

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: P923573

Luminaire Tested: DFN2DIP-TR3F0-070D060US940-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P923573  
REPORT IS A COMBINATION OF REPORTS P901841 AND P898751  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-070D060US940-FLLONL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

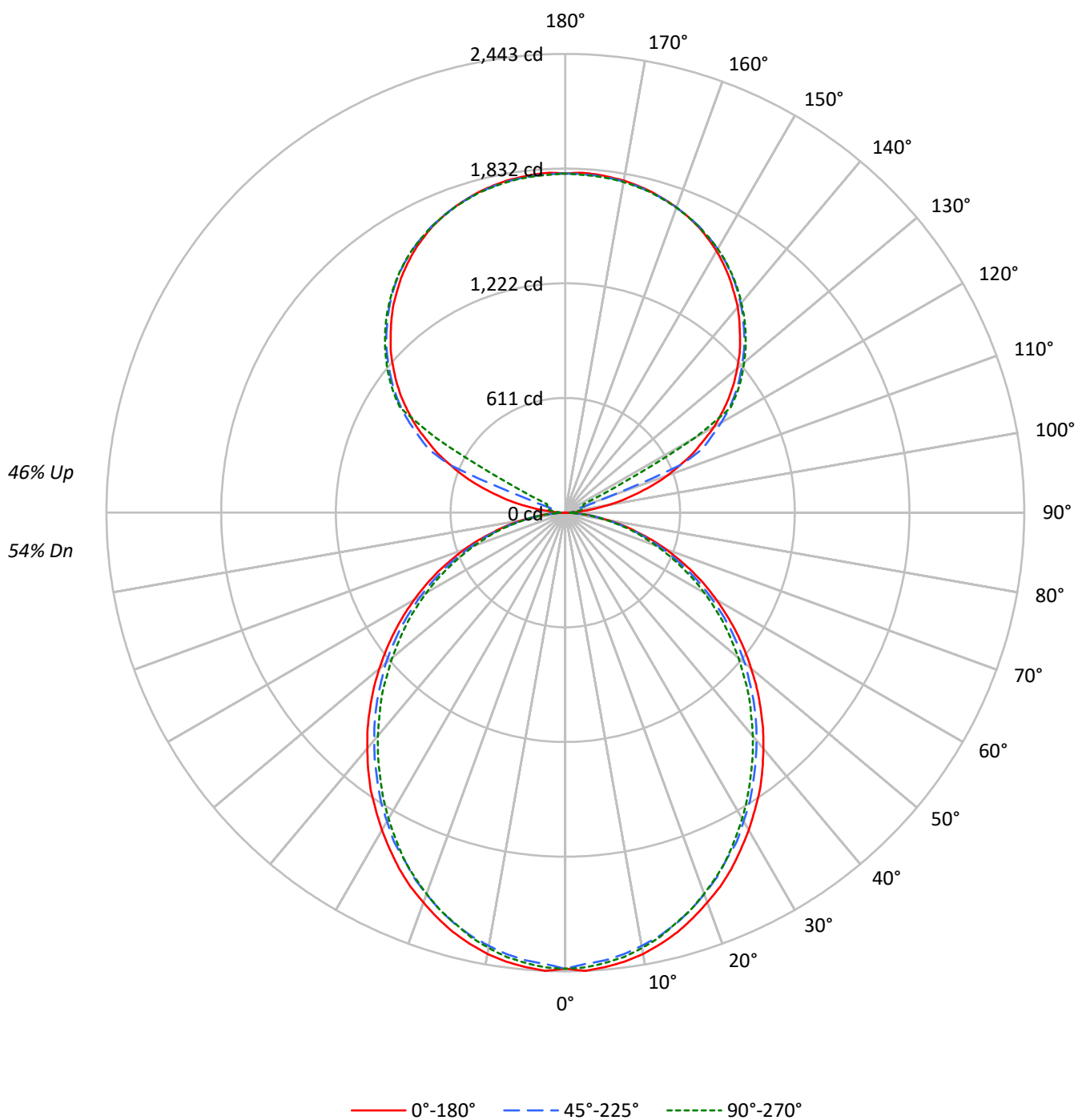
Lumens per Lamp: N/A  
Luminaire Lumens: 11476.3 lumens  
Efficiency: N/A  
Efficacy: 99.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 115.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
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: P923573

CATALOG NUMBER: DFN2DIP-TR3F0-070D060US940-FLONL

**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 | 85 | 85 | 85 | 72 | 72 | 72 | 60 | 60 | 60 |
| 1   | 99  | 94  | 90  | 87  | 91  | 88  | 84  | 81  | 75 | 73 | 70 | 63 | 62 | 60 | 53 | 52 | 50 |
| 2   | 90  | 82  | 76  | 71  | 83  | 77  | 71  | 67  | 66 | 62 | 58 | 56 | 53 | 50 | 46 | 44 | 42 |
| 3   | 82  | 72  | 65  | 59  | 76  | 67  | 61  | 56  | 58 | 53 | 49 | 49 | 46 | 42 | 41 | 38 | 36 |
| 4   | 75  | 64  | 56  | 50  | 69  | 60  | 53  | 47  | 52 | 46 | 42 | 44 | 40 | 36 | 37 | 34 | 31 |
| 5   | 69  | 57  | 49  | 43  | 64  | 53  | 46  | 41  | 46 | 40 | 36 | 39 | 35 | 32 | 33 | 30 | 27 |
| 6   | 63  | 51  | 43  | 37  | 59  | 48  | 41  | 35  | 42 | 36 | 31 | 36 | 31 | 28 | 30 | 27 | 24 |
| 7   | 59  | 46  | 38  | 33  | 54  | 43  | 36  | 31  | 38 | 32 | 28 | 32 | 28 | 24 | 27 | 24 | 21 |
| 8   | 54  | 42  | 34  | 29  | 50  | 39  | 32  | 28  | 34 | 29 | 25 | 30 | 25 | 22 | 25 | 22 | 19 |
| 9   | 51  | 38  | 31  | 26  | 47  | 36  | 29  | 25  | 32 | 26 | 22 | 27 | 23 | 20 | 23 | 20 | 17 |
| 10  | 47  | 35  | 28  | 23  | 44  | 33  | 27  | 22  | 29 | 24 | 20 | 25 | 21 | 18 | 22 | 18 | 16 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3027 | 3027 | 3027 |
| 5°  | 3030 | 2982 | 3002 |
| 10° | 3003 | 2939 | 2960 |
| 15° | 2958 | 2888 | 2894 |
| 20° | 2896 | 2818 | 2827 |
| 25° | 2835 | 2735 | 2750 |
| 30° | 2759 | 2658 | 2653 |
| 35° | 2687 | 2567 | 2550 |
| 40° | 2598 | 2475 | 2451 |
| 45° | 2509 | 2383 | 2351 |
| 50° | 2413 | 2286 | 2234 |
| 55° | 2311 | 2174 | 2127 |
| 60° | 2196 | 2042 | 2004 |
| 65° | 2070 | 1904 | 1858 |
| 70° | 1910 | 1735 | 1701 |
| 75° | 1689 | 1534 | 1554 |
| 80° | 1421 | 1276 | 1277 |
| 85° | 1005 | 840  | 825  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
Vertical Angle: 45°  
Luminance: 2509 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 228.6   | 2.0       |
| 10°-20°   | 643.2   | 5.6       |
| 20°-30°   | 945.2   | 8.2       |
| 30°-40°   | 1097.8  | 9.6       |
| 40°-50°   | 1096.5  | 9.6       |
| 50°-60°   | 956.1   | 8.3       |
| 60°-70°   | 706.8   | 6.2       |
| 70°-80°   | 399.9   | 3.5       |
| 80°-90°   | 108.7   | 0.9       |
| 90°-100°  | 59.5    | 0.5       |
| 100°-110° | 222.0   | 1.9       |
| 110°-120° | 588.7   | 5.1       |
| 120°-130° | 976.3   | 8.5       |
| 130°-140° | 1037.1  | 9.0       |
| 140°-150° | 963.9   | 8.4       |
| 150°-160° | 774.9   | 6.8       |
| 160°-170° | 499.3   | 4.4       |
| 170°-180° | 171.9   | 1.5       |
| 0°-30°    | 1817.0  | 15.8      |
| 0°-40°    | 2914.9  | 25.4      |
| 0°-60°    | 4967.4  | 43.3      |
| 0°-90°    | 6182.8  | 53.9      |
| 90°-120°  | 870.2   | 7.6       |
| 90°-150°  | 3847.4  | 33.5      |
| 90°-180°  | 5294.0  | 46.1      |
| 0°-180°   | 11476.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2429 | 2429  | 2429 | 2429  | 2429 |      |
| 5°   | 2429 | 2420  | 2394 | 2412  | 2408 | 231  |
| 15°  | 2312 | 2298  | 2268 | 2277  | 2266 | 651  |
| 25°  | 2093 | 2074  | 2034 | 2039  | 2034 | 963  |
| 35°  | 1805 | 1782  | 1745 | 1730  | 1719 | 1127 |
| 45°  | 1469 | 1453  | 1418 | 1392  | 1383 | 1134 |
| 55°  | 1112 | 1098  | 1070 | 1042  | 1030 | 994  |
| 65°  | 750  | 736   | 712  | 691   | 680  | 741  |
| 75°  | 392  | 388   | 376  | 362   | 367  | 419  |
| 85°  | 96   | 94    | 91   | 84    | 82   | 107  |
| 90°  | 1    | 16    | 26   | 33    | 35   | 11   |
| 95°  | 85   | 42    | 51   | 58    | 56   | 101  |
| 105° | 397  | 436   | 80   | 94    | 99   | 424  |
| 115° | 751  | 774   | 806  | 201   | 107  | 740  |
| 125° | 1062 | 1079  | 1104 | 1113  | 1117 | 947  |
| 135° | 1314 | 1335  | 1347 | 1360  | 1358 | 1015 |
| 145° | 1525 | 1523  | 1546 | 1555  | 1548 | 954  |
| 155° | 1679 | 1667  | 1683 | 1691  | 1680 | 774  |
| 165° | 1769 | 1761  | 1765 | 1774  | 1765 | 500  |
| 175° | 1810 | 1800  | 1803 | 1812  | 1799 | 172  |
| 180° | 1806 | 1806  | 1806 | 1806  | 1806 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2428.8 | 2428.8 | 2428.8 | 2428.8 | 2428.8 |
| 2.5°   | 2442.9 | 2431.2 | 2405.5 | 2428.8 | 2424.3 |
| 5°     | 2428.8 | 2419.7 | 2393.9 | 2412.4 | 2408.0 |
| 7.5°   | 2412.4 | 2398.5 | 2372.8 | 2391.7 | 2386.9 |
| 10°    | 2386.9 | 2370.5 | 2342.5 | 2361.2 | 2354.2 |
| 12.5°  | 2351.7 | 2337.9 | 2309.9 | 2321.5 | 2316.8 |
| 15°    | 2312.1 | 2298.2 | 2267.7 | 2277.2 | 2265.5 |
| 17.5°  | 2263.0 | 2249.2 | 2218.7 | 2230.3 | 2218.7 |
| 20°    | 2209.2 | 2195.4 | 2162.7 | 2169.6 | 2160.4 |
| 22.5°  | 2155.7 | 2134.7 | 2104.2 | 2104.2 | 2099.4 |
| 25°    | 2092.6 | 2073.9 | 2034.3 | 2038.8 | 2034.3 |
| 27.5°  | 2022.4 | 2006.1 | 1975.9 | 1968.9 | 1957.2 |
| 30°    | 1952.6 | 1933.7 | 1898.8 | 1891.9 | 1882.4 |
| 32.5°  | 1877.7 | 1863.9 | 1826.4 | 1812.3 | 1802.9 |
| 35°    | 1805.4 | 1782.1 | 1744.6 | 1730.5 | 1718.9 |
| 37.5°  | 1723.6 | 1702.5 | 1665.1 | 1648.8 | 1637.1 |
| 40°    | 1639.6 | 1620.8 | 1583.3 | 1562.5 | 1553.1 |
| 42.5°  | 1557.8 | 1539.0 | 1501.8 | 1478.3 | 1464.4 |
| 45°    | 1469.1 | 1452.8 | 1417.6 | 1392.0 | 1382.6 |
| 47.5°  | 1382.6 | 1366.3 | 1328.8 | 1303.1 | 1289.2 |
| 50°    | 1291.5 | 1279.8 | 1247.1 | 1214.4 | 1202.7 |
| 52.5°  | 1202.7 | 1186.4 | 1156.2 | 1130.4 | 1114.0 |
| 55°    | 1111.8 | 1097.7 | 1069.7 | 1041.7 | 1030.0 |
| 57.5°  | 1020.7 | 1009.0 | 978.5  | 950.5  | 941.1  |
| 60°    | 929.4  | 920.2  | 887.6  | 861.8  | 854.9  |
| 62.5°  | 840.7  | 824.4  | 801.1  | 777.8  | 768.4  |
| 65°    | 749.8  | 735.7  | 712.4  | 691.3  | 679.7  |
| 67.5°  | 656.4  | 644.5  | 623.7  | 607.3  | 597.9  |
| 70°    | 569.9  | 560.5  | 539.4  | 523.1  | 513.9  |
| 72.5°  | 481.2  | 471.8  | 460.1  | 443.8  | 436.8  |
| 75°    | 392.3  | 387.8  | 375.9  | 362.0  | 366.8  |
| 77.5°  | 313.0  | 303.5  | 298.8  | 291.9  | 285.0  |
| 80°    | 233.6  | 231.2  | 226.5  | 219.5  | 214.8  |
| 82.5°  | 158.8  | 158.8  | 156.6  | 147.2  | 147.2  |
| 85°    | 95.7   | 93.5   | 91.2   | 84.0   | 81.8   |
| 87.5°  | 42.1   | 37.5   | 32.7   | 25.8   | 23.3   |
| 90°    | 1.2    | 15.7   | 26.0   | 32.7   | 35.2   |
| 92.5°  | 32.7   | 27.5   | 31.3   | 34.0   | 35.2   |
| 95°    | 84.9   | 41.7   | 50.9   | 57.6   | 56.2   |
| 97.5°  | 152.8  | 45.7   | 66.5   | 70.6   | 71.9   |
| 100°   | 231.3  | 52.3   | 74.5   | 84.9   | 87.5   |
| 102.5° | 317.4  | 315.0  | 77.1   | 91.4   | 95.4   |
| 105°   | 397.2  | 436.4  | 79.7   | 94.0   | 99.3   |
| 107.5° | 490.0  | 522.5  | 82.4   | 96.7   | 101.9  |
| 110°   | 578.9  | 606.2  | 228.7  | 98.1   | 103.2  |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 662.5  | 685.9  | 663.7  | 100.5  | 104.6  |
| 115°   | 751.3  | 773.5  | 806.2  | 201.3  | 107.2  |
| 117.5° | 828.3  | 854.4  | 876.7  | 689.8  | 347.5  |
| 120°   | 914.6  | 934.2  | 957.8  | 973.4  | 797.0  |
| 122.5° | 987.7  | 1008.6 | 1034.8 | 1042.6 | 1044.0 |
| 125°   | 1062.2 | 1079.2 | 1104.0 | 1113.2 | 1117.0 |
| 127.5° | 1130.2 | 1148.4 | 1168.1 | 1181.2 | 1182.4 |
| 130°   | 1194.2 | 1215.1 | 1229.4 | 1243.8 | 1242.6 |
| 132.5° | 1259.5 | 1276.6 | 1290.8 | 1302.6 | 1301.4 |
| 135°   | 1314.5 | 1335.4 | 1347.0 | 1360.2 | 1357.5 |
| 137.5° | 1371.8 | 1387.5 | 1400.7 | 1413.7 | 1409.9 |
| 140°   | 1428.0 | 1438.6 | 1452.9 | 1464.6 | 1458.1 |
| 142.5° | 1475.2 | 1484.3 | 1501.3 | 1511.6 | 1505.1 |
| 145°   | 1524.8 | 1523.4 | 1545.6 | 1554.8 | 1548.3 |
| 147.5° | 1567.8 | 1563.9 | 1586.1 | 1592.6 | 1587.5 |
| 150°   | 1609.7 | 1600.5 | 1621.5 | 1629.2 | 1622.7 |
| 152.5° | 1644.9 | 1634.5 | 1654.0 | 1662.0 | 1652.8 |
| 155°   | 1678.9 | 1667.2 | 1682.9 | 1690.7 | 1680.2 |
| 157.5° | 1706.4 | 1695.9 | 1707.7 | 1716.9 | 1706.4 |
| 160°   | 1729.9 | 1722.0 | 1729.9 | 1737.7 | 1728.6 |
| 162.5° | 1750.7 | 1742.9 | 1749.4 | 1758.6 | 1746.9 |
| 165°   | 1769.1 | 1761.3 | 1765.1 | 1774.3 | 1765.1 |
| 167.5° | 1783.4 | 1775.6 | 1779.6 | 1788.8 | 1776.9 |
| 170°   | 1795.3 | 1787.3 | 1790.0 | 1799.1 | 1787.3 |
| 172.5° | 1803.0 | 1795.3 | 1797.9 | 1807.1 | 1795.3 |
| 175°   | 1809.5 | 1800.4 | 1803.0 | 1812.1 | 1799.1 |
| 177.5° | 1812.1 | 1803.0 | 1804.4 | 1813.6 | 1801.8 |
| 180°   | 1805.6 | 1805.6 | 1805.6 | 1805.6 | 1805.6 |

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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 | 11.42            | 12.32 | 12.34 | 13.26 | 14.47 | 10.99          | 11.89 | 11.91 | 12.83 | 14.04 |
|                 | 3H   | 13.07            | 13.88 | 14.01 | 14.83 | 16.07 | 12.60          | 13.41 | 13.54 | 14.36 | 15.60 |
|                 | 4H   | 13.66            | 14.42 | 14.60 | 15.37 | 16.62 | 13.19          | 13.95 | 14.14 | 14.90 | 16.15 |
|                 | 6H   | 14.05            | 14.75 | 15.01 | 15.71 | 16.97 | 13.58          | 14.28 | 14.54 | 15.24 | 16.50 |
|                 | 8H   | 14.15            | 14.82 | 15.12 | 15.80 | 17.06 | 13.68          | 14.35 | 14.65 | 15.33 | 16.59 |
|                 | 12H  | 14.20            | 14.83 | 15.17 | 15.81 | 17.09 | 13.72          | 14.36 | 14.70 | 15.33 | 16.62 |
| 4H              | 2H   | 11.88            | 12.64 | 12.84 | 13.60 | 14.85 | 11.54          | 12.30 | 12.49 | 13.26 | 14.50 |
|                 | 3H   | 13.74            | 14.38 | 14.70 | 15.36 | 16.62 | 13.35          | 13.99 | 14.32 | 14.97 | 16.23 |
|                 | 4H   | 14.45            | 15.03 | 15.42 | 16.01 | 17.29 | 14.05          | 14.63 | 15.02 | 15.61 | 16.89 |
|                 | 6H   | 14.96            | 15.46 | 15.94 | 16.46 | 17.74 | 14.55          | 15.05 | 15.54 | 16.06 | 17.34 |
|                 | 8H   | 15.10            | 15.57 | 16.09 | 16.57 | 17.87 | 14.70          | 15.16 | 15.68 | 16.16 | 17.46 |
|                 | 12H  | 15.17            | 15.60 | 16.18 | 16.61 | 17.91 | 14.76          | 15.18 | 15.76 | 16.19 | 17.50 |
| 8H              | 4H   | 14.64            | 15.11 | 15.63 | 16.11 | 17.41 | 14.29          | 14.75 | 15.28 | 15.75 | 17.05 |
|                 | 6H   | 15.27            | 15.65 | 16.28 | 16.69 | 17.99 | 14.91          | 15.29 | 15.92 | 16.33 | 17.63 |
|                 | 8H   | 15.48            | 15.82 | 16.50 | 16.85 | 18.16 | 15.12          | 15.46 | 16.14 | 16.48 | 17.80 |
|                 | 12H  | 15.61            | 15.91 | 16.63 | 16.93 | 18.29 | 15.23          | 15.53 | 16.25 | 16.55 | 17.91 |
| 12H             | 4H   | 14.63            | 15.05 | 15.64 | 16.06 | 17.37 | 14.28          | 14.70 | 15.29 | 15.72 | 17.02 |
|                 | 6H   | 15.29            | 15.64 | 16.32 | 16.66 | 17.98 | 14.95          | 15.29 | 15.97 | 16.31 | 17.63 |
|                 | 8H   | 15.53            | 15.83 | 16.56 | 16.85 | 18.21 | 15.18          | 15.48 | 16.20 | 16.50 | 17.86 |

END OF REPORT