

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: P924895

Luminaire Tested: DFN2DIP-PN3F0-070D050US950-RLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P924895  
REPORT IS A COMBINATION OF REPORTS P901068 AND P897955  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-070D050US950-RLLONL  
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

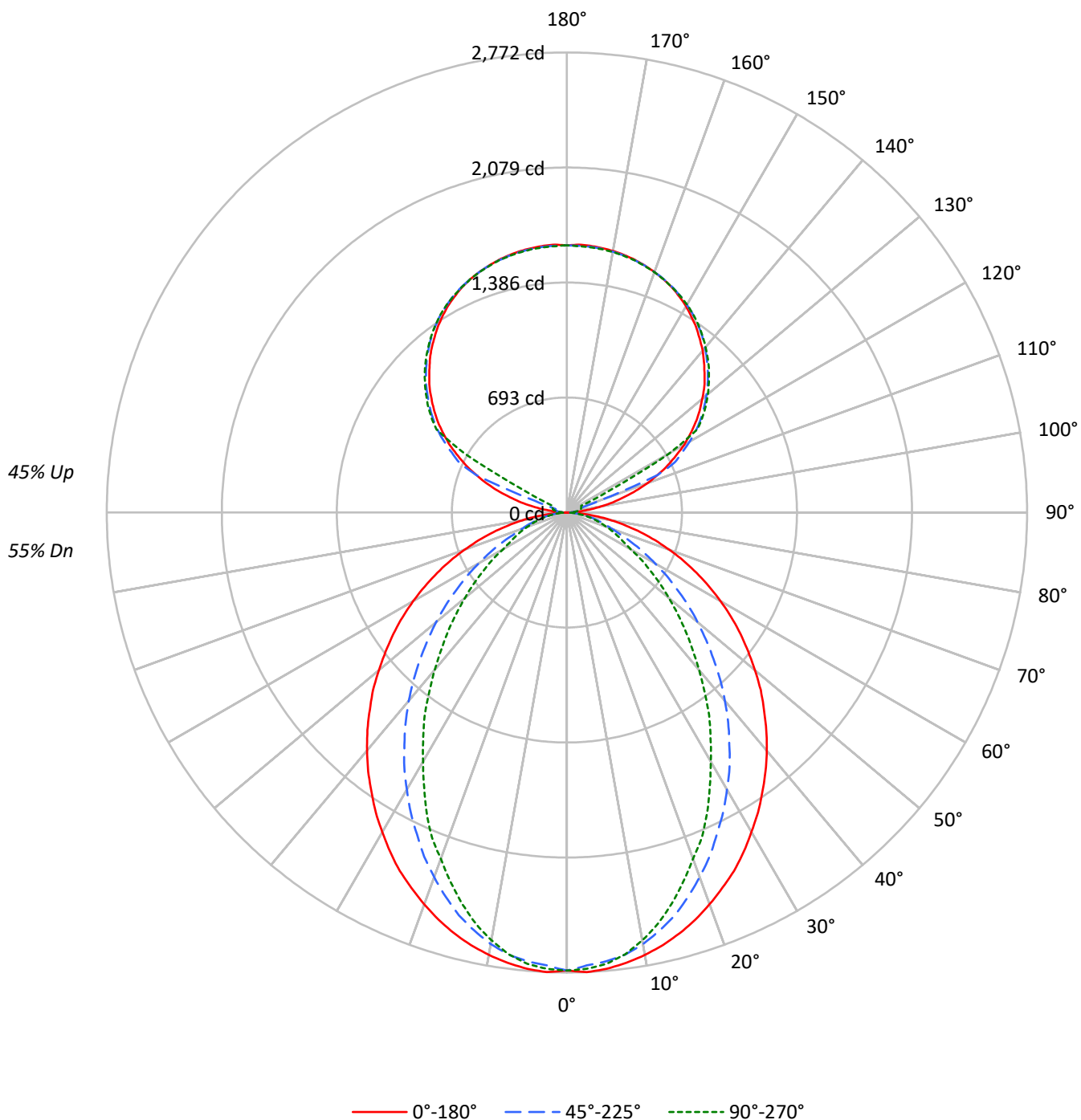
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10398.6 lumens  
Efficiency: N/A  
Efficacy: 97.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 107.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.946  
Total Harmonic Distortion (THDi): 0.132  
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   | 108 | 108 | 108 | 108 | 100 | 100 | 100 | 100 | 86 | 86 | 86 | 73 | 73 | 73 | 60 | 60 | 60 |
| 1   | 99  | 95  | 91  | 88  | 92  | 89  | 85  | 82  | 76 | 74 | 72 | 65 | 63 | 62 | 54 | 53 | 52 |
| 2   | 91  | 84  | 78  | 73  | 84  | 78  | 73  | 69  | 67 | 63 | 60 | 57 | 55 | 52 | 48 | 46 | 45 |
| 3   | 83  | 74  | 67  | 61  | 77  | 69  | 63  | 58  | 60 | 55 | 51 | 51 | 48 | 45 | 43 | 41 | 39 |
| 4   | 76  | 66  | 58  | 52  | 71  | 62  | 55  | 50  | 54 | 48 | 44 | 46 | 42 | 39 | 39 | 36 | 34 |
| 5   | 70  | 59  | 51  | 45  | 65  | 55  | 48  | 43  | 48 | 43 | 38 | 42 | 37 | 34 | 35 | 32 | 30 |
| 6   | 65  | 53  | 45  | 40  | 60  | 50  | 43  | 38  | 44 | 38 | 34 | 38 | 33 | 30 | 32 | 29 | 26 |
| 7   | 60  | 48  | 40  | 35  | 56  | 45  | 38  | 33  | 40 | 34 | 30 | 35 | 30 | 27 | 30 | 26 | 24 |
| 8   | 56  | 44  | 36  | 31  | 52  | 41  | 34  | 30  | 36 | 31 | 27 | 32 | 27 | 24 | 27 | 24 | 21 |
| 9   | 52  | 40  | 33  | 28  | 49  | 38  | 31  | 27  | 34 | 28 | 24 | 29 | 25 | 22 | 25 | 22 | 19 |
| 10  | 49  | 37  | 30  | 25  | 46  | 35  | 28  | 24  | 31 | 26 | 22 | 27 | 23 | 20 | 24 | 20 | 18 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3226 | 3226 | 3226 |
| 5°  | 3230 | 3173 | 3194 |
| 10° | 3196 | 3108 | 3089 |
| 15° | 3150 | 3003 | 2927 |
| 20° | 3090 | 2860 | 2729 |
| 25° | 3028 | 2699 | 2537 |
| 30° | 2946 | 2534 | 2295 |
| 35° | 2866 | 2358 | 2082 |
| 40° | 2784 | 2175 | 1838 |
| 45° | 2689 | 1973 | 1618 |
| 50° | 2590 | 1769 | 1402 |
| 55° | 2487 | 1551 | 1195 |
| 60° | 2368 | 1324 | 982  |
| 65° | 2230 | 1093 | 882  |
| 70° | 2063 | 877  | 796  |
| 75° | 1853 | 769  | 722  |
| 80° | 1550 | 638  | 621  |
| 85° | 1053 | 415  | 459  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2689 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 258.7   | 2.5       |
| 10°-20°   | 710.1   | 6.8       |
| 20°-30°   | 997.0   | 9.6       |
| 30°-40°   | 1086.8  | 10.5      |
| 40°-50°   | 998.8   | 9.6       |
| 50°-60°   | 784.4   | 7.5       |
| 60°-70°   | 510.6   | 4.9       |
| 70°-80°   | 262.8   | 2.5       |
| 80°-90°   | 69.9    | 0.7       |
| 90°-100°  | 53.1    | 0.5       |
| 100°-110° | 197.9   | 1.9       |
| 110°-120° | 524.8   | 5.0       |
| 120°-130° | 870.4   | 8.4       |
| 130°-140° | 924.6   | 8.9       |
| 140°-150° | 859.3   | 8.3       |
| 150°-160° | 690.9   | 6.6       |
| 160°-170° | 445.2   | 4.3       |
| 170°-180° | 153.2   | 1.5       |
| 0°-30°    | 1965.7  | 18.9      |
| 0°-40°    | 3052.5  | 29.4      |
| 0°-60°    | 4835.8  | 46.5      |
| 0°-90°    | 5679.1  | 54.6      |
| 90°-120°  | 775.8   | 7.5       |
| 90°-150°  | 3430.2  | 33.0      |
| 90°-180°  | 4719.0  | 45.4      |
| 0°-180°   | 10398.6 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2760 | 2760  | 2760 | 2760  | 2760 |      |
| 5°   | 2760 | 2748  | 2715 | 2738  | 2730 | 262  |
| 15°  | 2625 | 2598  | 2513 | 2465  | 2440 | 740  |
| 25°  | 2383 | 2303  | 2138 | 2036  | 1998 | 1096 |
| 35°  | 2053 | 1926  | 1706 | 1549  | 1494 | 1285 |
| 45°  | 1679 | 1511  | 1249 | 1071  | 1012 | 1296 |
| 55°  | 1276 | 1082  | 812  | 662   | 615  | 1140 |
| 65°  | 862  | 659   | 435  | 350   | 342  | 854  |
| 75°  | 460  | 285   | 200  | 182   | 180  | 486  |
| 85°  | 107  | 55    | 47   | 47    | 47   | 123  |
| 90°  | 1    | 14    | 23   | 29    | 31   | 10   |
| 95°  | 76   | 37    | 45   | 51    | 50   | 90   |
| 105° | 354  | 389   | 71   | 84    | 88   | 378  |
| 115° | 670  | 690   | 719  | 179   | 96   | 659  |
| 125° | 947  | 962   | 984  | 992   | 996  | 845  |
| 135° | 1172 | 1191  | 1201 | 1213  | 1210 | 905  |
| 145° | 1359 | 1358  | 1378 | 1386  | 1380 | 850  |
| 155° | 1497 | 1486  | 1500 | 1507  | 1498 | 690  |
| 165° | 1577 | 1570  | 1574 | 1582  | 1574 | 446  |
| 175° | 1613 | 1605  | 1608 | 1616  | 1604 | 154  |
| 180° | 1610 | 1610  | 1610 | 1610  | 1610 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2760.0 | 2760.0 | 2760.0 | 2760.0 | 2760.0 |
| 2.5°   | 2772.4 | 2760.0 | 2732.4 | 2757.6 | 2752.6 |
| 5°     | 2760.0 | 2747.5 | 2715.0 | 2737.5 | 2730.1 |
| 7.5°   | 2737.5 | 2722.6 | 2687.7 | 2697.4 | 2685.0 |
| 10°    | 2707.5 | 2690.1 | 2640.2 | 2632.6 | 2617.7 |
| 12.5°  | 2670.2 | 2647.6 | 2580.1 | 2565.2 | 2537.6 |
| 15°    | 2625.1 | 2597.6 | 2512.7 | 2465.3 | 2440.4 |
| 17.5°  | 2572.7 | 2532.7 | 2427.7 | 2372.8 | 2332.8 |
| 20°    | 2512.7 | 2462.7 | 2337.9 | 2275.6 | 2220.4 |
| 22.5°  | 2447.9 | 2390.3 | 2245.3 | 2160.5 | 2123.2 |
| 25°    | 2382.9 | 2302.9 | 2138.0 | 2035.7 | 1998.2 |
| 27.5°  | 2305.5 | 2220.4 | 2038.1 | 1920.8 | 1863.3 |
| 30°    | 2223.1 | 2128.0 | 1928.1 | 1801.0 | 1733.4 |
| 32.5°  | 2143.1 | 2028.1 | 1823.5 | 1673.5 | 1610.9 |
| 35°    | 2053.2 | 1925.7 | 1706.1 | 1548.7 | 1493.6 |
| 37.5°  | 1965.8 | 1828.2 | 1596.1 | 1423.6 | 1361.4 |
| 40°    | 1873.3 | 1723.6 | 1481.1 | 1303.8 | 1238.9 |
| 42.5°  | 1778.4 | 1618.7 | 1366.3 | 1181.3 | 1119.1 |
| 45°    | 1678.6 | 1511.0 | 1249.0 | 1071.4 | 1011.5 |
| 47.5°  | 1583.6 | 1406.4 | 1136.6 | 959.1  | 904.2  |
| 50°    | 1478.7 | 1301.4 | 1026.6 | 854.1  | 801.9  |
| 52.5°  | 1376.1 | 1188.8 | 921.7  | 756.8  | 709.4  |
| 55°    | 1276.3 | 1081.5 | 811.7  | 662.0  | 614.6  |
| 57.5°  | 1174.0 | 974.1  | 714.5  | 574.5  | 534.5  |
| 60°    | 1069.1 | 869.2  | 611.9  | 484.7  | 444.7  |
| 62.5°  | 966.7  | 766.9  | 524.4  | 404.7  | 384.7  |
| 65°    | 861.7  | 659.3  | 434.6  | 349.8  | 342.1  |
| 67.5°  | 761.9  | 559.4  | 349.8  | 307.1  | 299.7  |
| 70°    | 656.9  | 462.1  | 289.6  | 264.7  | 254.6  |
| 72.5°  | 557.0  | 372.1  | 242.2  | 222.4  | 217.3  |
| 75°    | 459.5  | 284.6  | 199.8  | 182.3  | 179.9  |
| 77.5°  | 362.2  | 202.2  | 157.4  | 147.3  | 142.3  |
| 80°    | 272.2  | 144.9  | 119.8  | 110.0  | 110.0  |
| 82.5°  | 189.8  | 97.5   | 82.4   | 77.4   | 77.4   |
| 85°    | 107.3  | 54.9   | 47.4   | 47.4   | 47.4   |
| 87.5°  | 40.0   | 19.8   | 19.8   | 17.5   | 17.5   |
| 90°    | 1.1    | 13.9   | 23.3   | 29.2   | 31.4   |
| 92.5°  | 29.2   | 24.5   | 28.0   | 30.3   | 31.4   |
| 95°    | 75.7   | 37.2   | 45.4   | 51.3   | 50.1   |
| 97.5°  | 136.2  | 40.8   | 59.3   | 63.0   | 64.0   |
| 100°   | 206.3  | 46.7   | 66.4   | 75.7   | 78.0   |
| 102.5° | 283.1  | 280.8  | 68.8   | 81.5   | 85.1   |
| 105°   | 354.1  | 389.1  | 71.1   | 83.9   | 88.5   |
| 107.5° | 436.8  | 465.8  | 73.5   | 86.1   | 90.9   |
| 110°   | 516.1  | 540.4  | 203.9  | 87.4   | 92.0   |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 590.6  | 611.5  | 591.8  | 89.7   | 93.2   |
| 115°   | 669.8  | 689.6  | 718.7  | 179.4  | 95.6   |
| 117.5° | 738.5  | 761.8  | 781.7  | 614.9  | 309.9  |
| 120°   | 815.4  | 832.8  | 853.8  | 867.9  | 710.5  |
| 122.5° | 880.5  | 899.2  | 922.6  | 929.6  | 930.8  |
| 125°   | 946.9  | 962.2  | 984.3  | 992.4  | 996.0  |
| 127.5° | 1007.5 | 1023.8 | 1041.5 | 1053.0 | 1054.2 |
| 130°   | 1064.7 | 1083.4 | 1096.1 | 1108.9 | 1107.9 |
| 132.5° | 1123.0 | 1138.1 | 1150.8 | 1161.4 | 1160.3 |
| 135°   | 1171.9 | 1190.6 | 1200.9 | 1212.7 | 1210.3 |
| 137.5° | 1223.0 | 1237.1 | 1248.8 | 1260.4 | 1257.0 |
| 140°   | 1273.1 | 1282.6 | 1295.2 | 1305.7 | 1300.0 |
| 142.5° | 1315.2 | 1323.4 | 1338.5 | 1347.7 | 1341.9 |
| 145°   | 1359.4 | 1358.2 | 1378.0 | 1386.2 | 1380.3 |
| 147.5° | 1397.8 | 1394.3 | 1414.1 | 1419.9 | 1415.4 |
| 150°   | 1435.1 | 1427.0 | 1445.6 | 1452.6 | 1446.7 |
| 152.5° | 1466.5 | 1457.2 | 1474.7 | 1481.8 | 1473.5 |
| 155°   | 1496.8 | 1486.4 | 1500.4 | 1507.3 | 1498.1 |
| 157.5° | 1521.2 | 1512.0 | 1522.5 | 1530.7 | 1521.2 |
| 160°   | 1542.3 | 1535.3 | 1542.3 | 1549.2 | 1541.1 |
| 162.5° | 1560.8 | 1554.0 | 1559.7 | 1567.9 | 1557.4 |
| 165°   | 1577.2 | 1570.3 | 1573.7 | 1581.8 | 1573.7 |
| 167.5° | 1590.0 | 1583.0 | 1586.6 | 1594.7 | 1584.2 |
| 170°   | 1600.5 | 1593.5 | 1595.9 | 1604.0 | 1593.5 |
| 172.5° | 1607.5 | 1600.5 | 1602.9 | 1611.0 | 1600.5 |
| 175°   | 1613.3 | 1605.1 | 1607.5 | 1615.6 | 1604.0 |
| 177.5° | 1615.6 | 1607.5 | 1608.7 | 1616.8 | 1606.3 |
| 180°   | 1609.8 | 1609.8 | 1609.8 | 1609.8 | 1609.8 |

TEST NUMBER: P924895

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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 | 11.60            | 12.47 | 12.52 | 13.40 | 14.61 | 7.56           | 8.43  | 8.49  | 9.37  | 10.58 |
|                 | 3H   | 13.27            | 14.05 | 14.21 | 15.00 | 16.23 | 8.75           | 9.53  | 9.69  | 10.47 | 11.70 |
|                 | 4H   | 13.88            | 14.61 | 14.83 | 15.56 | 16.80 | 9.20           | 9.93  | 10.15 | 10.88 | 12.12 |
|                 | 6H   | 14.30            | 14.97 | 15.26 | 15.93 | 17.18 | 9.52           | 10.19 | 10.48 | 11.15 | 12.40 |
|                 | 8H   | 14.42            | 15.07 | 15.39 | 16.04 | 17.29 | 9.60           | 10.25 | 10.57 | 11.22 | 12.47 |
|                 | 12H  | 14.48            | 15.10 | 15.46 | 16.06 | 17.34 | 9.65           | 10.26 | 10.62 | 11.22 | 12.50 |
| 4H              | 2H   | 11.62            | 12.35 | 12.58 | 13.30 | 14.54 | 8.16           | 8.90  | 9.12  | 9.85  | 11.09 |
|                 | 3H   | 13.45            | 14.06 | 14.41 | 15.04 | 16.29 | 9.51           | 10.12 | 10.47 | 11.10 | 12.35 |
|                 | 4H   | 14.13            | 14.69 | 15.11 | 15.67 | 16.94 | 10.05          | 10.61 | 11.03 | 11.58 | 12.86 |
|                 | 6H   | 14.65            | 15.12 | 15.63 | 16.12 | 17.40 | 10.47          | 10.95 | 11.45 | 11.94 | 13.22 |
|                 | 8H   | 14.82            | 15.27 | 15.81 | 16.26 | 17.55 | 10.59          | 11.04 | 11.58 | 12.03 | 13.32 |
|                 | 12H  | 14.91            | 15.31 | 15.92 | 16.32 | 17.62 | 10.66          | 11.06 | 11.66 | 12.07 | 13.36 |
| 8H              | 4H   | 14.10            | 14.55 | 15.09 | 15.54 | 16.83 | 10.33          | 10.78 | 11.32 | 11.77 | 13.06 |
|                 | 6H   | 14.66            | 15.03 | 15.68 | 16.07 | 17.36 | 10.84          | 11.21 | 11.86 | 12.25 | 13.54 |
|                 | 8H   | 14.88            | 15.20 | 15.90 | 16.22 | 17.53 | 11.03          | 11.36 | 12.05 | 12.38 | 13.68 |
|                 | 12H  | 15.01            | 15.30 | 16.04 | 16.31 | 17.67 | 11.15          | 11.43 | 12.17 | 12.45 | 13.80 |
| 12H             | 4H   | 14.06            | 14.46 | 15.06 | 15.47 | 16.76 | 10.34          | 10.74 | 11.34 | 11.75 | 13.04 |
|                 | 6H   | 14.64            | 14.97 | 15.66 | 15.99 | 17.29 | 10.89          | 11.22 | 11.91 | 12.24 | 13.55 |
|                 | 8H   | 14.86            | 15.14 | 15.88 | 16.16 | 17.51 | 11.10          | 11.38 | 12.12 | 12.40 | 13.75 |

END OF REPORT