

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: P914521

Luminaire Tested: DFN2DIP-SQ2F0-080D080US927-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P914521  
REPORT IS A COMBINATION OF REPORTS P901361 AND P898215  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-080D080US927-FLLONL  
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

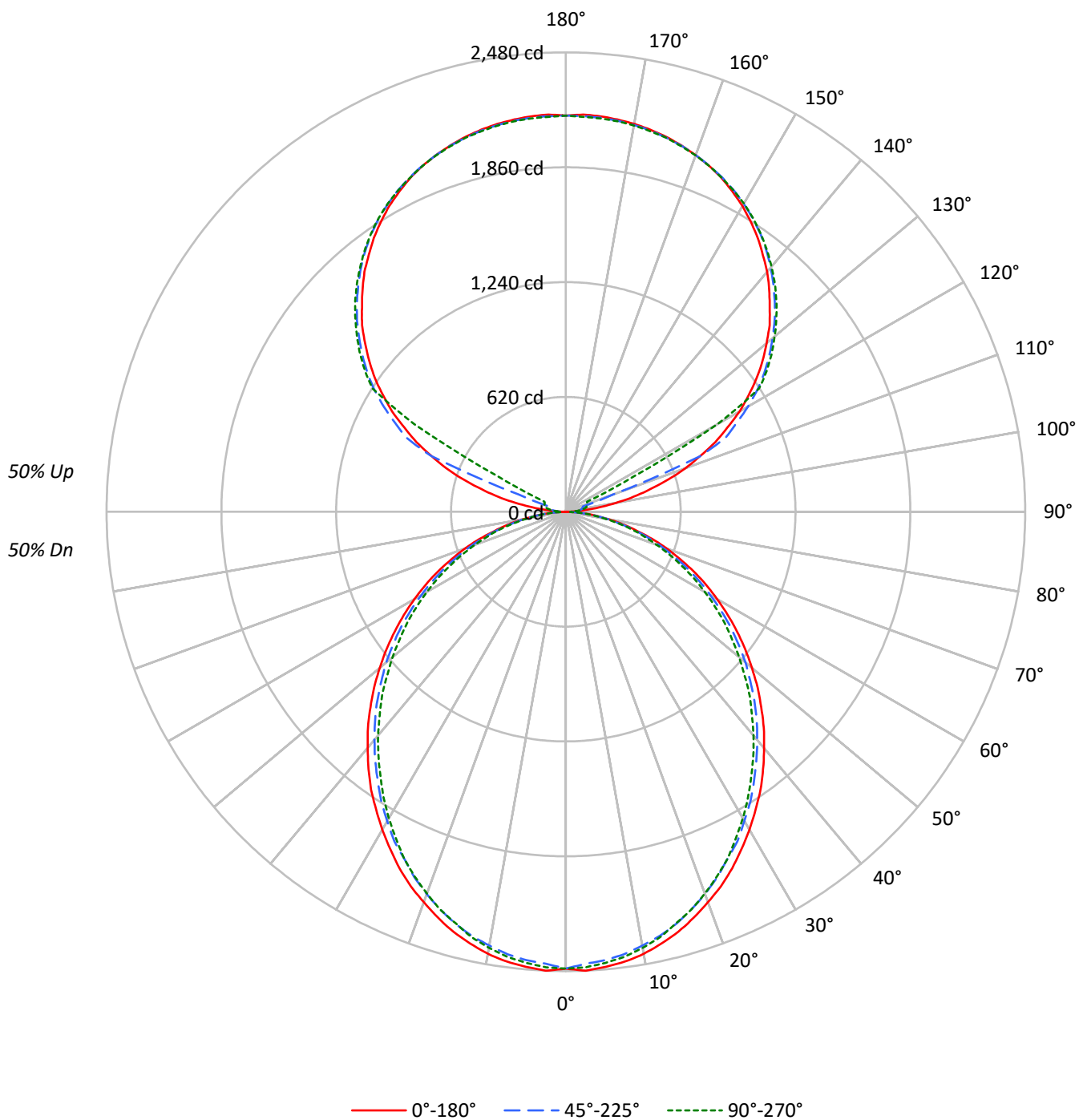
Lumens per Lamp: N/A  
Luminaire Lumens: 12548.1 lumens  
Efficiency: N/A  
Efficacy: 87.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 143.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9957  
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: P914521

CATALOG NUMBER: DFN2DIP-SQ2F0-080D080US927-FLLONL

### Luminous Intensity Polar Plot



TEST NUMBER: P914521

CATALOG NUMBER: DFN2DIP-SQ2F0-080D080US927-FLLONL

**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 | 99 | 99 | 99 | 99 | 83 | 83 | 83 | 69 | 69 | 69 | 56 | 56 | 56 |
| 1   | 98  | 93  | 90  | 86  | 90 | 86 | 83 | 80 | 73 | 71 | 68 | 61 | 59 | 58 | 50 | 48 | 47 |
| 2   | 89  | 82  | 75  | 70  | 82 | 76 | 70 | 66 | 64 | 60 | 57 | 53 | 51 | 48 | 44 | 42 | 40 |
| 3   | 81  | 72  | 64  | 59  | 75 | 66 | 60 | 55 | 56 | 52 | 48 | 47 | 44 | 41 | 39 | 36 | 34 |
| 4   | 74  | 64  | 56  | 50  | 68 | 59 | 52 | 47 | 50 | 45 | 41 | 42 | 38 | 35 | 35 | 32 | 29 |
| 5   | 68  | 57  | 48  | 42  | 63 | 53 | 45 | 40 | 45 | 39 | 35 | 38 | 34 | 30 | 31 | 28 | 26 |
| 6   | 63  | 51  | 43  | 37  | 58 | 47 | 40 | 35 | 40 | 35 | 31 | 34 | 30 | 27 | 28 | 25 | 23 |
| 7   | 58  | 46  | 38  | 32  | 53 | 43 | 36 | 30 | 37 | 31 | 27 | 31 | 27 | 23 | 26 | 23 | 20 |
| 8   | 54  | 42  | 34  | 29  | 50 | 39 | 32 | 27 | 33 | 28 | 24 | 28 | 24 | 21 | 24 | 20 | 18 |
| 9   | 50  | 38  | 30  | 25  | 46 | 35 | 29 | 24 | 31 | 25 | 21 | 26 | 22 | 19 | 22 | 19 | 16 |
| 10  | 47  | 35  | 28  | 23  | 43 | 33 | 26 | 22 | 28 | 23 | 19 | 24 | 20 | 17 | 20 | 17 | 15 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 5422 | 5422 | 5422 |
| 5°  | 5422 | 5335 | 5375 |
| 10° | 5368 | 5251 | 5295 |
| 15° | 5280 | 5153 | 5174 |
| 20° | 5164 | 5021 | 5050 |
| 25° | 5048 | 4866 | 4908 |
| 30° | 4905 | 4721 | 4729 |
| 35° | 4769 | 4551 | 4541 |
| 40° | 4604 | 4380 | 4361 |
| 45° | 4438 | 4207 | 4177 |
| 50° | 4256 | 4025 | 3964 |
| 55° | 4065 | 3815 | 3766 |
| 60° | 3848 | 3568 | 3540 |
| 65° | 3611 | 3310 | 3273 |
| 70° | 3309 | 2995 | 2984 |
| 75° | 2895 | 2618 | 2706 |
| 80° | 2392 | 2138 | 2198 |
| 85° | 1615 | 1350 | 1381 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4438 cd/sqm

TEST NUMBER: P914521

CATALOG NUMBER: DFN2DIP-SQ2F0-080D080US927-FLLONL

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 232.1   | 1.8       |
| 10°-20°   | 653.0   | 5.2       |
| 20°-30°   | 959.7   | 7.6       |
| 30°-40°   | 1114.6  | 8.9       |
| 40°-50°   | 1113.2  | 8.9       |
| 50°-60°   | 970.7   | 7.7       |
| 60°-70°   | 717.6   | 5.7       |
| 70°-80°   | 406.0   | 3.2       |
| 80°-90°   | 110.9   | 0.9       |
| 90°-100°  | 70.5    | 0.6       |
| 100°-110° | 262.9   | 2.1       |
| 110°-120° | 697.3   | 5.6       |
| 120°-130° | 1156.5  | 9.2       |
| 130°-140° | 1228.4  | 9.8       |
| 140°-150° | 1141.7  | 9.1       |
| 150°-160° | 917.9   | 7.3       |
| 160°-170° | 591.5   | 4.7       |
| 170°-180° | 203.6   | 1.6       |
| 0°-30°    | 1844.8  | 14.7      |
| 0°-40°    | 2959.4  | 23.6      |
| 0°-60°    | 5043.4  | 40.2      |
| 0°-90°    | 6277.8  | 50.0      |
| 90°-120°  | 1030.7  | 8.2       |
| 90°-150°  | 4557.3  | 36.3      |
| 90°-180°  | 6270.0  | 50.0      |
| 0°-180°   | 12548.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2466 | 2466  | 2466 | 2466  | 2466 |      |
| 5°   | 2466 | 2457  | 2430 | 2449  | 2445 | 234  |
| 15°  | 2348 | 2333  | 2302 | 2312  | 2300 | 661  |
| 25°  | 2125 | 2106  | 2066 | 2070  | 2066 | 978  |
| 35°  | 1833 | 1809  | 1771 | 1757  | 1745 | 1145 |
| 45°  | 1492 | 1475  | 1439 | 1413  | 1404 | 1151 |
| 55°  | 1129 | 1114  | 1086 | 1058  | 1046 | 1009 |
| 65°  | 761  | 747   | 723  | 702   | 690  | 753  |
| 75°  | 398  | 394   | 382  | 368   | 372  | 425  |
| 85°  | 97   | 95    | 93   | 85    | 83   | 108  |
| 90°  | 2    | 18    | 31   | 39    | 42   | 12   |
| 95°  | 100  | 49    | 60   | 68    | 66   | 119  |
| 105° | 470  | 517   | 94   | 111   | 118  | 503  |
| 115° | 890  | 916   | 955  | 238   | 127  | 876  |
| 125° | 1258 | 1278  | 1308 | 1319  | 1323 | 1122 |
| 135° | 1557 | 1582  | 1596 | 1611  | 1608 | 1203 |
| 145° | 1806 | 1804  | 1831 | 1842  | 1834 | 1130 |
| 155° | 1989 | 1975  | 1993 | 2003  | 1990 | 916  |
| 165° | 2096 | 2086  | 2091 | 2102  | 2091 | 592  |
| 175° | 2143 | 2133  | 2136 | 2146  | 2131 | 204  |
| 180° | 2139 | 2139  | 2139 | 2139  | 2139 |      |

TEST NUMBER: P914521

CATALOG NUMBER: DFN2DIP-SQ2F0-080D080US927-FLLONL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2465.9 | 2465.9 | 2465.9 | 2465.9 | 2465.9 |
| 2.5°   | 2480.2 | 2468.4 | 2442.3 | 2465.9 | 2461.4 |
| 5°     | 2465.9 | 2456.6 | 2430.5 | 2449.3 | 2444.8 |
| 7.5°   | 2449.3 | 2435.2 | 2409.1 | 2428.2 | 2423.4 |
| 10°    | 2423.4 | 2406.8 | 2378.4 | 2397.2 | 2390.2 |
| 12.5°  | 2387.7 | 2373.6 | 2345.2 | 2357.0 | 2352.2 |
| 15°    | 2347.5 | 2333.4 | 2302.4 | 2312.0 | 2300.2 |
| 17.5°  | 2297.6 | 2283.5 | 2252.6 | 2264.4 | 2252.6 |
| 20°    | 2243.1 | 2229.0 | 2195.8 | 2202.8 | 2193.5 |
| 22.5°  | 2188.7 | 2167.3 | 2136.4 | 2136.4 | 2131.6 |
| 25°    | 2124.6 | 2105.7 | 2065.5 | 2070.0 | 2065.5 |
| 27.5°  | 2053.3 | 2036.8 | 2006.0 | 1999.0 | 1987.2 |
| 30°    | 1982.4 | 1963.3 | 1927.9 | 1920.8 | 1911.2 |
| 32.5°  | 1906.5 | 1892.4 | 1854.3 | 1840.0 | 1830.5 |
| 35°    | 1832.9 | 1809.3 | 1771.3 | 1757.0 | 1745.2 |
| 37.5°  | 1749.9 | 1728.5 | 1690.6 | 1674.0 | 1662.2 |
| 40°    | 1664.7 | 1645.5 | 1607.6 | 1586.4 | 1576.8 |
| 42.5°  | 1581.7 | 1562.5 | 1524.8 | 1500.9 | 1486.8 |
| 45°    | 1491.6 | 1475.0 | 1439.2 | 1413.3 | 1403.8 |
| 47.5°  | 1403.8 | 1387.2 | 1349.2 | 1323.0 | 1308.9 |
| 50°    | 1311.2 | 1299.4 | 1266.1 | 1233.0 | 1221.1 |
| 52.5°  | 1221.1 | 1204.5 | 1173.9 | 1147.7 | 1131.1 |
| 55°    | 1128.8 | 1114.4 | 1086.1 | 1057.6 | 1045.8 |
| 57.5°  | 1036.3 | 1024.4 | 993.5  | 965.0  | 955.4  |
| 60°    | 943.6  | 934.4  | 901.1  | 875.0  | 867.9  |
| 62.5°  | 853.6  | 837.0  | 813.3  | 789.7  | 780.1  |
| 65°    | 761.3  | 746.9  | 723.3  | 701.9  | 690.1  |
| 67.5°  | 666.4  | 654.3  | 633.2  | 616.6  | 607.0  |
| 70°    | 578.6  | 569.0  | 547.7  | 531.1  | 521.7  |
| 72.5°  | 488.5  | 479.0  | 467.1  | 450.6  | 443.5  |
| 75°    | 398.2  | 393.7  | 381.7  | 367.6  | 372.3  |
| 77.5°  | 317.7  | 308.2  | 303.4  | 296.4  | 289.3  |
| 80°    | 237.3  | 234.7  | 230.0  | 222.9  | 218.1  |
| 82.5°  | 161.3  | 161.3  | 159.0  | 149.4  | 149.4  |
| 85°    | 97.1   | 94.8   | 92.6   | 85.3   | 83.0   |
| 87.5°  | 42.8   | 38.0   | 33.2   | 26.1   | 23.7   |
| 90°    | 1.5    | 18.5   | 30.9   | 38.7   | 41.7   |
| 92.5°  | 38.7   | 32.6   | 37.2   | 40.2   | 41.7   |
| 95°    | 100.5  | 49.4   | 60.3   | 68.2   | 66.5   |
| 97.5°  | 181.0  | 54.2   | 78.8   | 83.7   | 85.1   |
| 100°   | 274.0  | 61.9   | 88.2   | 100.5  | 103.6  |
| 102.5° | 376.0  | 373.0  | 91.3   | 108.2  | 113.0  |
| 105°   | 470.5  | 517.0  | 94.4   | 111.4  | 117.6  |
| 107.5° | 580.4  | 618.9  | 97.6   | 114.5  | 120.7  |
| 110°   | 685.7  | 718.0  | 270.9  | 116.1  | 122.2  |

TEST NUMBER: P914521

CATALOG NUMBER: DFN2DIP-SQ2F0-080D080US927-FLLONL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 784.7  | 812.5  | 786.2  | 119.1  | 123.9  |
| 115°   | 889.9  | 916.2  | 954.9  | 238.4  | 127.0  |
| 117.5° | 981.2  | 1012.1 | 1038.5 | 817.1  | 411.7  |
| 120°   | 1083.4 | 1106.5 | 1134.5 | 1153.0 | 944.0  |
| 122.5° | 1169.9 | 1194.8 | 1225.8 | 1235.0 | 1236.7 |
| 125°   | 1258.1 | 1278.3 | 1307.7 | 1318.6 | 1323.2 |
| 127.5° | 1338.6 | 1360.3 | 1383.7 | 1399.1 | 1400.6 |
| 130°   | 1414.5 | 1439.3 | 1456.3 | 1473.4 | 1471.9 |
| 132.5° | 1491.9 | 1512.1 | 1529.1 | 1543.0 | 1541.5 |
| 135°   | 1557.0 | 1581.7 | 1595.5 | 1611.2 | 1608.0 |
| 137.5° | 1625.0 | 1643.5 | 1659.1 | 1674.6 | 1670.0 |
| 140°   | 1691.5 | 1704.0 | 1720.9 | 1734.9 | 1727.1 |
| 142.5° | 1747.4 | 1758.2 | 1778.2 | 1790.6 | 1782.8 |
| 145°   | 1806.2 | 1804.5 | 1830.8 | 1841.7 | 1833.9 |
| 147.5° | 1857.1 | 1852.5 | 1878.7 | 1886.5 | 1880.4 |
| 150°   | 1906.7 | 1895.8 | 1920.6 | 1929.8 | 1922.1 |
| 152.5° | 1948.4 | 1936.1 | 1959.2 | 1968.6 | 1957.8 |
| 155°   | 1988.7 | 1974.9 | 1993.4 | 2002.6 | 1990.4 |
| 157.5° | 2021.2 | 2008.9 | 2022.8 | 2033.7 | 2021.2 |
| 160°   | 2049.1 | 2039.8 | 2049.1 | 2058.3 | 2047.5 |
| 162.5° | 2073.8 | 2064.6 | 2072.3 | 2083.1 | 2069.2 |
| 165°   | 2095.5 | 2086.3 | 2090.9 | 2101.7 | 2090.9 |
| 167.5° | 2112.5 | 2103.2 | 2107.9 | 2118.8 | 2104.8 |
| 170°   | 2126.5 | 2117.1 | 2120.3 | 2131.1 | 2117.1 |
| 172.5° | 2135.7 | 2126.5 | 2129.6 | 2140.5 | 2126.5 |
| 175°   | 2143.4 | 2132.6 | 2135.7 | 2146.5 | 2131.1 |
| 177.5° | 2146.5 | 2135.7 | 2137.3 | 2148.2 | 2134.2 |
| 180°   | 2138.8 | 2138.8 | 2138.8 | 2138.8 | 2138.8 |

TEST NUMBER: P914521

CATALOG NUMBER: DFN2DIP-SQ2F0-080D080US927-FLLONL

**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 | 13.03            | 13.89 | 13.99 | 14.87 | 16.14 | 12.59          | 13.45 | 13.55 | 14.42 | 15.69 |
|                 | 3H   | 14.67            | 15.45 | 15.64 | 16.43 | 17.72 | 14.18          | 14.96 | 15.15 | 15.94 | 17.23 |
|                 | 4H   | 15.25            | 15.98 | 16.23 | 16.97 | 18.27 | 14.76          | 15.49 | 15.74 | 16.47 | 17.77 |
|                 | 6H   | 15.63            | 16.31 | 16.63 | 17.30 | 18.61 | 15.13          | 15.81 | 16.13 | 16.80 | 18.11 |
|                 | 8H   | 15.73            | 16.37 | 16.73 | 17.38 | 18.69 | 15.23          | 15.87 | 16.23 | 16.88 | 18.19 |
|                 | 12H  | 15.77            | 16.38 | 16.78 | 17.38 | 18.72 | 15.26          | 15.87 | 16.27 | 16.88 | 18.21 |
| 4H              | 2H   | 13.48            | 14.22 | 14.47 | 15.20 | 16.50 | 13.13          | 13.86 | 14.12 | 14.84 | 16.15 |
|                 | 3H   | 15.33            | 15.94 | 16.32 | 16.95 | 18.27 | 14.92          | 15.53 | 15.92 | 16.54 | 17.86 |
|                 | 4H   | 16.03            | 16.58 | 17.03 | 17.59 | 18.93 | 15.60          | 16.16 | 16.61 | 17.17 | 18.51 |
|                 | 6H   | 16.52            | 17.00 | 17.54 | 18.03 | 19.37 | 16.09          | 16.57 | 17.11 | 17.60 | 18.94 |
|                 | 8H   | 16.66            | 17.11 | 17.68 | 18.14 | 19.49 | 16.23          | 16.67 | 17.24 | 17.70 | 19.05 |
|                 | 12H  | 16.73            | 17.13 | 17.76 | 18.17 | 19.53 | 16.28          | 16.68 | 17.31 | 17.72 | 19.08 |
| 8H              | 4H   | 16.21            | 16.66 | 17.23 | 17.68 | 19.03 | 15.83          | 16.28 | 16.85 | 17.31 | 18.66 |
|                 | 6H   | 16.82            | 17.19 | 17.86 | 18.25 | 19.60 | 16.43          | 16.80 | 17.48 | 17.87 | 19.22 |
|                 | 8H   | 17.03            | 17.35 | 18.08 | 18.40 | 19.77 | 16.63          | 16.96 | 17.68 | 18.01 | 19.38 |
|                 | 12H  | 17.14            | 17.43 | 18.20 | 18.48 | 19.89 | 16.73          | 17.02 | 17.79 | 18.07 | 19.48 |
| 12H             | 4H   | 16.19            | 16.60 | 17.23 | 17.64 | 18.99 | 15.82          | 16.23 | 16.86 | 17.27 | 18.62 |
|                 | 6H   | 16.84            | 17.17 | 17.89 | 18.22 | 19.59 | 16.47          | 16.80 | 17.52 | 17.85 | 19.22 |
|                 | 8H   | 17.07            | 17.36 | 18.12 | 18.40 | 19.81 | 16.69          | 16.98 | 17.74 | 18.02 | 19.43 |

END OF REPORT