | 489.7  | 482.1  |
| 75°    | 432.8  | 427.9  | 414.8  | 399.5  | 404.7  |
| 77.5°  | 345.3  | 334.9  | 329.8  | 322.1  | 314.4  |
| 80°    | 257.9  | 255.1  | 249.9  | 242.3  | 237.0  |
| 82.5°  | 175.3  | 175.3  | 172.8  | 162.4  | 162.4  |
| 85°    | 105.6  | 103.1  | 100.7  | 92.7   | 90.2   |
| 87.5°  | 46.5   | 41.3   | 36.1   | 28.4   | 25.7   |
| 90°    | 1.5    | 17.7   | 48.3   | 45.3   | 46.8   |
| 92.5°  | 30.6   | 41.4   | 42.9   | 44.3   | 44.3   |
| 95°    | 71.9   | 85.7   | 88.2   | 88.2   | 85.7   |
| 97.5°  | 119.7  | 132.5  | 137.9  | 137.9  | 137.9  |
| 100°   | 174.9  | 186.1  | 190.1  | 190.1  | 188.6  |
| 102.5° | 233.0  | 241.3  | 246.8  | 248.2  | 246.8  |
| 105°   | 296.5  | 300.5  | 303.4  | 305.9  | 305.9  |
| 107.5° | 359.6  | 365.5  | 365.5  | 366.4  | 359.6  |
| 110°   | 420.7  | 428.5  | 428.5  | 428.5  | 424.6  |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 486.6  | 495.0  | 493.5  | 489.6  | 486.6  |
| 115°   | 551.6  | 559.6  | 557.1  | 555.6  | 551.6  |
| 117.5° | 616.2  | 627.1  | 620.1  | 616.2  | 612.3  |
| 120°   | 681.2  | 692.1  | 681.2  | 681.2  | 676.7  |
| 122.5° | 740.3  | 754.1  | 747.2  | 743.3  | 740.3  |
| 125°   | 802.4  | 814.7  | 810.7  | 806.3  | 804.9  |
| 127.5° | 863.0  | 878.2  | 872.8  | 866.9  | 863.0  |
| 130°   | 919.6  | 937.4  | 934.9  | 931.9  | 926.5  |
| 132.5° | 983.2  | 996.9  | 997.9  | 991.0  | 987.0  |
| 135°   | 1037.8 | 1053.1 | 1056.0 | 1054.6 | 1050.6 |
| 137.5° | 1098.9 | 1111.2 | 1113.7 | 1112.7 | 1106.8 |
| 140°   | 1152.6 | 1164.9 | 1171.8 | 1171.8 | 1166.4 |
| 142.5° | 1207.7 | 1220.0 | 1224.0 | 1225.5 | 1220.0 |
| 145°   | 1260.0 | 1269.8 | 1277.7 | 1279.2 | 1273.8 |
| 147.5° | 1306.7 | 1319.0 | 1325.0 | 1327.4 | 1322.0 |
| 150°   | 1355.0 | 1363.4 | 1368.8 | 1373.2 | 1368.8 |
| 152.5° | 1397.8 | 1406.3 | 1413.2 | 1418.6 | 1413.2 |
| 155°   | 1440.7 | 1444.7 | 1449.1 | 1456.0 | 1451.6 |
| 157.5° | 1477.6 | 1480.7 | 1483.1 | 1493.0 | 1486.1 |
| 160°   | 1510.7 | 1513.6 | 1515.1 | 1523.4 | 1517.6 |
| 162.5° | 1541.2 | 1541.2 | 1542.6 | 1552.0 | 1545.1 |
| 165°   | 1567.3 | 1565.8 | 1565.8 | 1575.7 | 1568.8 |
| 167.5° | 1591.0 | 1586.6 | 1586.6 | 1596.4 | 1589.5 |
| 170°   | 1608.7 | 1604.7 | 1603.3 | 1613.1 | 1604.7 |
| 172.5° | 1621.0 | 1617.0 | 1615.6 | 1625.4 | 1617.0 |
| 175°   | 1630.8 | 1626.9 | 1623.9 | 1633.8 | 1625.4 |
| 177.5° | 1636.2 | 1632.4 | 1629.4 | 1637.7 | 1629.4 |
| 180°   | 1633.8 | 1633.8 | 1633.8 | 1633.8 | 1633.8 |

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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 | 12.00            | 12.96 | 12.87 | 13.85 | 14.97 | 11.56          | 12.52 | 12.42 | 13.40 | 14.53 |
|                 | 3H   | 13.67            | 14.52 | 14.54 | 15.42 | 16.57 | 13.17          | 14.03 | 14.05 | 14.93 | 16.08 |
|                 | 4H   | 14.25            | 15.07 | 15.15 | 15.97 | 17.13 | 13.76          | 14.57 | 14.66 | 15.48 | 16.64 |
|                 | 6H   | 14.66            | 15.40 | 15.56 | 16.32 | 17.49 | 14.16          | 14.90 | 15.06 | 15.82 | 16.99 |
|                 | 8H   | 14.76            | 15.48 | 15.68 | 16.40 | 17.57 | 14.26          | 14.97 | 15.17 | 15.90 | 17.07 |
|                 | 12H  | 14.81            | 15.49 | 15.73 | 16.41 | 17.61 | 14.30          | 14.98 | 15.22 | 15.90 | 17.10 |
| 4H              | 2H   | 12.47            | 13.28 | 13.37 | 14.19 | 15.35 | 12.12          | 12.93 | 13.02 | 13.83 | 14.99 |
|                 | 3H   | 14.34            | 15.02 | 15.25 | 15.95 | 17.13 | 13.93          | 14.61 | 14.84 | 15.55 | 16.72 |
|                 | 4H   | 15.05            | 15.67 | 15.98 | 16.60 | 17.80 | 14.63          | 15.25 | 15.55 | 16.18 | 17.38 |
|                 | 6H   | 15.57            | 16.11 | 16.51 | 17.06 | 18.26 | 15.14          | 15.67 | 16.07 | 16.63 | 17.83 |
|                 | 8H   | 15.72            | 16.22 | 16.66 | 17.17 | 18.38 | 15.28          | 15.78 | 16.22 | 16.73 | 17.94 |
|                 | 12H  | 15.80            | 16.25 | 16.75 | 17.21 | 18.43 | 15.35          | 15.80 | 16.30 | 16.76 | 17.98 |
| 8H              | 4H   | 15.25            | 15.75 | 16.19 | 16.70 | 17.92 | 14.88          | 15.38 | 15.82 | 16.33 | 17.54 |
|                 | 6H   | 15.88            | 16.30 | 16.85 | 17.29 | 18.50 | 15.50          | 15.91 | 16.46 | 16.90 | 18.12 |
|                 | 8H   | 16.10            | 16.47 | 17.08 | 17.45 | 18.68 | 15.71          | 16.07 | 16.68 | 17.05 | 18.28 |
|                 | 12H  | 16.23            | 16.56 | 17.21 | 17.53 | 18.81 | 15.82          | 16.15 | 16.80 | 17.12 | 18.40 |
| 12H             | 4H   | 15.24            | 15.69 | 16.20 | 16.66 | 17.88 | 14.88          | 15.33 | 15.83 | 16.29 | 17.51 |
|                 | 6H   | 15.91            | 16.28 | 16.89 | 17.26 | 18.49 | 15.54          | 15.91 | 16.51 | 16.89 | 18.12 |
|                 | 8H   | 16.16            | 16.48 | 17.13 | 17.45 | 18.73 | 15.77          | 16.10 | 16.75 | 17.07 | 18.35 |