

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: P925604

Luminaire Tested: DFN2DIP-SQ3F0-080D100US950-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P925604  
REPORT IS A COMBINATION OF REPORTS P899977 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-080D100US950-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

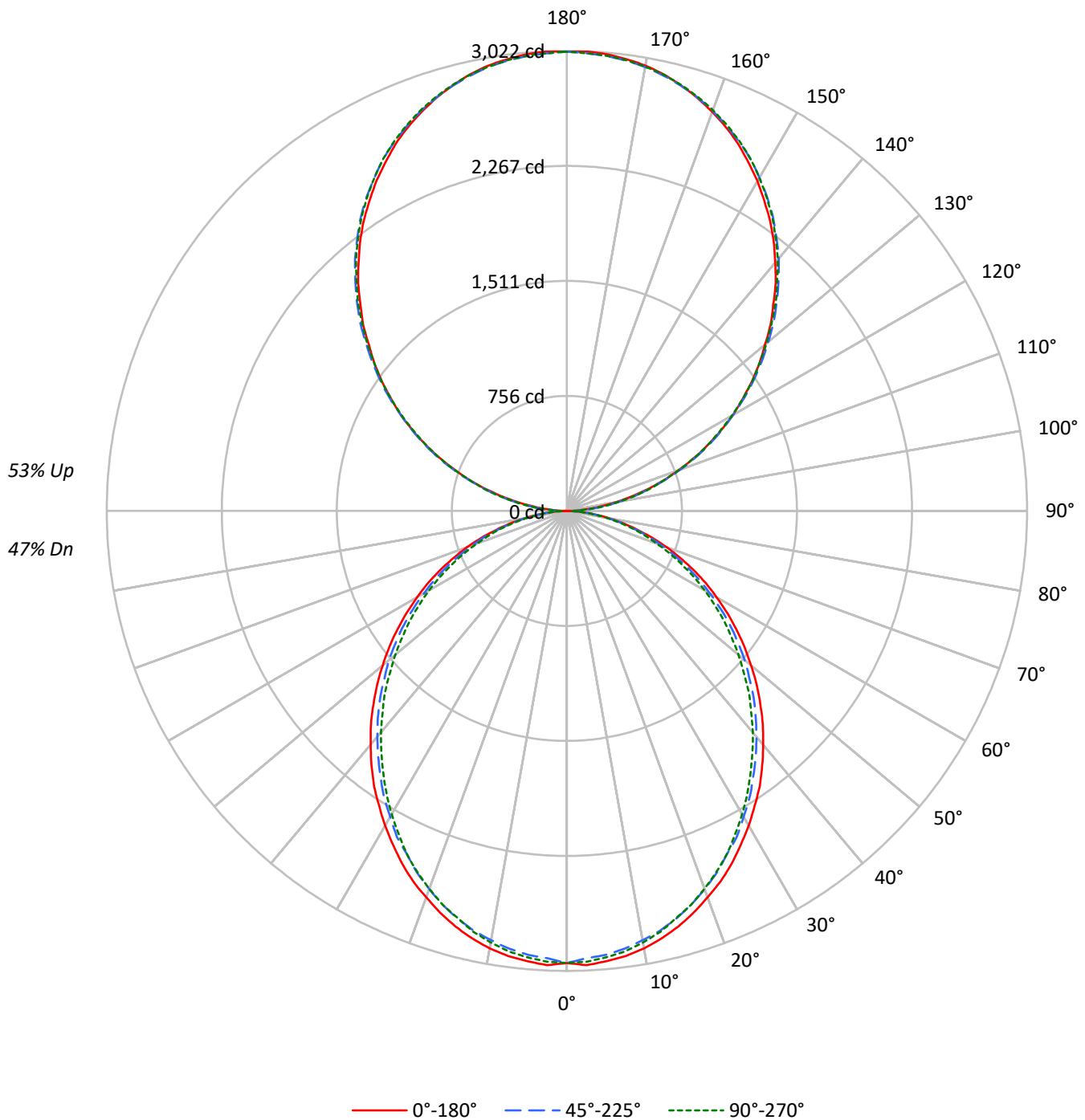
Lumens per Lamp: N/A  
Luminaire Lumens: 15998.6 lumens  
Efficiency: N/A  
Efficacy: 104.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 153.7  
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-SQ3F0-080D100US950-FLLFLL

### Luminous Intensity Polar Plot



TEST NUMBER: P925604

CATALOG NUMBER: DFN2DIP-SQ3F0-080D100US950-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   | 106 | 106 | 106 | 106 | 98 | 98 | 98 | 98 | 82 | 82 | 82 | 67 | 67 | 67 | 54 | 54 | 54 |
| 1   | 97  | 93  | 89  | 85  | 89 | 85 | 82 | 79 | 72 | 69 | 67 | 59 | 57 | 56 | 47 | 46 | 45 |
| 2   | 88  | 81  | 75  | 70  | 81 | 75 | 69 | 65 | 63 | 59 | 56 | 52 | 49 | 47 | 42 | 40 | 38 |
| 3   | 81  | 71  | 64  | 58  | 74 | 66 | 59 | 54 | 55 | 51 | 47 | 46 | 42 | 39 | 37 | 35 | 32 |
| 4   | 74  | 63  | 55  | 49  | 68 | 58 | 51 | 46 | 49 | 44 | 40 | 41 | 37 | 34 | 33 | 30 | 28 |
| 5   | 68  | 56  | 48  | 42  | 62 | 52 | 45 | 39 | 44 | 39 | 34 | 37 | 33 | 29 | 30 | 27 | 24 |
| 6   | 62  | 50  | 42  | 37  | 57 | 47 | 40 | 34 | 40 | 34 | 30 | 33 | 29 | 26 | 27 | 24 | 21 |
| 7   | 58  | 45  | 38  | 32  | 53 | 42 | 35 | 30 | 36 | 30 | 26 | 30 | 26 | 23 | 25 | 21 | 19 |
| 8   | 54  | 41  | 34  | 28  | 49 | 38 | 31 | 27 | 33 | 27 | 23 | 28 | 23 | 20 | 23 | 19 | 17 |
| 9   | 50  | 38  | 30  | 25  | 46 | 35 | 28 | 24 | 30 | 25 | 21 | 25 | 21 | 18 | 21 | 18 | 15 |
| 10  | 47  | 35  | 27  | 23  | 43 | 32 | 26 | 21 | 28 | 22 | 19 | 23 | 19 | 16 | 19 | 16 | 14 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3403 | 3403 | 3403 |
| 5°  | 3406 | 3353 | 3377 |
| 10° | 3376 | 3306 | 3330 |
| 15° | 3324 | 3249 | 3257 |
| 20° | 3255 | 3171 | 3183 |
| 25° | 3186 | 3078 | 3098 |
| 30° | 3100 | 2992 | 2989 |
| 35° | 3019 | 2890 | 2874 |
| 40° | 2919 | 2788 | 2765 |
| 45° | 2819 | 2685 | 2653 |
| 50° | 2709 | 2576 | 2523 |
| 55° | 2595 | 2451 | 2404 |
| 60° | 2465 | 2303 | 2267 |
| 65° | 2323 | 2149 | 2106 |
| 70° | 2142 | 1961 | 1932 |
| 75° | 1893 | 1736 | 1770 |
| 80° | 1591 | 1448 | 1462 |
| 85° | 1120 | 960  | 958  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3034 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 279.5   | 1.7       |
| 10°-20°   | 786.4   | 4.9       |
| 20°-30°   | 1155.7  | 7.2       |
| 30°-40°   | 1342.3  | 8.4       |
| 40°-50°   | 1340.6  | 8.4       |
| 50°-60°   | 1169.0  | 7.3       |
| 60°-70°   | 864.1   | 5.4       |
| 70°-80°   | 488.9   | 3.1       |
| 80°-90°   | 137.6   | 0.9       |
| 90°-100°  | 186.7   | 1.2       |
| 100°-110° | 593.2   | 3.7       |
| 110°-120° | 1015.2  | 6.3       |
| 120°-130° | 1335.1  | 8.3       |
| 130°-140° | 1498.6  | 9.4       |
| 140°-150° | 1469.5  | 9.2       |
| 150°-160° | 1232.7  | 7.7       |
| 160°-170° | 817.5   | 5.1       |
| 170°-180° | 285.7   | 1.8       |
| 0°-30°    | 2221.6  | 13.9      |
| 0°-40°    | 3563.9  | 22.3      |
| 0°-60°    | 6073.6  | 38.0      |
| 0°-90°    | 7564.3  | 47.3      |
| 90°-120°  | 1795.1  | 11.2      |
| 90°-150°  | 6098.3  | 38.1      |
| 90°-180°  | 8434.0  | 52.7      |
| 0°-180°   | 15998.6 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2970 | 2970  | 2970 | 2970  | 2970 |      |
| 5°   | 2970 | 2958  | 2927 | 2950  | 2944 | 282  |
| 15°  | 2827 | 2810  | 2773 | 2784  | 2770 | 796  |
| 25°  | 2558 | 2536  | 2487 | 2493  | 2487 | 1177 |
| 35°  | 2207 | 2179  | 2133 | 2116  | 2102 | 1378 |
| 45°  | 1796 | 1776  | 1733 | 1702  | 1691 | 1386 |
| 55°  | 1359 | 1342  | 1308 | 1274  | 1259 | 1215 |
| 65°  | 917  | 900   | 871  | 845   | 831  | 906  |
| 75°  | 480  | 474   | 460  | 443   | 448  | 512  |
| 85°  | 117  | 114   | 112  | 103   | 100  | 130  |
| 90°  | 3    | 33    | 89   | 84    | 86   | 16   |
| 95°  | 133  | 158   | 163  | 163   | 158  | 148  |
| 105° | 548  | 555   | 560  | 565   | 565  | 578  |
| 115° | 1019 | 1033  | 1029 | 1026  | 1019 | 1008 |
| 125° | 1482 | 1504  | 1497 | 1489  | 1486 | 1324 |
| 135° | 1916 | 1945  | 1950 | 1948  | 1940 | 1481 |
| 145° | 2327 | 2345  | 2360 | 2362  | 2352 | 1454 |
| 155° | 2661 | 2668  | 2676 | 2689  | 2680 | 1225 |
| 165° | 2894 | 2892  | 2892 | 2910  | 2897 | 817  |
| 175° | 3012 | 3004  | 2999 | 3017  | 3002 | 286  |
| 180° | 3017 | 3017  | 3017 | 3017  | 3017 |      |

TEST NUMBER: P925604

CATALOG NUMBER: DFN2DIP-SQ3F0-080D100US950-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2969.6 | 2969.6 | 2969.6 | 2969.6 | 2969.6 |
| 2.5°   | 2986.9 | 2972.7 | 2941.2 | 2969.6 | 2964.2 |
| 5°     | 2969.6 | 2958.4 | 2927.0 | 2949.7 | 2944.2 |
| 7.5°   | 2949.7 | 2932.7 | 2901.2 | 2924.2 | 2918.5 |
| 10°    | 2918.5 | 2898.4 | 2864.2 | 2886.9 | 2878.5 |
| 12.5°  | 2875.5 | 2858.5 | 2824.2 | 2838.4 | 2832.7 |
| 15°    | 2827.0 | 2810.0 | 2772.7 | 2784.2 | 2770.0 |
| 17.5°  | 2767.0 | 2750.0 | 2712.7 | 2727.0 | 2712.7 |
| 20°    | 2701.3 | 2684.3 | 2644.3 | 2652.8 | 2641.5 |
| 22.5°  | 2635.8 | 2610.0 | 2572.7 | 2572.7 | 2567.0 |
| 25°    | 2558.5 | 2535.8 | 2487.4 | 2492.8 | 2487.4 |
| 27.5°  | 2472.8 | 2452.8 | 2415.8 | 2407.3 | 2393.1 |
| 30°    | 2387.4 | 2364.3 | 2321.7 | 2313.2 | 2301.6 |
| 32.5°  | 2295.9 | 2278.9 | 2233.1 | 2215.9 | 2204.4 |
| 35°    | 2207.4 | 2178.9 | 2133.1 | 2115.9 | 2101.7 |
| 37.5°  | 2107.4 | 2081.6 | 2035.9 | 2015.9 | 2001.7 |
| 40°    | 2004.7 | 1981.6 | 1936.0 | 1910.5 | 1898.9 |
| 42.5°  | 1904.8 | 1881.7 | 1836.3 | 1807.4 | 1790.6 |
| 45°    | 1796.3 | 1776.3 | 1733.2 | 1702.0 | 1690.6 |
| 47.5°  | 1690.6 | 1670.5 | 1624.8 | 1593.3 | 1576.3 |
| 50°    | 1579.1 | 1564.8 | 1524.8 | 1484.8 | 1470.6 |
| 52.5°  | 1470.6 | 1450.6 | 1413.6 | 1382.2 | 1362.1 |
| 55°    | 1359.4 | 1342.1 | 1307.9 | 1273.7 | 1259.4 |
| 57.5°  | 1247.9 | 1233.7 | 1196.4 | 1162.2 | 1150.6 |
| 60°    | 1136.4 | 1125.2 | 1085.2 | 1053.7 | 1045.2 |
| 62.5°  | 1027.9 | 1008.0 | 979.5  | 951.0  | 939.5  |
| 65°    | 916.8  | 899.5  | 871.0  | 845.2  | 831.0  |
| 67.5°  | 802.5  | 788.0  | 762.5  | 742.6  | 731.1  |
| 70°    | 696.8  | 685.3  | 659.6  | 639.6  | 628.3  |
| 72.5°  | 588.3  | 576.9  | 562.6  | 542.6  | 534.1  |
| 75°    | 479.6  | 474.1  | 459.6  | 442.7  | 448.4  |
| 77.5°  | 382.6  | 371.1  | 365.4  | 356.9  | 348.4  |
| 80°    | 285.7  | 282.7  | 276.9  | 268.5  | 262.6  |
| 82.5°  | 194.2  | 194.2  | 191.5  | 179.9  | 179.9  |
| 85°    | 117.0  | 114.2  | 111.5  | 102.7  | 100.0  |
| 87.5°  | 51.5   | 45.8   | 40.0   | 31.5   | 28.5   |
| 90°    | 2.8    | 32.7   | 89.1   | 83.7   | 86.4   |
| 92.5°  | 56.4   | 76.4   | 79.2   | 81.9   | 81.9   |
| 95°    | 132.8  | 158.3  | 162.8  | 162.8  | 158.3  |
| 97.5°  | 221.0  | 244.7  | 254.7  | 254.7  | 254.7  |
| 100°   | 322.9  | 343.8  | 351.1  | 351.1  | 348.4  |
| 102.5° | 430.3  | 445.7  | 455.7  | 458.4  | 455.7  |
| 105°   | 547.6  | 554.8  | 560.3  | 564.9  | 564.9  |
| 107.5° | 664.0  | 675.0  | 675.0  | 676.8  | 664.0  |
| 110°   | 776.8  | 791.3  | 791.3  | 791.3  | 784.1  |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 898.7  | 914.1  | 911.5  | 904.1  | 898.7  |
| 115°   | 1018.8 | 1033.3 | 1028.8 | 1026.0 | 1018.8 |
| 117.5° | 1137.9 | 1158.0 | 1145.2 | 1137.9 | 1130.6 |
| 120°   | 1257.9 | 1278.0 | 1257.9 | 1257.9 | 1249.8 |
| 122.5° | 1367.1 | 1392.6 | 1379.9 | 1372.6 | 1367.1 |
| 125°   | 1481.8 | 1504.5 | 1497.2 | 1489.0 | 1486.3 |
| 127.5° | 1593.7 | 1621.8 | 1611.8 | 1600.9 | 1593.7 |
| 130°   | 1698.2 | 1730.9 | 1726.5 | 1720.9 | 1711.0 |
| 132.5° | 1815.6 | 1841.0 | 1842.8 | 1830.2 | 1822.8 |
| 135°   | 1916.5 | 1944.7 | 1950.2 | 1947.5 | 1940.1 |
| 137.5° | 2029.3 | 2052.1 | 2056.6 | 2054.8 | 2043.8 |
| 140°   | 2128.5 | 2151.2 | 2164.0 | 2164.0 | 2153.9 |
| 142.5° | 2230.4 | 2253.1 | 2260.3 | 2263.1 | 2253.1 |
| 145°   | 2326.7 | 2344.9 | 2359.5 | 2362.2 | 2352.2 |
| 147.5° | 2413.1 | 2435.9 | 2446.8 | 2451.4 | 2441.4 |
| 150°   | 2502.3 | 2517.8 | 2527.8 | 2535.9 | 2527.8 |
| 152.5° | 2581.4 | 2596.9 | 2609.7 | 2619.7 | 2609.7 |
| 155°   | 2660.6 | 2667.9 | 2676.1 | 2688.8 | 2680.5 |
| 157.5° | 2728.8 | 2734.3 | 2738.8 | 2757.0 | 2744.3 |
| 160°   | 2789.8 | 2795.2 | 2797.9 | 2813.3 | 2802.5 |
| 162.5° | 2846.2 | 2846.2 | 2848.8 | 2866.1 | 2853.4 |
| 165°   | 2894.3 | 2891.6 | 2891.6 | 2909.8 | 2897.1 |
| 167.5° | 2938.0 | 2929.8 | 2929.8 | 2948.1 | 2935.3 |
| 170°   | 2970.8 | 2963.5 | 2960.7 | 2979.0 | 2963.5 |
| 172.5° | 2993.5 | 2986.2 | 2983.4 | 3001.7 | 2986.2 |
| 175°   | 3011.7 | 3004.4 | 2999.0 | 3017.1 | 3001.7 |
| 177.5° | 3021.7 | 3014.4 | 3008.9 | 3024.4 | 3008.9 |
| 180°   | 3017.1 | 3017.1 | 3017.1 | 3017.1 | 3017.1 |

TEST NUMBER: P925604

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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 | 11.23            | 12.07 | 12.21 | 13.06 | 14.37 | 10.79          | 11.63 | 11.77 | 12.62 | 13.93 |
|                 | 3H   | 12.89            | 13.64 | 13.88 | 14.64 | 15.97 | 12.40          | 13.15 | 13.39 | 14.15 | 15.48 |
|                 | 4H   | 13.47            | 14.18 | 14.48 | 15.19 | 16.53 | 12.98          | 13.69 | 13.98 | 14.69 | 16.03 |
|                 | 6H   | 13.87            | 14.52 | 14.88 | 15.53 | 16.88 | 13.37          | 14.02 | 14.38 | 15.03 | 16.38 |
|                 | 8H   | 13.97            | 14.59 | 14.99 | 15.62 | 16.97 | 13.47          | 14.09 | 14.49 | 15.12 | 16.47 |
|                 | 12H  | 14.01            | 14.61 | 15.04 | 15.63 | 17.00 | 13.51          | 14.10 | 14.53 | 15.12 | 16.49 |
| 4H              | 2H   | 11.69            | 12.40 | 12.70 | 13.41 | 14.74 | 11.33          | 12.04 | 12.34 | 13.05 | 14.39 |
|                 | 3H   | 13.55            | 14.14 | 14.57 | 15.17 | 16.53 | 13.14          | 13.73 | 14.16 | 14.77 | 16.12 |
|                 | 4H   | 14.26            | 14.80 | 15.28 | 15.83 | 17.20 | 13.83          | 14.38 | 14.86 | 15.40 | 16.78 |
|                 | 6H   | 14.76            | 15.23 | 15.80 | 16.28 | 17.65 | 14.33          | 14.80 | 15.37 | 15.85 | 17.22 |
|                 | 8H   | 14.91            | 15.35 | 15.95 | 16.39 | 17.78 | 14.47          | 14.91 | 15.51 | 15.95 | 17.34 |
|                 | 12H  | 14.98            | 15.38 | 16.04 | 16.43 | 17.83 | 14.53          | 14.93 | 15.59 | 15.98 | 17.38 |
| 8H              | 4H   | 14.45            | 14.88 | 15.48 | 15.93 | 17.31 | 14.07          | 14.51 | 15.11 | 15.55 | 16.94 |
|                 | 6H   | 15.07            | 15.43 | 16.13 | 16.52 | 17.90 | 14.69          | 15.05 | 15.75 | 16.13 | 17.52 |
|                 | 8H   | 15.29            | 15.61 | 16.36 | 16.67 | 18.08 | 14.89          | 15.21 | 15.96 | 16.28 | 17.68 |
|                 | 12H  | 15.41            | 15.69 | 16.49 | 16.76 | 18.20 | 15.00          | 15.28 | 16.08 | 16.35 | 17.79 |
| 12H             | 4H   | 14.43            | 14.82 | 15.49 | 15.88 | 17.27 | 14.06          | 14.46 | 15.12 | 15.51 | 16.91 |
|                 | 6H   | 15.10            | 15.42 | 16.17 | 16.49 | 17.89 | 14.73          | 15.04 | 15.80 | 16.11 | 17.52 |
|                 | 8H   | 15.34            | 15.61 | 16.41 | 16.68 | 18.12 | 14.95          | 15.23 | 16.03 | 16.30 | 17.74 |