

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: P914803

Luminaire Tested: DFN2DIP-SQ3F0-110D100US927-RLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P914803  
REPORT IS A COMBINATION OF REPORTS P901504 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-110D100US927-RLLONL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

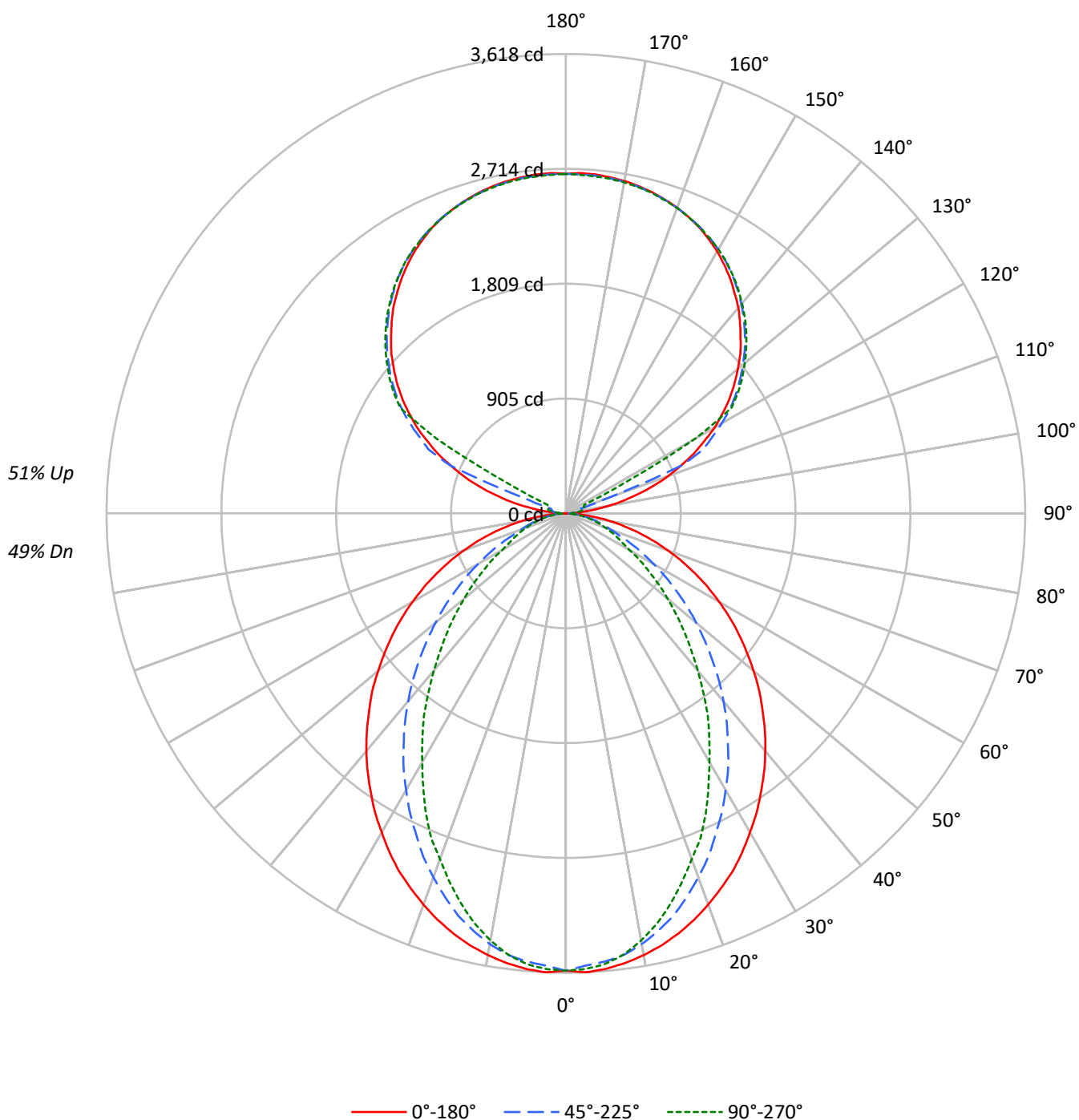
Lumens per Lamp: N/A  
Luminaire Lumens: 15249.5 lumens  
Efficiency: N/A  
Efficacy: 80.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 189.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9977  
Total Harmonic Distortion (THDi): 0.049  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P914803

CATALOG NUMBER: DFN2DIP-SQ3F0-110D100US927-RLLONL

### Luminous Intensity Polar Plot



TEST NUMBER: P914803

CATALOG NUMBER: DFN2DIP-SQ3F0-110D100US927-RLLONL

**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   | 107 | 107 | 107 | 107 | 98 | 98 | 98 | 98 | 83 | 83 | 83 | 68 | 68 | 68 | 55 | 55 | 55 |
| 1   | 98  | 94  | 90  | 87  | 90 | 87 | 83 | 81 | 73 | 71 | 69 | 61 | 59 | 58 | 49 | 48 | 47 |
| 2   | 90  | 82  | 77  | 72  | 82 | 76 | 71 | 67 | 65 | 61 | 58 | 54 | 51 | 49 | 44 | 42 | 40 |
| 3   | 82  | 73  | 66  | 60  | 75 | 68 | 61 | 56 | 57 | 53 | 49 | 48 | 45 | 42 | 39 | 37 | 35 |
| 4   | 75  | 65  | 57  | 51  | 69 | 60 | 53 | 48 | 51 | 46 | 42 | 43 | 39 | 36 | 35 | 33 | 31 |
| 5   | 69  | 58  | 50  | 44  | 64 | 54 | 47 | 42 | 46 | 41 | 37 | 39 | 35 | 32 | 32 | 29 | 27 |
| 6   | 64  | 52  | 44  | 39  | 59 | 49 | 42 | 36 | 42 | 36 | 32 | 35 | 31 | 28 | 29 | 26 | 24 |
| 7   | 59  | 47  | 39  | 34  | 55 | 44 | 37 | 32 | 38 | 33 | 29 | 32 | 28 | 25 | 27 | 24 | 21 |
| 8   | 55  | 43  | 35  | 30  | 51 | 40 | 33 | 29 | 35 | 29 | 26 | 30 | 25 | 22 | 25 | 22 | 19 |
| 9   | 51  | 39  | 32  | 27  | 47 | 37 | 30 | 26 | 32 | 27 | 23 | 27 | 23 | 20 | 23 | 20 | 18 |
| 10  | 48  | 36  | 29  | 24  | 44 | 34 | 27 | 23 | 29 | 24 | 21 | 25 | 21 | 18 | 21 | 18 | 16 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4127 | 4127 | 4127 |
| 5°  | 4131 | 4058 | 4086 |
| 10° | 4087 | 3976 | 3951 |
| 15° | 4028 | 3842 | 3745 |
| 20° | 3951 | 3658 | 3491 |
| 25° | 3872 | 3453 | 3247 |
| 30° | 3767 | 3242 | 2937 |
| 35° | 3664 | 3017 | 2665 |
| 40° | 3559 | 2783 | 2354 |
| 45° | 3437 | 2524 | 2071 |
| 50° | 3311 | 2264 | 1795 |
| 55° | 3179 | 1985 | 1531 |
| 60° | 3026 | 1694 | 1259 |
| 65° | 2849 | 1399 | 1131 |
| 70° | 2635 | 1124 | 1022 |
| 75° | 2366 | 985  | 927  |
| 80° | 1977 | 817  | 799  |
| 85° | 1342 | 533  | 593  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3437 cd/sqm

TEST NUMBER: P914803

CATALOG NUMBER: DFN2DIP-SQ3F0-110D100US927-RLLONL

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 337.5   | 2.2       |
| 10°-20°   | 926.6   | 6.1       |
| 20°-30°   | 1300.9  | 8.5       |
| 30°-40°   | 1418.1  | 9.3       |
| 40°-50°   | 1303.4  | 8.5       |
| 50°-60°   | 1023.6  | 6.7       |
| 60°-70°   | 666.3   | 4.4       |
| 70°-80°   | 343.0   | 2.2       |
| 80°-90°   | 92.3    | 0.6       |
| 90°-100°  | 88.1    | 0.6       |
| 100°-110° | 328.6   | 2.2       |
| 110°-120° | 871.6   | 5.7       |
| 120°-130° | 1445.6  | 9.5       |
| 130°-140° | 1535.6  | 10.1      |
| 140°-150° | 1427.1  | 9.4       |
| 150°-160° | 1147.4  | 7.5       |
| 160°-170° | 739.3   | 4.8       |
| 170°-180° | 254.5   | 1.7       |
| 0°-30°    | 2565.1  | 16.8      |
| 0°-40°    | 3983.1  | 26.1      |
| 0°-60°    | 6310.1  | 41.4      |
| 0°-90°    | 7411.6  | 48.6      |
| 90°-120°  | 1288.4  | 8.4       |
| 90°-150°  | 5696.7  | 37.4      |
| 90°-180°  | 7838.0  | 51.4      |
| 0°-180°   | 15249.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 3602 | 3602  | 3602 | 3602  | 3602 |      |
| 5°   | 3602 | 3585  | 3543 | 3572  | 3562 | 341  |
| 15°  | 3426 | 3390  | 3279 | 3217  | 3184 | 965  |
| 25°  | 3109 | 3005  | 2790 | 2656  | 2607 | 1430 |
| 35°  | 2679 | 2513  | 2226 | 2021  | 1949 | 1677 |
| 45°  | 2190 | 1972  | 1630 | 1398  | 1320 | 1691 |
| 55°  | 1665 | 1411  | 1059 | 864   | 802  | 1488 |
| 65°  | 1124 | 860   | 567  | 456   | 446  | 1115 |
| 75°  | 600  | 371   | 261  | 238   | 235  | 634  |
| 85°  | 140  | 72    | 62   | 62    | 62   | 161  |
| 90°  | 2    | 23    | 39   | 48    | 52   | 14   |
| 95°  | 126  | 62    | 75   | 85    | 83   | 149  |
| 105° | 588  | 646   | 118  | 139   | 147  | 628  |
| 115° | 1112 | 1145  | 1194 | 298   | 159  | 1095 |
| 125° | 1573 | 1598  | 1635 | 1648  | 1654 | 1403 |
| 135° | 1946 | 1977  | 1994 | 2014  | 2010 | 1503 |
| 145° | 2258 | 2256  | 2288 | 2302  | 2292 | 1412 |
| 155° | 2486 | 2469  | 2492 | 2503  | 2488 | 1146 |
| 165° | 2619 | 2608  | 2614 | 2627  | 2614 | 740  |
| 175° | 2679 | 2666  | 2670 | 2683  | 2664 | 255  |
| 180° | 2674 | 2674  | 2674 | 2674  | 2674 |      |

TEST NUMBER: P914803

CATALOG NUMBER: DFN2DIP-SQ3F0-110D100US927-RLLONL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 3601.5 | 3601.5 | 3601.5 | 3601.5 | 3601.5 |
| 2.5°   | 3617.7 | 3601.5 | 3565.5 | 3598.4 | 3591.8 |
| 5°     | 3601.5 | 3585.3 | 3542.7 | 3572.1 | 3562.4 |
| 7.5°   | 3572.1 | 3552.7 | 3507.1 | 3519.9 | 3503.6 |
| 10°    | 3533.0 | 3510.2 | 3445.2 | 3435.1 | 3415.8 |
| 12.5°  | 3484.3 | 3454.9 | 3366.7 | 3347.3 | 3311.3 |
| 15°    | 3425.5 | 3389.5 | 3278.8 | 3217.0 | 3184.4 |
| 17.5°  | 3357.0 | 3304.8 | 3167.9 | 3096.2 | 3044.0 |
| 20°    | 3278.8 | 3213.5 | 3050.6 | 2969.3 | 2897.4 |
| 22.5°  | 3194.2 | 3119.1 | 2930.0 | 2819.3 | 2770.5 |
| 25°    | 3109.4 | 3005.0 | 2789.9 | 2656.4 | 2607.3 |
| 27.5°  | 3008.5 | 2897.4 | 2659.5 | 2506.3 | 2431.3 |
| 30°    | 2900.9 | 2776.8 | 2516.0 | 2350.0 | 2261.8 |
| 32.5°  | 2796.5 | 2646.4 | 2379.4 | 2183.7 | 2102.1 |
| 35°    | 2679.2 | 2512.9 | 2226.3 | 2020.9 | 1948.9 |
| 37.5°  | 2565.2 | 2385.7 | 2082.7 | 1857.6 | 1776.4 |
| 40°    | 2444.4 | 2249.1 | 1932.7 | 1701.3 | 1616.6 |
| 42.5°  | 2320.6 | 2112.1 | 1783.0 | 1541.6 | 1460.3 |
| 45°    | 2190.3 | 1971.7 | 1629.8 | 1398.0 | 1319.9 |
| 47.5°  | 2066.5 | 1835.2 | 1483.1 | 1251.4 | 1179.9 |
| 50°    | 1929.5 | 1698.2 | 1339.7 | 1114.5 | 1046.4 |
| 52.5°  | 1795.7 | 1551.2 | 1202.7 | 987.6  | 925.7  |
| 55°    | 1665.3 | 1411.2 | 1059.1 | 863.8  | 801.9  |
| 57.5°  | 1531.9 | 1271.1 | 932.2  | 749.7  | 697.4  |
| 60°    | 1395.0 | 1134.2 | 798.4  | 632.5  | 580.3  |
| 62.5°  | 1261.5 | 1000.8 | 684.4  | 528.1  | 502.1  |
| 65°    | 1124.5 | 860.3  | 567.1  | 456.5  | 446.4  |
| 67.5°  | 994.2  | 730.0  | 456.5  | 400.8  | 391.1  |
| 70°    | 857.2  | 603.1  | 377.9  | 345.5  | 332.3  |
| 72.5°  | 726.8  | 485.5  | 316.1  | 290.1  | 283.5  |
| 75°    | 599.6  | 371.4  | 260.7  | 237.9  | 234.8  |
| 77.5°  | 472.7  | 263.9  | 205.4  | 192.3  | 185.7  |
| 80°    | 355.1  | 189.2  | 156.3  | 143.5  | 143.5  |
| 82.5°  | 247.6  | 127.2  | 107.6  | 101.0  | 101.0  |
| 85°    | 140.1  | 71.6   | 61.9   | 61.9   | 61.9   |
| 87.5°  | 52.2   | 25.9   | 25.9   | 22.8   | 22.8   |
| 90°    | 1.8    | 23.2   | 38.6   | 48.5   | 52.1   |
| 92.5°  | 48.5   | 40.6   | 46.4   | 50.3   | 52.1   |
| 95°    | 125.6  | 61.8   | 75.3   | 85.2   | 83.2   |
| 97.5°  | 226.2  | 67.7   | 98.5   | 104.5  | 106.4  |
| 100°   | 342.5  | 77.4   | 110.3  | 125.6  | 129.6  |
| 102.5° | 470.0  | 466.4  | 114.2  | 135.3  | 141.2  |
| 105°   | 588.1  | 646.2  | 118.1  | 139.2  | 147.0  |
| 107.5° | 725.5  | 773.7  | 122.0  | 143.1  | 150.9  |
| 110°   | 857.1  | 897.5  | 338.6  | 145.2  | 152.7  |

TEST NUMBER: P914803

CATALOG NUMBER: DFN2DIP-SQ3F0-110D100US927-RLLONL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 980.9  | 1015.6 | 982.8  | 148.9  | 154.9  |
| 115°   | 1112.3 | 1145.2 | 1193.7 | 297.9  | 158.8  |
| 117.5° | 1226.5 | 1265.1 | 1298.1 | 1021.4 | 514.6  |
| 120°   | 1354.2 | 1383.1 | 1418.1 | 1441.3 | 1180.1 |
| 122.5° | 1462.4 | 1493.4 | 1532.2 | 1543.7 | 1545.8 |
| 125°   | 1572.7 | 1598.0 | 1634.7 | 1648.3 | 1654.0 |
| 127.5° | 1673.3 | 1700.4 | 1729.6 | 1748.9 | 1750.7 |
| 130°   | 1768.1 | 1799.2 | 1820.4 | 1841.7 | 1839.8 |
| 132.5° | 1864.9 | 1890.1 | 1911.3 | 1928.7 | 1926.9 |
| 135°   | 1946.2 | 1977.2 | 1994.5 | 2014.0 | 2010.1 |
| 137.5° | 2031.2 | 2054.4 | 2073.9 | 2093.3 | 2087.5 |
| 140°   | 2114.3 | 2130.0 | 2151.1 | 2168.6 | 2158.9 |
| 142.5° | 2184.2 | 2197.7 | 2222.8 | 2238.1 | 2228.6 |
| 145°   | 2257.7 | 2255.7 | 2288.5 | 2302.1 | 2292.4 |
| 147.5° | 2321.3 | 2315.6 | 2348.4 | 2358.1 | 2350.6 |
| 150°   | 2383.4 | 2369.8 | 2400.9 | 2412.4 | 2402.7 |
| 152.5° | 2435.5 | 2420.1 | 2449.1 | 2460.8 | 2447.2 |
| 155°   | 2485.9 | 2468.6 | 2491.8 | 2503.3 | 2487.9 |
| 157.5° | 2526.5 | 2511.1 | 2528.6 | 2542.1 | 2526.5 |
| 160°   | 2561.4 | 2549.7 | 2561.4 | 2572.9 | 2559.4 |
| 162.5° | 2592.2 | 2580.7 | 2590.4 | 2603.9 | 2586.5 |
| 165°   | 2619.3 | 2607.8 | 2613.6 | 2627.1 | 2613.6 |
| 167.5° | 2640.7 | 2628.9 | 2635.0 | 2648.5 | 2631.0 |
| 170°   | 2658.1 | 2646.4 | 2650.3 | 2663.9 | 2646.4 |
| 172.5° | 2669.6 | 2658.1 | 2662.0 | 2675.6 | 2658.1 |
| 175°   | 2679.2 | 2665.7 | 2669.6 | 2683.2 | 2663.9 |
| 177.5° | 2683.2 | 2669.6 | 2671.7 | 2685.3 | 2667.7 |
| 180°   | 2673.5 | 2673.5 | 2673.5 | 2673.5 | 2673.5 |

TEST NUMBER: P914803

CATALOG NUMBER: DFN2DIP-SQ3F0-110D100US927-RLONL

**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 | 11.91            | 12.72 | 12.88 | 13.71 | 15.00 | 7.87           | 8.69  | 8.84  | 9.67  | 10.96 |
|                 | 3H   | 13.58            | 14.31 | 14.56 | 15.30 | 16.62 | 9.05           | 9.78  | 10.03 | 10.77 | 12.09 |
|                 | 4H   | 14.18            | 14.87 | 15.18 | 15.87 | 17.20 | 9.49           | 10.19 | 10.49 | 11.18 | 12.51 |
|                 | 6H   | 14.60            | 15.24 | 15.61 | 16.24 | 17.58 | 9.81           | 10.44 | 10.82 | 11.45 | 12.78 |
|                 | 8H   | 14.72            | 15.33 | 15.74 | 16.35 | 17.68 | 9.89           | 10.50 | 10.91 | 11.52 | 12.85 |
|                 | 12H  | 14.78            | 15.36 | 15.80 | 16.37 | 17.73 | 9.93           | 10.51 | 10.96 | 11.52 | 12.88 |
| 4H              | 2H   | 11.92            | 12.61 | 12.93 | 13.61 | 14.93 | 8.46           | 9.15  | 9.46  | 10.15 | 11.47 |
|                 | 3H   | 13.74            | 14.32 | 14.76 | 15.35 | 16.68 | 9.80           | 10.38 | 10.81 | 11.40 | 12.74 |
|                 | 4H   | 14.43            | 14.96 | 15.45 | 15.98 | 17.34 | 10.34          | 10.87 | 11.36 | 11.89 | 13.25 |
|                 | 6H   | 14.94            | 15.39 | 15.97 | 16.44 | 17.79 | 10.75          | 11.21 | 11.79 | 12.25 | 13.60 |
|                 | 8H   | 15.11            | 15.54 | 16.15 | 16.57 | 17.94 | 10.88          | 11.30 | 11.91 | 12.34 | 13.71 |
|                 | 12H  | 15.21            | 15.59 | 16.26 | 16.64 | 18.01 | 10.94          | 11.32 | 11.99 | 12.37 | 13.75 |
| 8H              | 4H   | 14.40            | 14.82 | 15.43 | 15.85 | 17.23 | 10.62          | 11.04 | 11.65 | 12.07 | 13.45 |
|                 | 6H   | 14.96            | 15.31 | 16.01 | 16.38 | 17.75 | 11.13          | 11.48 | 12.19 | 12.55 | 13.92 |
|                 | 8H   | 15.17            | 15.48 | 16.24 | 16.54 | 17.93 | 11.31          | 11.62 | 12.38 | 12.68 | 14.07 |
|                 | 12H  | 15.30            | 15.57 | 16.37 | 16.63 | 18.06 | 11.43          | 11.70 | 12.50 | 12.75 | 14.18 |
| 12H             | 4H   | 14.35            | 14.73 | 15.40 | 15.78 | 17.16 | 10.62          | 11.00 | 11.67 | 12.05 | 13.43 |
|                 | 6H   | 14.93            | 15.24 | 16.00 | 16.30 | 17.69 | 11.18          | 11.48 | 12.24 | 12.54 | 13.93 |
|                 | 8H   | 15.15            | 15.42 | 16.22 | 16.47 | 17.90 | 11.38          | 11.65 | 12.45 | 12.71 | 14.14 |

END OF REPORT