

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: P908503

Luminaire Tested: DFN2DIP-PN3F0-060D060US840-RLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P908503  
REPORT IS A COMBINATION OF REPORTS P901080 AND P897955  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-060D060US840-RLLONL  
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

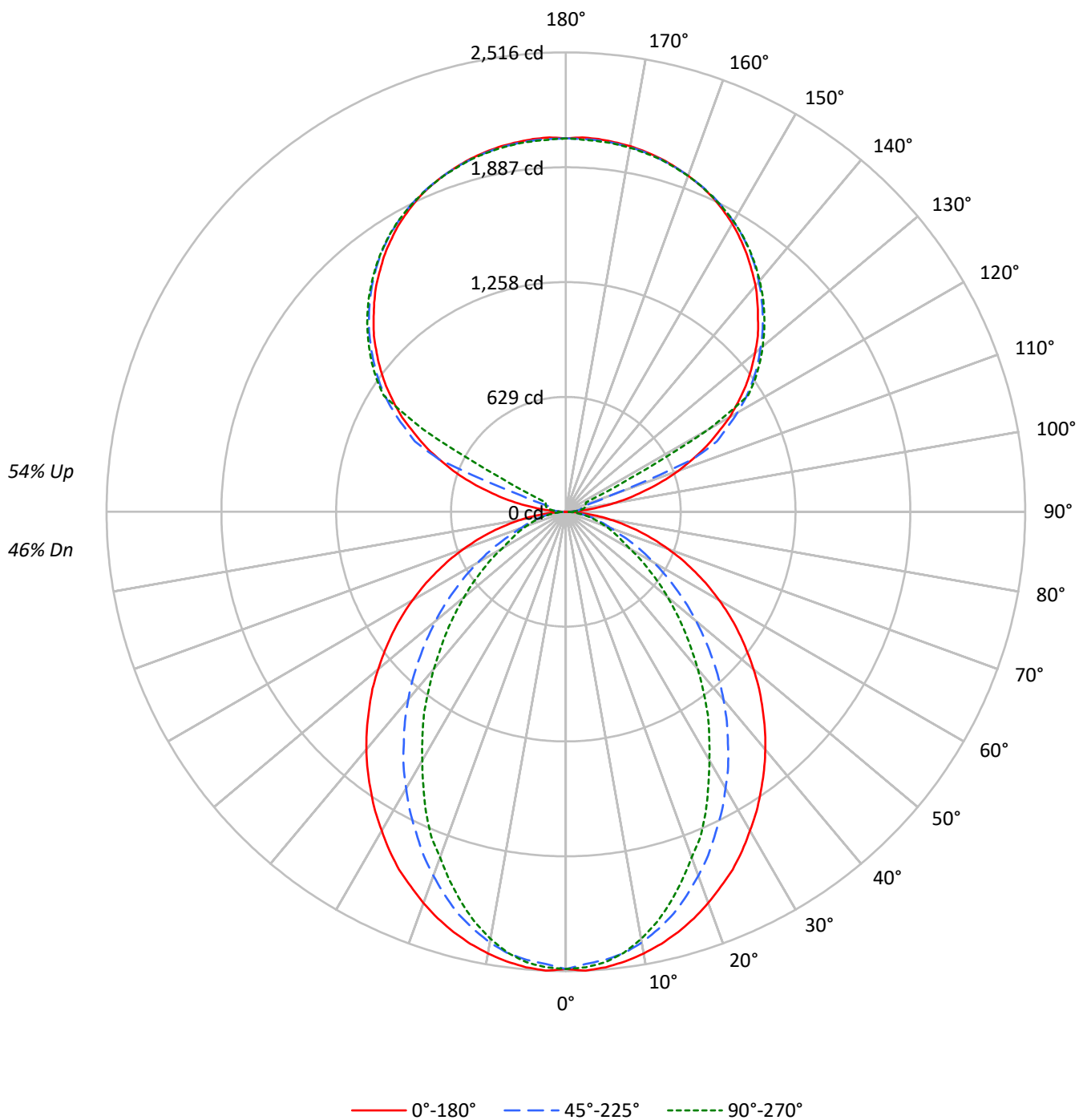
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11148.9 lumens  
Efficiency: N/A  
Efficacy: 108.2 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): 103  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9821  
Total Harmonic Distortion (THDi): 0.08  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P908503

CATALOG NUMBER: DFN2DIP-PN3F0-060D060US840-RLLONL

### Luminous Intensity Polar Plot



TEST NUMBER: P908503

CATALOG NUMBER: DFN2DIP-PN3F0-060D060US840-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 | 50 | 30 | 10 |
| RCR |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 0   | 106 | 106 | 106 | 106 | 98 | 98 | 98 | 98 | 81 | 81 | 81 | 66 | 66 | 66 | 53 | 53 | 53 |    |    | 46 |
| 1   | 97  | 93  | 90  | 86  | 89 | 86 | 83 | 80 | 72 | 70 | 68 | 59 | 58 | 56 | 47 | 46 | 45 |    |    | 40 |
| 2   | 89  | 82  | 76  | 71  | 82 | 76 | 70 | 66 | 63 | 60 | 57 | 52 | 50 | 48 | 42 | 40 | 39 |    |    | 34 |
| 3   | 81  | 72  | 65  | 60  | 75 | 67 | 61 | 56 | 56 | 52 | 48 | 47 | 43 | 41 | 38 | 35 | 34 |    |    | 29 |
| 4   | 75  | 64  | 57  | 51  | 68 | 60 | 53 | 48 | 50 | 45 | 41 | 42 | 38 | 35 | 34 | 31 | 29 |    |    | 26 |
| 5   | 69  | 58  | 50  | 44  | 63 | 53 | 46 | 41 | 45 | 40 | 36 | 38 | 34 | 31 | 31 | 28 | 26 |    |    | 23 |
| 6   | 63  | 52  | 44  | 38  | 58 | 48 | 41 | 36 | 41 | 36 | 32 | 34 | 30 | 27 | 28 | 25 | 23 |    |    | 20 |
| 7   | 59  | 47  | 39  | 34  | 54 | 44 | 37 | 32 | 37 | 32 | 28 | 31 | 27 | 24 | 26 | 23 | 21 |    |    | 18 |
| 8   | 55  | 43  | 35  | 30  | 50 | 40 | 33 | 28 | 34 | 29 | 25 | 29 | 25 | 22 | 24 | 21 | 19 |    |    | 16 |
| 9   | 51  | 39  | 32  | 27  | 47 | 36 | 30 | 25 | 31 | 26 | 22 | 27 | 23 | 20 | 22 | 19 | 17 |    |    | 15 |
| 10  | 48  | 36  | 29  | 24  | 44 | 33 | 27 | 23 | 29 | 24 | 20 | 25 | 21 | 18 | 20 | 18 | 15 |    |    | 13 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2927 | 2927 | 2927 |
| 5°  | 2930 | 2879 | 2898 |
| 10° | 2900 | 2820 | 2803 |
| 15° | 2858 | 2725 | 2656 |
| 20° | 2803 | 2595 | 2476 |
| 25° | 2748 | 2449 | 2302 |
| 30° | 2673 | 2300 | 2082 |
| 35° | 2600 | 2139 | 1889 |
| 40° | 2526 | 1973 | 1668 |
| 45° | 2439 | 1790 | 1468 |
| 50° | 2350 | 1605 | 1272 |
| 55° | 2257 | 1407 | 1084 |
| 60° | 2148 | 1201 | 891  |
| 65° | 2023 | 992  | 801  |
| 70° | 1872 | 796  | 723  |
| 75° | 1682 | 698  | 655  |
| 80° | 1406 | 579  | 564  |
| 85° | 955  | 376  | 416  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2439 cd/sqm

TEST NUMBER: P908503

CATALOG NUMBER: DFN2DIP-PN3F0-060D060US840-RLLONL

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 234.7   | 2.1       |
| 10°-20°   | 644.3   | 5.8       |
| 20°-30°   | 904.6   | 8.1       |
| 30°-40°   | 986.1   | 8.8       |
| 40°-50°   | 906.3   | 8.1       |
| 50°-60°   | 711.7   | 6.4       |
| 60°-70°   | 463.3   | 4.2       |
| 70°-80°   | 238.5   | 2.1       |
| 80°-90°   | 64.5    | 0.6       |
| 90°-100°  | 67.4    | 0.6       |
| 100°-110° | 251.4   | 2.3       |
| 110°-120° | 666.7   | 6.0       |
| 120°-130° | 1105.7  | 9.9       |
| 130°-140° | 1174.5  | 10.5      |
| 140°-150° | 1091.6  | 9.8       |
| 150°-160° | 877.6   | 7.9       |
| 160°-170° | 565.5   | 5.1       |
| 170°-180° | 194.6   | 1.7       |
| 0°-30°    | 1783.6  | 16.0      |
| 0°-40°    | 2769.6  | 24.8      |
| 0°-60°    | 4387.7  | 39.4      |
| 0°-90°    | 5153.9  | 46.2      |
| 90°-120°  | 985.5   | 8.8       |
| 90°-150°  | 4357.2  | 39.1      |
| 90°-180°  | 5995.0  | 53.8      |
| 0°-180°   | 11148.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2504 | 2504  | 2504 | 2504  | 2504 |      |
| 5°   | 2504 | 2493  | 2463 | 2484  | 2477 | 237  |
| 15°  | 2382 | 2357  | 2280 | 2237  | 2214 | 671  |
| 25°  | 2162 | 2090  | 1940 | 1847  | 1813 | 994  |
| 35°  | 1863 | 1747  | 1548 | 1405  | 1355 | 1166 |
| 45°  | 1523 | 1371  | 1133 | 972   | 918  | 1176 |
| 55°  | 1158 | 981   | 736  | 601   | 558  | 1035 |
| 65°  | 782  | 598   | 394  | 317   | 310  | 775  |
| 75°  | 417  | 258   | 181  | 165   | 163  | 441  |
| 85°  | 97   | 50    | 43   | 43    | 43   | 112  |
| 90°  | 1    | 18    | 30   | 37    | 40   | 10   |
| 95°  | 96   | 47    | 58   | 65    | 64   | 114  |
| 105° | 450  | 494   | 90   | 106   | 112  | 481  |
| 115° | 851  | 876   | 913  | 228   | 121  | 838  |
| 125° | 1203 | 1222  | 1250 | 1261  | 1265 | 1073 |
| 135° | 1489 | 1512  | 1526 | 1540  | 1537 | 1150 |
| 145° | 1727 | 1725  | 1750 | 1761  | 1753 | 1080 |
| 155° | 1901 | 1888  | 1906 | 1915  | 1903 | 876  |
| 165° | 2004 | 1995  | 1999 | 2009  | 1999 | 566  |
| 175° | 2049 | 2039  | 2042 | 2052  | 2038 | 195  |
| 180° | 2045 | 2045  | 2045 | 2045  | 2045 |      |

TEST NUMBER: P908503

CATALOG NUMBER: DFN2DIP-PN3F0-060D060US840-RLLONL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2504.3 | 2504.3 | 2504.3 | 2504.3 | 2504.3 |
| 2.5°   | 2515.6 | 2504.3 | 2479.2 | 2502.0 | 2497.5 |
| 5°     | 2504.3 | 2493.0 | 2463.4 | 2483.9 | 2477.1 |
| 7.5°   | 2483.9 | 2470.3 | 2438.6 | 2447.5 | 2436.2 |
| 10°    | 2456.6 | 2440.7 | 2395.6 | 2388.6 | 2375.1 |
| 12.5°  | 2422.8 | 2402.3 | 2341.0 | 2327.5 | 2302.5 |
| 15°    | 2381.9 | 2356.8 | 2279.9 | 2236.9 | 2214.2 |
| 17.5°  | 2334.3 | 2297.9 | 2202.7 | 2152.9 | 2116.7 |
| 20°    | 2279.9 | 2234.4 | 2121.2 | 2064.7 | 2014.7 |
| 22.5°  | 2221.0 | 2168.8 | 2037.3 | 1960.4 | 1926.4 |
| 25°    | 2162.1 | 2089.5 | 1940.0 | 1847.1 | 1813.0 |
| 27.5°  | 2091.9 | 2014.7 | 1849.3 | 1742.7 | 1690.6 |
| 30°    | 2017.1 | 1930.8 | 1749.5 | 1634.1 | 1572.8 |
| 32.5°  | 1944.5 | 1840.2 | 1654.6 | 1518.4 | 1461.7 |
| 35°    | 1863.0 | 1747.4 | 1548.0 | 1405.1 | 1355.1 |
| 37.5°  | 1783.6 | 1658.8 | 1448.2 | 1291.7 | 1235.2 |
| 40°    | 1699.7 | 1563.9 | 1343.8 | 1183.0 | 1124.1 |
| 42.5°  | 1613.7 | 1468.6 | 1239.7 | 1071.9 | 1015.4 |
| 45°    | 1523.0 | 1371.0 | 1133.3 | 972.1  | 917.8  |
| 47.5°  | 1436.9 | 1276.1 | 1031.3 | 870.2  | 820.4  |
| 50°    | 1341.7 | 1180.8 | 931.5  | 775.0  | 727.6  |
| 52.5°  | 1248.6 | 1078.6 | 836.3  | 686.7  | 643.7  |
| 55°    | 1158.0 | 981.3  | 736.5  | 600.7  | 557.5  |
| 57.5°  | 1065.2 | 883.8  | 648.2  | 521.3  | 484.9  |
| 60°    | 970.0  | 788.7  | 555.2  | 439.8  | 403.4  |
| 62.5°  | 877.2  | 695.9  | 475.8  | 367.2  | 349.1  |
| 65°    | 781.9  | 598.2  | 394.4  | 317.4  | 310.4  |
| 67.5°  | 691.3  | 507.6  | 317.4  | 278.7  | 272.0  |
| 70°    | 596.0  | 419.3  | 262.8  | 240.2  | 231.1  |
| 72.5°  | 505.4  | 337.6  | 219.7  | 201.8  | 197.1  |
| 75°    | 417.0  | 258.2  | 181.3  | 165.4  | 163.3  |
| 77.5°  | 328.7  | 183.5  | 142.8  | 133.7  | 129.2  |
| 80°    | 246.9  | 131.5  | 108.7  | 99.8   | 99.8   |
| 82.5°  | 172.2  | 88.5   | 74.7   | 70.2   | 70.2   |
| 85°    | 97.4   | 49.8   | 43.0   | 43.0   | 43.0   |
| 87.5°  | 36.4   | 18.1   | 18.1   | 15.9   | 15.9   |
| 90°    | 1.4    | 17.8   | 29.5   | 37.1   | 39.9   |
| 92.5°  | 37.1   | 31.1   | 35.4   | 38.5   | 39.9   |
| 95°    | 96.1   | 47.3   | 57.7   | 65.2   | 63.6   |
| 97.5°  | 173.1  | 51.8   | 75.3   | 80.0   | 81.4   |
| 100°   | 262.0  | 59.2   | 84.3   | 96.1   | 99.1   |
| 102.5° | 359.5  | 356.7  | 87.4   | 103.5  | 108.1  |
| 105°   | 449.8  | 494.2  | 90.3   | 106.4  | 112.5  |
| 107.5° | 554.9  | 591.8  | 93.3   | 109.5  | 115.4  |
| 110°   | 655.6  | 686.5  | 259.0  | 111.1  | 116.8  |

TEST NUMBER: P908503

CATALOG NUMBER: DFN2DIP-PN3F0-060D060US840-RLLONL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 750.2  | 776.8  | 751.6  | 113.8  | 118.5  |
| 115°   | 850.8  | 876.0  | 913.0  | 227.9  | 121.4  |
| 117.5° | 938.1  | 967.7  | 992.9  | 781.2  | 393.5  |
| 120°   | 1035.8 | 1057.9 | 1084.7 | 1102.4 | 902.6  |
| 122.5° | 1118.5 | 1142.3 | 1171.9 | 1180.7 | 1182.4 |
| 125°   | 1203.0 | 1222.2 | 1250.3 | 1260.7 | 1265.1 |
| 127.5° | 1279.9 | 1300.6 | 1322.9 | 1337.7 | 1339.1 |
| 130°   | 1352.4 | 1376.1 | 1392.3 | 1408.7 | 1407.2 |
| 132.5° | 1426.4 | 1445.7 | 1461.9 | 1475.2 | 1473.8 |
| 135°   | 1488.6 | 1512.4 | 1525.5 | 1540.4 | 1537.4 |
| 137.5° | 1553.6 | 1571.4 | 1586.3 | 1601.0 | 1596.7 |
| 140°   | 1617.2 | 1629.2 | 1645.4 | 1658.7 | 1651.3 |
| 142.5° | 1670.6 | 1681.0 | 1700.2 | 1711.9 | 1704.6 |
| 145°   | 1726.9 | 1725.3 | 1750.4 | 1760.8 | 1753.4 |
| 147.5° | 1775.5 | 1771.1 | 1796.2 | 1803.6 | 1797.9 |
| 150°   | 1823.0 | 1812.6 | 1836.3 | 1845.1 | 1837.8 |
| 152.5° | 1862.9 | 1851.1 | 1873.2 | 1882.2 | 1871.8 |
| 155°   | 1901.4 | 1888.1 | 1905.9 | 1914.7 | 1902.9 |
| 157.5° | 1932.5 | 1920.7 | 1934.0 | 1944.4 | 1932.5 |
| 160°   | 1959.1 | 1950.2 | 1959.1 | 1967.9 | 1957.6 |
| 162.5° | 1982.7 | 1973.9 | 1981.3 | 1991.7 | 1978.3 |
| 165°   | 2003.5 | 1994.7 | 1999.0 | 2009.4 | 1999.0 |
| 167.5° | 2019.7 | 2010.8 | 2015.4 | 2025.8 | 2012.4 |
| 170°   | 2033.2 | 2024.2 | 2027.2 | 2037.5 | 2024.2 |
| 172.5° | 2041.9 | 2033.2 | 2036.1 | 2046.5 | 2033.2 |
| 175°   | 2049.3 | 2038.9 | 2041.9 | 2052.2 | 2037.5 |
| 177.5° | 2052.2 | 2041.9 | 2043.5 | 2053.9 | 2040.5 |
| 180°   | 2044.9 | 2044.9 | 2044.9 | 2044.9 | 2044.9 |

TEST NUMBER: P908503

CATALOG NUMBER: DFN2DIP-PN3F0-060D060US840-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 | 10.48            | 11.28 | 11.47 | 12.28 | 13.61 | 6.44           | 7.24  | 7.44  | 8.25  | 9.57  |
|                 | 3H   | 12.15            | 12.86 | 13.15 | 13.87 | 15.22 | 7.62           | 8.34  | 8.63  | 9.35  | 10.70 |
|                 | 4H   | 12.75            | 13.43 | 13.77 | 14.44 | 15.80 | 8.07           | 8.75  | 9.09  | 9.76  | 11.12 |
|                 | 6H   | 13.16            | 13.79 | 14.19 | 14.81 | 16.17 | 8.38           | 9.01  | 9.41  | 10.02 | 11.39 |
|                 | 8H   | 13.29            | 13.88 | 14.32 | 14.91 | 16.28 | 8.47           | 9.06  | 9.50  | 10.10 | 11.46 |
|                 | 12H  | 13.35            | 13.91 | 14.38 | 14.94 | 16.32 | 8.51           | 9.07  | 9.55  | 10.10 | 11.49 |
| 4H              | 2H   | 10.49            | 11.17 | 11.51 | 12.18 | 13.54 | 7.03           | 7.71  | 8.06  | 8.72  | 10.08 |
|                 | 3H   | 12.31            | 12.87 | 13.34 | 13.92 | 15.28 | 8.37           | 8.94  | 9.41  | 9.98  | 11.35 |
|                 | 4H   | 13.00            | 13.51 | 14.04 | 14.55 | 15.94 | 8.91           | 9.43  | 9.95  | 10.46 | 11.86 |
|                 | 6H   | 13.50            | 13.94 | 14.55 | 15.00 | 16.39 | 9.33           | 9.77  | 10.38 | 10.83 | 12.21 |
|                 | 8H   | 13.67            | 14.09 | 14.73 | 15.14 | 16.54 | 9.45           | 9.86  | 10.50 | 10.91 | 12.32 |
|                 | 12H  | 13.76            | 14.14 | 14.83 | 15.20 | 16.61 | 9.51           | 9.88  | 10.58 | 10.95 | 12.36 |
| 8H              | 4H   | 12.96            | 13.37 | 14.01 | 14.42 | 15.83 | 9.19           | 9.60  | 10.24 | 10.65 | 12.05 |
|                 | 6H   | 13.52            | 13.86 | 14.59 | 14.95 | 16.35 | 9.70           | 10.04 | 10.77 | 11.13 | 12.53 |
|                 | 8H   | 13.73            | 14.03 | 14.81 | 15.11 | 16.53 | 9.88           | 10.18 | 10.97 | 11.26 | 12.68 |
|                 | 12H  | 13.86            | 14.13 | 14.95 | 15.20 | 16.66 | 10.00          | 10.26 | 11.08 | 11.33 | 12.79 |
| 12H             | 4H   | 12.91            | 13.28 | 13.98 | 14.35 | 15.75 | 9.19           | 9.56  | 10.26 | 10.63 | 12.04 |
|                 | 6H   | 13.49            | 13.79 | 14.57 | 14.87 | 16.29 | 9.74           | 10.04 | 10.83 | 11.12 | 12.54 |
|                 | 8H   | 13.71            | 13.97 | 14.79 | 15.04 | 16.50 | 9.95           | 10.21 | 11.03 | 11.28 | 12.74 |

END OF REPORT