

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: P906508

Luminaire Tested: DFN2DIP-SQ3F0-080D100US835-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P906508  
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-SQ3F0-080D100US835-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

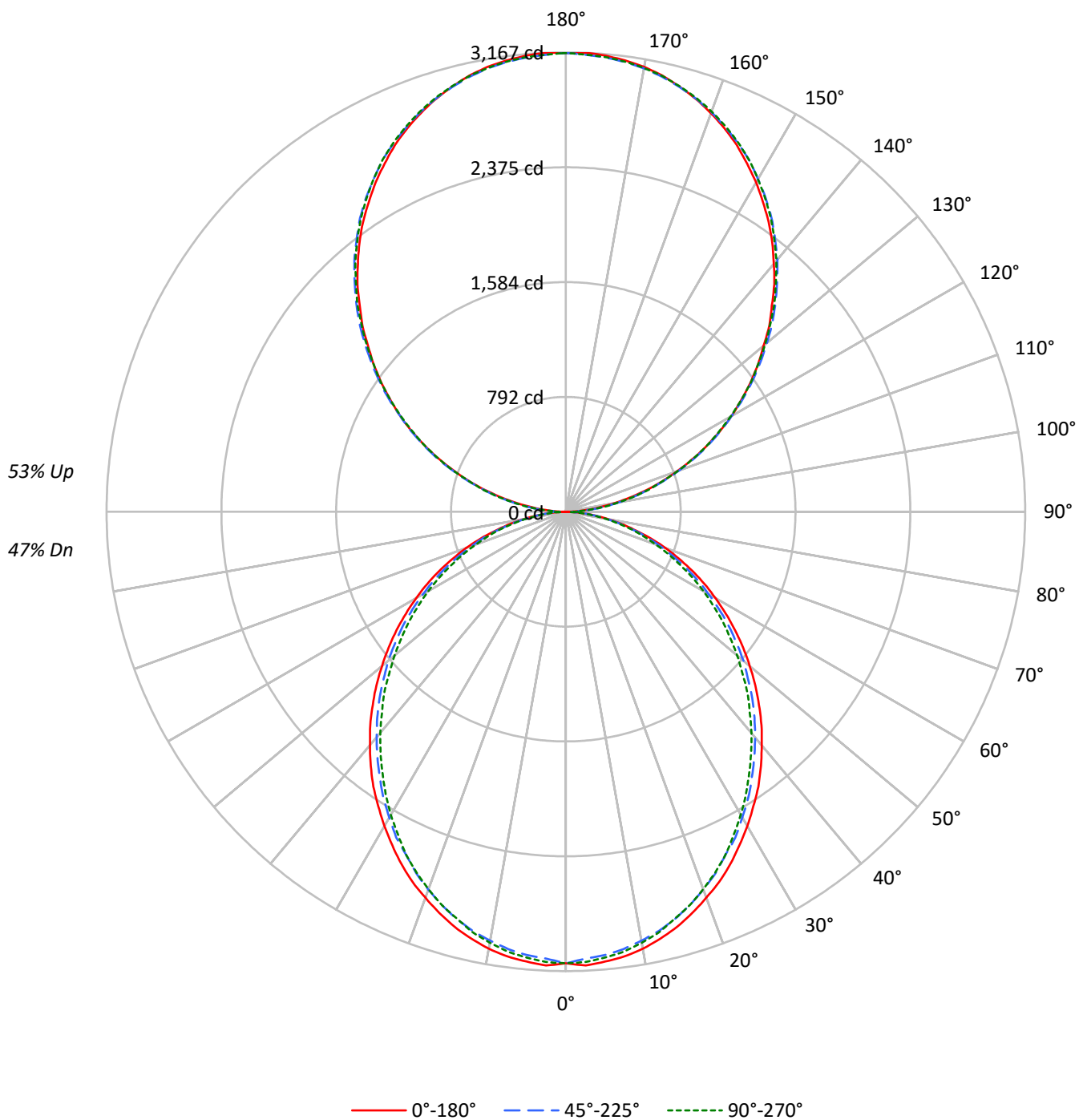
Lumens per Lamp: N/A  
Luminaire Lumens: 16770.0 lumens  
Efficiency: N/A  
Efficacy: 109.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse

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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### Luminous Intensity Polar Plot



TEST NUMBER: P906508

CATALOG NUMBER: DFN2DIP-SQ3F0-080D100US835-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°  | 3567 | 3567 | 3567 |
| 5°  | 3570 | 3515 | 3540 |
| 10° | 3539 | 3465 | 3490 |
| 15° | 3485 | 3406 | 3414 |
| 20° | 3412 | 3324 | 3337 |
| 25° | 3340 | 3227 | 3247 |
| 30° | 3250 | 3136 | 3133 |
| 35° | 3164 | 3030 | 3013 |
| 40° | 3059 | 2922 | 2898 |
| 45° | 2955 | 2814 | 2781 |
| 50° | 2840 | 2701 | 2645 |
| 55° | 2720 | 2569 | 2520 |
| 60° | 2584 | 2414 | 2376 |
| 65° | 2435 | 2252 | 2207 |
| 70° | 2246 | 2056 | 2025 |
| 75° | 1984 | 1820 | 1855 |
| 80° | 1668 | 1518 | 1533 |
| 85° | 1174 | 1006 | 1004 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3182 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 293.0   | 1.7       |
| 10°-20°   | 824.3   | 4.9       |
| 20°-30°   | 1211.5  | 7.2       |
| 30°-40°   | 1407.0  | 8.4       |
| 40°-50°   | 1405.3  | 8.4       |
| 50°-60°   | 1225.4  | 7.3       |
| 60°-70°   | 905.8   | 5.4       |
| 70°-80°   | 512.5   | 3.1       |
| 80°-90°   | 144.3   | 0.9       |
| 90°-100°  | 195.7   | 1.2       |
| 100°-110° | 621.8   | 3.7       |
| 110°-120° | 1064.1  | 6.3       |
| 120°-130° | 1399.5  | 8.3       |
| 130°-140° | 1570.9  | 9.4       |
| 140°-150° | 1540.4  | 9.2       |
| 150°-160° | 1292.2  | 7.7       |
| 160°-170° | 856.9   | 5.1       |
| 170°-180° | 299.5   | 1.8       |
| 0°-30°    | 2328.8  | 13.9      |
| 0°-40°    | 3735.8  | 22.3      |
| 0°-60°    | 6366.4  | 38.0      |
| 0°-90°    | 7929.0  | 47.3      |
| 90°-120°  | 1881.6  | 11.2      |
| 90°-150°  | 6392.4  | 38.1      |
| 90°-180°  | 8841.0  | 52.7      |
| 0°-180°   | 16770.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 3113 | 3113  | 3113 | 3113  | 3113 |      |
| 5°   | 3113 | 3101  | 3068 | 3092  | 3086 | 295  |
| 15°  | 2963 | 2946  | 2906 | 2918  | 2904 | 835  |
| 25°  | 2682 | 2658  | 2607 | 2613  | 2607 | 1234 |
| 35°  | 2314 | 2284  | 2236 | 2218  | 2203 | 1445 |
| 45°  | 1883 | 1862  | 1817 | 1784  | 1772 | 1453 |
| 55°  | 1425 | 1407  | 1371 | 1335  | 1320 | 1274 |
| 65°  | 961  | 943   | 913  | 886   | 871  | 950  |
| 75°  | 503  | 497   | 482  | 464   | 470  | 537  |
| 85°  | 123  | 120   | 117  | 108   | 105  | 137  |
| 90°  | 3    | 34    | 93   | 88    | 91   | 16   |
| 95°  | 139  | 166   | 171  | 171   | 166  | 155  |
| 105° | 574  | 582   | 587  | 592   | 592  | 606  |
| 115° | 1068 | 1083  | 1078 | 1076  | 1068 | 1056 |
| 125° | 1553 | 1577  | 1569 | 1561  | 1558 | 1388 |
| 135° | 2009 | 2038  | 2044 | 2041  | 2034 | 1553 |
| 145° | 2439 | 2458  | 2473 | 2476  | 2466 | 1524 |
| 155° | 2789 | 2796  | 2805 | 2818  | 2810 | 1284 |
| 165° | 3034 | 3031  | 3031 | 3050  | 3037 | 856  |
| 175° | 3157 | 3149  | 3144 | 3163  | 3146 | 300  |
| 180° | 3163 | 3163  | 3163 | 3163  | 3163 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 3112.8 | 3112.8 | 3112.8 | 3112.8 | 3112.8 |
| 2.5°   | 3130.9 | 3116.0 | 3083.0 | 3112.8 | 3107.1 |
| 5°     | 3112.8 | 3101.1 | 3068.1 | 3091.9 | 3086.2 |
| 7.5°   | 3091.9 | 3074.1 | 3041.1 | 3065.2 | 3059.2 |
| 10°    | 3059.2 | 3038.2 | 3002.3 | 3026.1 | 3017.3 |
| 12.5°  | 3014.1 | 2996.3 | 2960.4 | 2975.3 | 2969.3 |
| 15°    | 2963.3 | 2945.5 | 2906.4 | 2918.5 | 2903.6 |
| 17.5°  | 2900.4 | 2882.6 | 2843.5 | 2858.5 | 2843.5 |
| 20°    | 2831.5 | 2813.7 | 2771.8 | 2780.7 | 2768.9 |
| 22.5°  | 2762.9 | 2735.9 | 2696.8 | 2696.8 | 2690.8 |
| 25°    | 2681.9 | 2658.1 | 2607.3 | 2613.0 | 2607.3 |
| 27.5°  | 2592.0 | 2571.1 | 2532.3 | 2523.4 | 2508.5 |
| 30°    | 2502.5 | 2478.3 | 2433.6 | 2424.7 | 2412.6 |
| 32.5°  | 2406.6 | 2388.8 | 2340.8 | 2322.7 | 2310.7 |
| 35°    | 2313.8 | 2284.0 | 2236.0 | 2217.9 | 2203.0 |
| 37.5°  | 2209.0 | 2182.0 | 2134.1 | 2113.1 | 2098.2 |
| 40°    | 2101.4 | 2077.2 | 2029.3 | 2002.6 | 1990.5 |
| 42.5°  | 1996.6 | 1972.4 | 1924.8 | 1894.6 | 1876.9 |
| 45°    | 1882.9 | 1861.9 | 1816.8 | 1784.1 | 1772.1 |
| 47.5°  | 1772.1 | 1751.1 | 1703.1 | 1670.1 | 1652.3 |
| 50°    | 1655.2 | 1640.3 | 1598.3 | 1556.4 | 1541.5 |
| 52.5°  | 1541.5 | 1520.5 | 1481.8 | 1448.8 | 1427.8 |
| 55°    | 1424.9 | 1406.8 | 1371.0 | 1335.1 | 1320.1 |
| 57.5°  | 1308.1 | 1293.2 | 1254.1 | 1218.2 | 1206.1 |
| 60°    | 1191.2 | 1179.5 | 1137.5 | 1104.5 | 1095.6 |
| 62.5°  | 1077.5 | 1056.6 | 1026.7 | 996.9  | 984.8  |
| 65°    | 961.0  | 942.9  | 913.0  | 886.0  | 871.1  |
| 67.5°  | 841.2  | 826.0  | 799.3  | 778.4  | 766.3  |
| 70°    | 730.4  | 718.3  | 691.4  | 670.4  | 658.6  |
| 72.5°  | 616.7  | 604.7  | 589.7  | 568.8  | 559.9  |
| 75°    | 502.7  | 497.0  | 481.8  | 464.0  | 470.0  |
| 77.5°  | 401.1  | 389.0  | 383.0  | 374.1  | 365.2  |
| 80°    | 299.5  | 296.3  | 290.3  | 281.4  | 275.3  |
| 82.5°  | 203.6  | 203.6  | 200.7  | 188.6  | 188.6  |
| 85°    | 122.6  | 119.7  | 116.9  | 107.7  | 104.8  |
| 87.5°  | 54.0   | 48.0   | 41.9   | 33.0   | 29.9   |
| 90°    | 2.9    | 34.3   | 93.4   | 87.7   | 90.6   |
| 92.5°  | 59.1   | 80.1   | 83.0   | 85.8   | 85.8   |
| 95°    | 139.2  | 165.9  | 170.7  | 170.7  | 165.9  |
| 97.5°  | 231.7  | 256.5  | 267.0  | 267.0  | 267.0  |
| 100°   | 338.5  | 360.4  | 368.0  | 368.0  | 365.2  |
| 102.5° | 451.0  | 467.2  | 477.7  | 480.5  | 477.7  |
| 105°   | 574.0  | 581.6  | 587.3  | 592.1  | 592.1  |
| 107.5° | 696.0  | 707.5  | 707.5  | 709.4  | 696.0  |
| 110°   | 814.3  | 829.5  | 829.5  | 829.5  | 821.9  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 942.0  | 958.2  | 955.4  | 947.7  | 942.0  |
| 115°   | 1067.9 | 1083.1 | 1078.4 | 1075.5 | 1067.9 |
| 117.5° | 1192.8 | 1213.8 | 1200.4 | 1192.8 | 1185.1 |
| 120°   | 1318.6 | 1339.6 | 1318.6 | 1318.6 | 1310.1 |
| 122.5° | 1433.0 | 1459.7 | 1446.4 | 1438.8 | 1433.0 |
| 125°   | 1553.2 | 1577.0 | 1569.4 | 1560.8 | 1558.0 |
| 127.5° | 1670.5 | 1700.0 | 1689.5 | 1678.1 | 1670.5 |
| 130°   | 1780.1 | 1814.4 | 1809.7 | 1803.9 | 1793.5 |
| 132.5° | 1903.1 | 1929.8 | 1931.7 | 1918.4 | 1910.7 |
| 135°   | 2008.9 | 2038.5 | 2044.2 | 2041.4 | 2033.7 |
| 137.5° | 2127.2 | 2151.0 | 2155.8 | 2153.9 | 2142.4 |
| 140°   | 2231.1 | 2254.9 | 2268.3 | 2268.3 | 2257.8 |
| 142.5° | 2337.9 | 2361.7 | 2369.3 | 2372.2 | 2361.7 |
| 145°   | 2438.9 | 2458.0 | 2473.3 | 2476.1 | 2465.6 |
| 147.5° | 2529.5 | 2553.4 | 2564.8 | 2569.6 | 2559.1 |
| 150°   | 2623.0 | 2639.2 | 2649.7 | 2658.2 | 2649.7 |
| 152.5° | 2705.9 | 2722.1 | 2735.5 | 2746.0 | 2735.5 |
| 155°   | 2788.9 | 2796.5 | 2805.1 | 2818.4 | 2809.8 |
| 157.5° | 2860.4 | 2866.1 | 2870.9 | 2889.9 | 2876.6 |
| 160°   | 2924.3 | 2930.0 | 2932.8 | 2949.0 | 2937.6 |
| 162.5° | 2983.4 | 2983.4 | 2986.2 | 3004.3 | 2991.0 |
| 165°   | 3033.9 | 3031.0 | 3031.0 | 3050.1 | 3036.8 |
| 167.5° | 3079.7 | 3071.1 | 3071.1 | 3090.2 | 3076.8 |
| 170°   | 3114.0 | 3106.4 | 3103.5 | 3122.6 | 3106.4 |
| 172.5° | 3137.8 | 3130.2 | 3127.3 | 3146.4 | 3130.2 |
| 175°   | 3156.9 | 3149.3 | 3143.6 | 3162.6 | 3146.4 |
| 177.5° | 3167.4 | 3159.8 | 3154.0 | 3170.2 | 3154.0 |
| 180°   | 3162.6 | 3162.6 | 3162.6 | 3162.6 | 3162.6 |

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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 | 11.40            | 12.23 | 12.38 | 13.23 | 14.54 | 10.95          | 11.79 | 11.93 | 12.78 | 14.09 |
|                 | 3H   | 13.05            | 13.80 | 14.04 | 14.80 | 16.14 | 12.56          | 13.31 | 13.55 | 14.31 | 15.65 |
|                 | 4H   | 13.63            | 14.35 | 14.64 | 15.35 | 16.69 | 13.14          | 13.85 | 14.14 | 14.86 | 16.20 |
|                 | 6H   | 14.03            | 14.69 | 15.04 | 15.70 | 17.05 | 13.53          | 14.18 | 14.54 | 15.20 | 16.55 |
|                 | 8H   | 14.13            | 14.76 | 15.15 | 15.78 | 17.13 | 13.63          | 14.25 | 14.65 | 15.28 | 16.63 |
|                 | 12H  | 14.18            | 14.77 | 15.20 | 15.79 | 17.16 | 13.67          | 14.26 | 14.69 | 15.28 | 16.65 |
| 4H              | 2H   | 11.85            | 12.56 | 12.86 | 13.57 | 14.91 | 11.50          | 12.21 | 12.51 | 13.21 | 14.55 |
|                 | 3H   | 13.71            | 14.30 | 14.73 | 15.34 | 16.69 | 13.30          | 13.90 | 14.32 | 14.93 | 16.28 |
|                 | 4H   | 14.42            | 14.96 | 15.45 | 15.99 | 17.36 | 14.00          | 14.54 | 15.02 | 15.57 | 16.94 |
|                 | 6H   | 14.93            | 15.40 | 15.97 | 16.45 | 17.82 | 14.50          | 14.96 | 15.53 | 16.01 | 17.39 |
|                 | 8H   | 15.08            | 15.51 | 16.11 | 16.56 | 17.94 | 14.64          | 15.07 | 15.68 | 16.12 | 17.50 |
|                 | 12H  | 15.15            | 15.54 | 16.20 | 16.60 | 17.99 | 14.70          | 15.09 | 15.75 | 16.15 | 17.54 |
| 8H              | 4H   | 14.61            | 15.05 | 15.65 | 16.09 | 17.48 | 14.23          | 14.67 | 15.27 | 15.71 | 17.10 |
|                 | 6H   | 15.23            | 15.60 | 16.30 | 16.68 | 18.06 | 14.85          | 15.21 | 15.91 | 16.30 | 17.68 |
|                 | 8H   | 15.45            | 15.77 | 16.52 | 16.84 | 18.24 | 15.06          | 15.38 | 16.13 | 16.44 | 17.85 |
|                 | 12H  | 15.58            | 15.86 | 16.65 | 16.92 | 18.37 | 15.17          | 15.45 | 16.24 | 16.51 | 17.96 |
| 12H             | 4H   | 14.59            | 14.99 | 15.65 | 16.05 | 17.44 | 14.22          | 14.62 | 15.28 | 15.68 | 17.07 |
|                 | 6H   | 15.26            | 15.58 | 16.33 | 16.65 | 18.05 | 14.89          | 15.21 | 15.96 | 16.28 | 17.68 |
|                 | 8H   | 15.50            | 15.78 | 16.57 | 16.84 | 18.29 | 15.12          | 15.40 | 16.19 | 16.46 | 17.91 |

END OF REPORT