

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: P926309

Luminaire Tested: DFN2DIP-TR3F0-070D080US950-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P926309  
REPORT IS A COMBINATION OF REPORTS P901869 AND P898751  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-070D080US950-FLLONL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

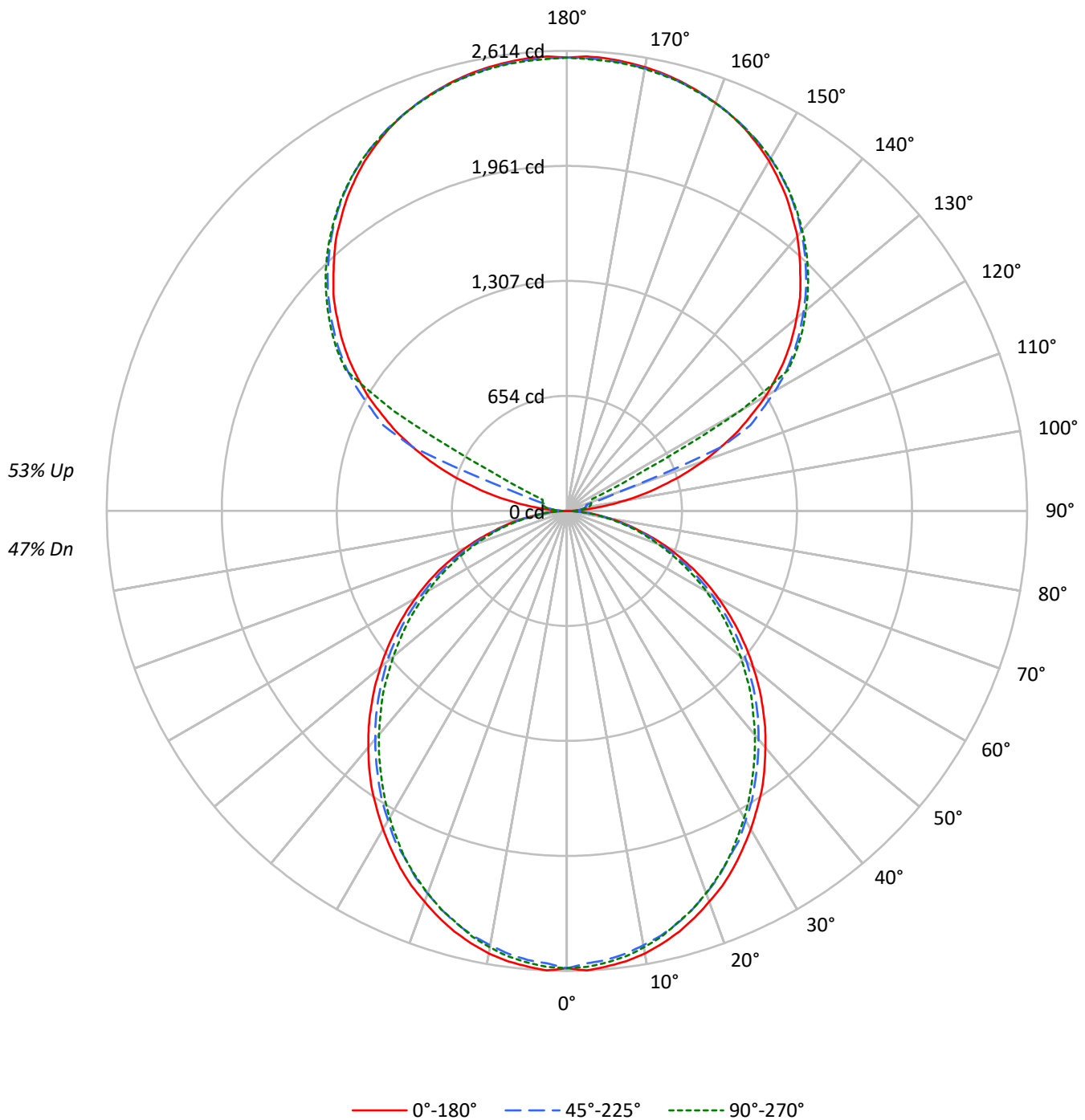
Lumens per Lamp: N/A  
Luminaire Lumens: 14167.0 lumens  
Efficiency: N/A  
Efficacy: 107.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 131.3  
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: P926309

CATALOG NUMBER: DFN2DIP-TR3F0-070D080US950-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   | 106 | 106 | 106 | 106 | 98 | 98 | 98 | 98 | 81 | 81 | 81 | 67 | 67 | 67 | 53 | 53 | 53 |
| 1   | 97  | 93  | 89  | 85  | 89 | 85 | 82 | 79 | 71 | 69 | 67 | 59 | 57 | 56 | 47 | 46 | 45 |
| 2   | 88  | 81  | 75  | 70  | 81 | 75 | 69 | 65 | 63 | 59 | 55 | 52 | 49 | 46 | 41 | 39 | 38 |
| 3   | 81  | 71  | 64  | 58  | 74 | 66 | 59 | 54 | 55 | 50 | 47 | 46 | 42 | 39 | 37 | 34 | 32 |
| 4   | 74  | 63  | 55  | 49  | 67 | 58 | 51 | 46 | 49 | 44 | 40 | 41 | 37 | 34 | 33 | 30 | 28 |
| 5   | 68  | 56  | 48  | 42  | 62 | 52 | 45 | 39 | 44 | 38 | 34 | 36 | 32 | 29 | 29 | 27 | 24 |
| 6   | 62  | 50  | 42  | 36  | 57 | 47 | 39 | 34 | 40 | 34 | 30 | 33 | 29 | 25 | 27 | 24 | 21 |
| 7   | 58  | 45  | 37  | 32  | 53 | 42 | 35 | 30 | 36 | 30 | 26 | 30 | 26 | 23 | 24 | 21 | 19 |
| 8   | 53  | 41  | 33  | 28  | 49 | 38 | 31 | 27 | 33 | 27 | 23 | 27 | 23 | 20 | 22 | 19 | 17 |
| 9   | 50  | 38  | 30  | 25  | 46 | 35 | 28 | 24 | 30 | 25 | 21 | 25 | 21 | 18 | 21 | 18 | 15 |
| 10  | 46  | 34  | 27  | 22  | 43 | 32 | 26 | 21 | 28 | 22 | 19 | 23 | 19 | 16 | 19 | 16 | 14 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3238 | 3238 | 3238 |
| 5°  | 3241 | 3190 | 3212 |
| 10° | 3213 | 3144 | 3167 |
| 15° | 3164 | 3090 | 3096 |
| 20° | 3098 | 3015 | 3025 |
| 25° | 3033 | 2927 | 2942 |
| 30° | 2952 | 2844 | 2838 |
| 35° | 2874 | 2747 | 2728 |
| 40° | 2780 | 2648 | 2622 |
| 45° | 2685 | 2550 | 2515 |
| 50° | 2581 | 2446 | 2390 |
| 55° | 2472 | 2326 | 2275 |
| 60° | 2349 | 2184 | 2144 |
| 65° | 2215 | 2037 | 1988 |
| 70° | 2044 | 1857 | 1820 |
| 75° | 1807 | 1641 | 1662 |
| 80° | 1520 | 1365 | 1366 |
| 85° | 1075 | 899  | 882  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2685 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 244.6   | 1.7       |
| 10°-20°   | 688.1   | 4.9       |
| 20°-30°   | 1011.3  | 7.1       |
| 30°-40°   | 1174.5  | 8.3       |
| 40°-50°   | 1173.1  | 8.3       |
| 50°-60°   | 1022.9  | 7.2       |
| 60°-70°   | 756.1   | 5.3       |
| 70°-80°   | 427.8   | 3.0       |
| 80°-90°   | 117.5   | 0.8       |
| 90°-100°  | 84.9    | 0.6       |
| 100°-110° | 316.6   | 2.2       |
| 110°-120° | 839.7   | 5.9       |
| 120°-130° | 1392.7  | 9.8       |
| 130°-140° | 1479.4  | 10.4      |
| 140°-150° | 1374.9  | 9.7       |
| 150°-160° | 1105.4  | 7.8       |
| 160°-170° | 712.3   | 5.0       |
| 170°-180° | 245.2   | 1.7       |
| 0°-30°    | 1943.9  | 13.7      |
| 0°-40°    | 3118.5  | 22.0      |
| 0°-60°    | 5314.4  | 37.5      |
| 0°-90°    | 6615.8  | 46.7      |
| 90°-120°  | 1241.3  | 8.8       |
| 90°-150°  | 5488.3  | 38.7      |
| 90°-180°  | 7551.0  | 53.3      |
| 0°-180°   | 14167.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2598 | 2598  | 2598 | 2598  | 2598 |      |
| 5°   | 2598 | 2589  | 2561 | 2581  | 2576 | 247  |
| 15°  | 2474 | 2459  | 2426 | 2436  | 2424 | 697  |
| 25°  | 2239 | 2219  | 2176 | 2181  | 2176 | 1030 |
| 35°  | 1932 | 1907  | 1866 | 1851  | 1839 | 1206 |
| 45°  | 1572 | 1554  | 1517 | 1489  | 1479 | 1213 |
| 55°  | 1189 | 1174  | 1144 | 1114  | 1102 | 1063 |
| 65°  | 802  | 787   | 762  | 740   | 727  | 793  |
| 75°  | 420  | 415   | 402  | 387   | 392  | 448  |
| 85°  | 102  | 100   | 98   | 90    | 88   | 114  |
| 90°  | 2    | 22    | 37   | 47    | 50   | 13   |
| 95°  | 121  | 60    | 73   | 82    | 80   | 143  |
| 105° | 567  | 623   | 114  | 134   | 142  | 605  |
| 115° | 1072 | 1103  | 1150 | 287   | 153  | 1055 |
| 125° | 1515 | 1540  | 1575 | 1588  | 1594 | 1351 |
| 135° | 1875 | 1905  | 1922 | 1940  | 1936 | 1448 |
| 145° | 2175 | 2173  | 2205 | 2218  | 2208 | 1360 |
| 155° | 2395 | 2378  | 2401 | 2412  | 2397 | 1104 |
| 165° | 2524 | 2512  | 2518 | 2531  | 2518 | 713  |
| 175° | 2581 | 2568  | 2572 | 2585  | 2566 | 246  |
| 180° | 2576 | 2576  | 2576 | 2576  | 2576 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2598.4 | 2598.4 | 2598.4 | 2598.4 | 2598.4 |
| 2.5°   | 2613.6 | 2601.1 | 2573.5 | 2598.4 | 2593.6 |
| 5°     | 2598.4 | 2588.7 | 2561.1 | 2581.0 | 2576.2 |
| 7.5°   | 2581.0 | 2566.1 | 2538.5 | 2558.7 | 2553.7 |
| 10°    | 2553.7 | 2536.1 | 2506.2 | 2526.1 | 2518.7 |
| 12.5°  | 2516.0 | 2501.2 | 2471.2 | 2483.6 | 2478.6 |
| 15°    | 2473.6 | 2458.7 | 2426.1 | 2436.2 | 2423.7 |
| 17.5°  | 2421.1 | 2406.3 | 2373.6 | 2386.1 | 2373.6 |
| 20°    | 2363.5 | 2348.7 | 2313.7 | 2321.2 | 2311.4 |
| 22.5°  | 2306.3 | 2283.8 | 2251.2 | 2251.2 | 2246.1 |
| 25°    | 2238.8 | 2218.8 | 2176.5 | 2181.2 | 2176.5 |
| 27.5°  | 2163.7 | 2146.2 | 2113.9 | 2106.4 | 2093.9 |
| 30°    | 2089.0 | 2068.7 | 2031.4 | 2024.0 | 2013.9 |
| 32.5°  | 2008.8 | 1994.1 | 1954.0 | 1938.9 | 1928.8 |
| 35°    | 1931.5 | 1906.6 | 1866.5 | 1851.4 | 1838.9 |
| 37.5°  | 1844.0 | 1821.5 | 1781.4 | 1763.9 | 1751.4 |
| 40°    | 1754.1 | 1734.0 | 1693.9 | 1671.7 | 1661.6 |
| 42.5°  | 1666.6 | 1646.5 | 1606.7 | 1581.5 | 1566.7 |
| 45°    | 1571.7 | 1554.3 | 1516.6 | 1489.3 | 1479.2 |
| 47.5°  | 1479.2 | 1461.7 | 1421.7 | 1394.1 | 1379.3 |
| 50°    | 1381.7 | 1369.2 | 1334.2 | 1299.3 | 1286.8 |
| 52.5°  | 1286.8 | 1269.3 | 1237.0 | 1209.4 | 1191.8 |
| 55°    | 1189.4 | 1174.4 | 1144.4 | 1114.5 | 1102.0 |
| 57.5°  | 1091.9 | 1079.5 | 1046.8 | 1016.9 | 1006.9 |
| 60°    | 994.4  | 984.5  | 949.6  | 922.0  | 914.6  |
| 62.5°  | 899.4  | 882.0  | 857.1  | 832.2  | 822.1  |
| 65°    | 802.2  | 787.0  | 762.2  | 739.6  | 727.1  |
| 67.5°  | 702.2  | 689.6  | 667.2  | 649.8  | 639.7  |
| 70°    | 609.7  | 599.7  | 577.1  | 559.6  | 549.8  |
| 72.5°  | 514.8  | 504.8  | 492.3  | 474.8  | 467.4  |
| 75°    | 419.7  | 414.9  | 402.1  | 387.3  | 392.4  |
| 77.5°  | 334.9  | 324.7  | 319.7  | 312.2  | 304.9  |
| 80°    | 249.9  | 247.4  | 242.3  | 234.9  | 229.8  |
| 82.5°  | 169.9  | 169.9  | 167.5  | 157.5  | 157.5  |
| 85°    | 102.4  | 100.0  | 97.6   | 89.9   | 87.5   |
| 87.5°  | 45.0   | 40.1   | 35.0   | 27.6   | 24.9   |
| 90°    | 1.8    | 22.3   | 37.2   | 46.7   | 50.3   |
| 92.5°  | 46.7   | 39.2   | 44.7   | 48.5   | 50.3   |
| 95°    | 121.1  | 59.5   | 72.6   | 82.1   | 80.1   |
| 97.5°  | 218.0  | 65.3   | 94.9   | 100.7  | 102.5  |
| 100°   | 330.0  | 74.6   | 106.3  | 121.1  | 124.8  |
| 102.5° | 452.9  | 449.2  | 110.0  | 130.3  | 136.1  |
| 105°   | 566.6  | 622.6  | 113.7  | 134.1  | 141.7  |
| 107.5° | 698.9  | 745.4  | 117.5  | 137.9  | 145.4  |
| 110°   | 825.8  | 864.7  | 326.3  | 139.9  | 147.2  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 945.0  | 978.4  | 946.8  | 143.4  | 149.2  |
| 115°   | 1071.6 | 1103.3 | 1150.0 | 287.1  | 152.9  |
| 117.5° | 1181.6 | 1218.8 | 1250.7 | 984.0  | 495.8  |
| 120°   | 1304.7 | 1332.5 | 1366.2 | 1388.5 | 1136.9 |
| 122.5° | 1408.9 | 1438.8 | 1476.2 | 1487.3 | 1489.3 |
| 125°   | 1515.1 | 1539.5 | 1574.9 | 1587.9 | 1593.5 |
| 127.5° | 1612.1 | 1638.2 | 1666.4 | 1684.9 | 1686.7 |
| 130°   | 1703.5 | 1733.3 | 1753.7 | 1774.3 | 1772.5 |
| 132.5° | 1796.7 | 1821.0 | 1841.4 | 1858.2 | 1856.4 |
| 135°   | 1875.0 | 1904.9 | 1921.5 | 1940.3 | 1936.5 |
| 137.5° | 1956.9 | 1979.3 | 1998.1 | 2016.7 | 2011.1 |
| 140°   | 2037.0 | 2052.1 | 2072.5 | 2089.3 | 2079.9 |
| 142.5° | 2104.3 | 2117.3 | 2141.4 | 2156.3 | 2147.0 |
| 145°   | 2175.1 | 2173.1 | 2204.8 | 2217.9 | 2208.5 |
| 147.5° | 2236.5 | 2230.9 | 2262.5 | 2271.9 | 2264.5 |
| 150°   | 2296.2 | 2283.1 | 2313.0 | 2324.0 | 2314.8 |
| 152.5° | 2346.5 | 2331.6 | 2359.4 | 2370.8 | 2357.7 |
| 155°   | 2394.9 | 2378.3 | 2400.6 | 2411.7 | 2396.9 |
| 157.5° | 2434.0 | 2419.2 | 2436.0 | 2449.1 | 2434.0 |
| 160°   | 2467.7 | 2456.5 | 2467.7 | 2478.8 | 2465.7 |
| 162.5° | 2497.4 | 2486.3 | 2495.6 | 2508.6 | 2491.8 |
| 165°   | 2523.5 | 2512.5 | 2518.0 | 2531.0 | 2518.0 |
| 167.5° | 2544.0 | 2532.8 | 2538.5 | 2551.6 | 2534.8 |
| 170°   | 2560.9 | 2549.6 | 2553.4 | 2566.5 | 2549.6 |
| 172.5° | 2572.0 | 2560.9 | 2564.6 | 2577.7 | 2560.9 |
| 175°   | 2581.2 | 2568.2 | 2572.0 | 2585.0 | 2566.5 |
| 177.5° | 2585.0 | 2572.0 | 2573.9 | 2587.0 | 2570.2 |
| 180°   | 2575.7 | 2575.7 | 2575.7 | 2575.7 | 2575.7 |

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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 | 10.99            | 11.82 | 11.97 | 12.82 | 14.14 | 10.56          | 11.39 | 11.55 | 12.39 | 13.71 |
|                 | 3H   | 12.64            | 13.38 | 13.63 | 14.39 | 15.73 | 12.17          | 12.92 | 13.17 | 13.92 | 15.26 |
|                 | 4H   | 13.22            | 13.93 | 14.23 | 14.93 | 16.28 | 12.75          | 13.46 | 13.76 | 14.47 | 15.81 |
|                 | 6H   | 13.61            | 14.26 | 14.63 | 15.27 | 16.63 | 13.14          | 13.79 | 14.16 | 14.81 | 16.16 |
|                 | 8H   | 13.71            | 14.33 | 14.73 | 15.36 | 16.72 | 13.24          | 13.86 | 14.27 | 14.89 | 16.25 |
|                 | 12H  | 13.75            | 14.34 | 14.78 | 15.37 | 16.75 | 13.28          | 13.87 | 14.31 | 14.89 | 16.27 |
| 4H              | 2H   | 11.44            | 12.15 | 12.46 | 13.16 | 14.51 | 11.10          | 11.81 | 12.12 | 12.82 | 14.16 |
|                 | 3H   | 13.30            | 13.89 | 14.32 | 14.92 | 16.29 | 12.91          | 13.50 | 13.93 | 14.54 | 15.90 |
|                 | 4H   | 14.00            | 14.54 | 15.03 | 15.57 | 16.96 | 13.60          | 14.14 | 14.63 | 15.17 | 16.55 |
|                 | 6H   | 14.51            | 14.97 | 15.55 | 16.03 | 17.40 | 14.10          | 14.57 | 15.14 | 15.62 | 17.00 |
|                 | 8H   | 14.65            | 15.09 | 15.69 | 16.13 | 17.53 | 14.25          | 14.68 | 15.29 | 15.73 | 17.12 |
|                 | 12H  | 14.72            | 15.11 | 15.78 | 16.17 | 17.57 | 14.30          | 14.70 | 15.36 | 15.76 | 17.16 |
| 8H              | 4H   | 14.19            | 14.63 | 15.24 | 15.67 | 17.07 | 13.84          | 14.27 | 14.88 | 15.32 | 16.71 |
|                 | 6H   | 14.81            | 15.17 | 15.88 | 16.26 | 17.65 | 14.45          | 14.81 | 15.52 | 15.90 | 17.29 |
|                 | 8H   | 15.03            | 15.34 | 16.10 | 16.41 | 17.82 | 14.66          | 14.98 | 15.74 | 16.05 | 17.46 |
|                 | 12H  | 15.15            | 15.43 | 16.23 | 16.50 | 17.95 | 14.77          | 15.05 | 15.85 | 16.12 | 17.57 |
| 12H             | 4H   | 14.18            | 14.57 | 15.24 | 15.63 | 17.03 | 13.83          | 14.22 | 14.89 | 15.28 | 16.68 |
|                 | 6H   | 14.84            | 15.16 | 15.91 | 16.23 | 17.64 | 14.49          | 14.81 | 15.57 | 15.88 | 17.29 |
|                 | 8H   | 15.07            | 15.35 | 16.15 | 16.42 | 17.87 | 14.72          | 15.00 | 15.80 | 16.07 | 17.52 |

END OF REPORT