

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: P923552

Luminaire Tested: DFN2DIP-TR3F0-060D070US940-RLFL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P923552  
REPORT IS A COMBINATION OF REPORTS P900334 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-060D070US940-RLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

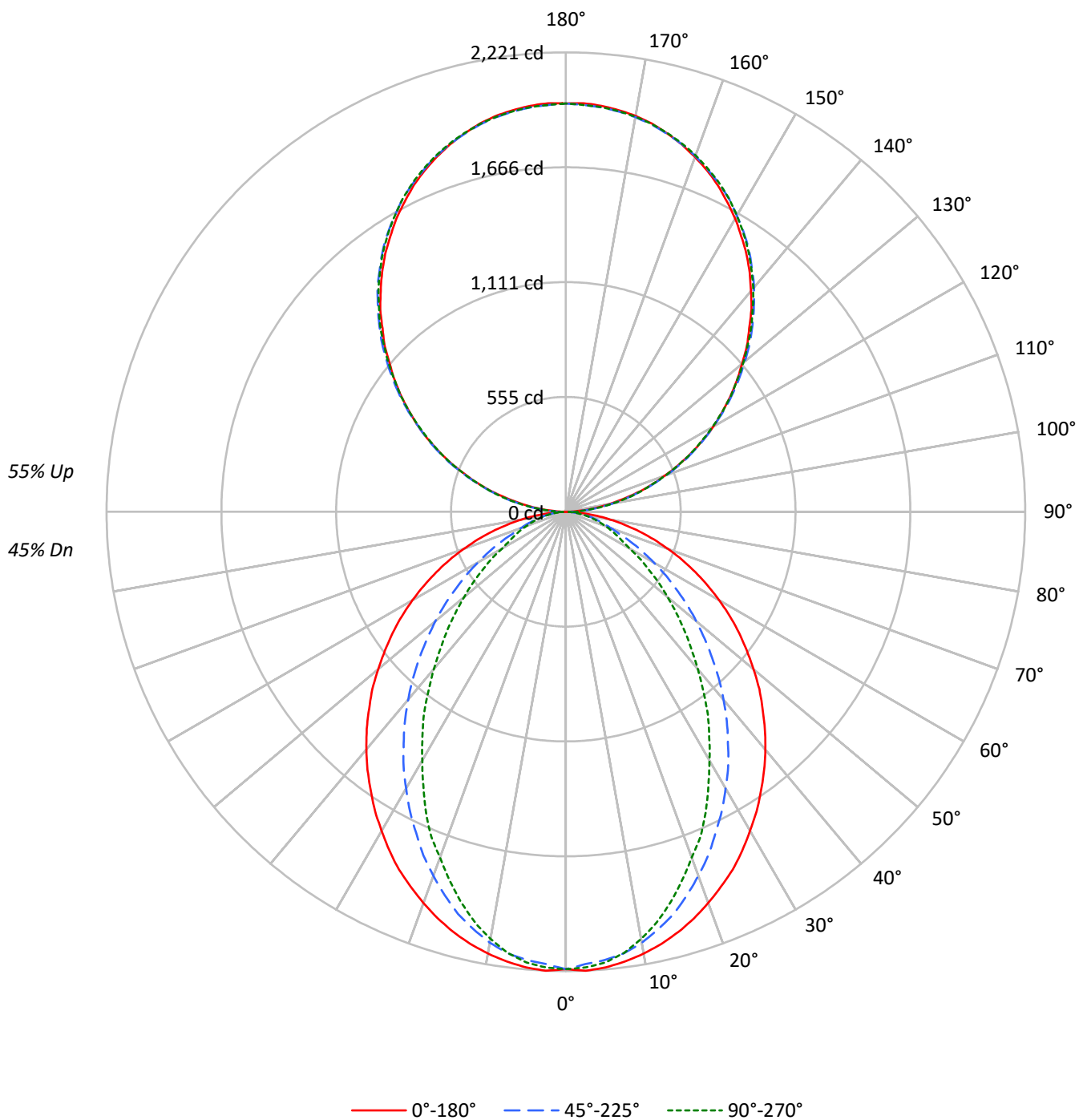
Lumens per Lamp: N/A  
Luminaire Lumens: 10071.9 lumens  
Efficiency: N/A  
Efficacy: 91.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 110.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P923552

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### Luminous Intensity Polar Plot



TEST NUMBER: P923552

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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   | 106 | 106 | 106 | 106 | 97 | 97 | 97 | 97 | 81 | 81 | 81 | 66 | 66 | 66 | 52 | 52 | 52 |
| 1   | 97  | 93  | 89  | 86  | 89 | 85 | 82 | 79 | 71 | 69 | 67 | 58 | 57 | 55 | 46 | 45 | 44 |
| 2   | 89  | 82  | 76  | 71  | 81 | 75 | 70 | 66 | 63 | 59 | 56 | 52 | 49 | 47 | 41 | 40 | 38 |
| 3   | 81  | 72  | 65  | 60  | 74 | 67 | 60 | 56 | 56 | 51 | 48 | 46 | 43 | 40 | 37 | 35 | 33 |
| 4   | 75  | 64  | 57  | 51  | 68 | 59 | 53 | 47 | 50 | 45 | 41 | 41 | 38 | 35 | 33 | 31 | 29 |
| 5   | 69  | 57  | 50  | 44  | 63 | 53 | 46 | 41 | 45 | 40 | 36 | 37 | 33 | 30 | 30 | 28 | 25 |
| 6   | 63  | 52  | 44  | 38  | 58 | 48 | 41 | 36 | 41 | 35 | 31 | 34 | 30 | 27 | 28 | 25 | 23 |
| 7   | 59  | 47  | 39  | 34  | 54 | 43 | 36 | 32 | 37 | 32 | 28 | 31 | 27 | 24 | 25 | 22 | 20 |
| 8   | 54  | 42  | 35  | 30  | 50 | 39 | 33 | 28 | 34 | 28 | 25 | 28 | 24 | 21 | 23 | 20 | 18 |
| 9   | 51  | 39  | 32  | 27  | 47 | 36 | 30 | 25 | 31 | 26 | 22 | 26 | 22 | 19 | 22 | 19 | 17 |
| 10  | 47  | 36  | 29  | 24  | 44 | 33 | 27 | 23 | 29 | 24 | 20 | 24 | 20 | 18 | 20 | 17 | 15 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2756 | 2756 | 2756 |
| 5°  | 2758 | 2709 | 2727 |
| 10° | 2730 | 2654 | 2637 |
| 15° | 2690 | 2564 | 2498 |
| 20° | 2639 | 2441 | 2328 |
| 25° | 2587 | 2303 | 2164 |
| 30° | 2517 | 2163 | 1957 |
| 35° | 2448 | 2011 | 1775 |
| 40° | 2378 | 1855 | 1567 |
| 45° | 2297 | 1682 | 1378 |
| 50° | 2213 | 1508 | 1194 |
| 55° | 2125 | 1322 | 1016 |
| 60° | 2024 | 1128 | 835  |
| 65° | 1907 | 930  | 749  |
| 70° | 1764 | 746  | 675  |
| 75° | 1585 | 653  | 611  |
| 80° | 1326 | 540  | 524  |
| 85° | 903  | 350  | 383  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2297 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 207.2   | 2.1       |
| 10°-20°   | 568.9   | 5.6       |
| 20°-30°   | 798.7   | 7.9       |
| 30°-40°   | 870.7   | 8.6       |
| 40°-50°   | 800.3   | 7.9       |
| 50°-60°   | 628.5   | 6.2       |
| 60°-70°   | 409.1   | 4.1       |
| 70°-80°   | 210.6   | 2.1       |
| 80°-90°   | 59.4    | 0.6       |
| 90°-100°  | 122.2   | 1.2       |
| 100°-110° | 388.1   | 3.9       |
| 110°-120° | 664.2   | 6.6       |
| 120°-130° | 873.6   | 8.7       |
| 130°-140° | 980.5   | 9.7       |
| 140°-150° | 961.5   | 9.5       |
| 150°-160° | 806.6   | 8.0       |
| 160°-170° | 534.9   | 5.3       |
| 170°-180° | 187.0   | 1.9       |
| 0°-30°    | 1574.9  | 15.6      |
| 0°-40°    | 2445.6  | 24.3      |
| 0°-60°    | 3874.3  | 38.5      |
| 0°-90°    | 4553.3  | 45.2      |
| 90°-120°  | 1174.5  | 11.7      |
| 90°-150°  | 3990.1  | 39.6      |
| 90°-180°  | 5519.0  | 54.8      |
| 0°-180°   | 10071.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2211 | 2211  | 2211 | 2211  | 2211 |      |
| 5°   | 2211 | 2201  | 2175 | 2193  | 2187 | 210  |
| 15°  | 2103 | 2081  | 2013 | 1975  | 1955 | 593  |
| 25°  | 1909 | 1845  | 1713 | 1631  | 1601 | 878  |
| 35°  | 1645 | 1543  | 1367 | 1241  | 1197 | 1030 |
| 45°  | 1345 | 1211  | 1001 | 858   | 810  | 1039 |
| 55°  | 1022 | 866   | 650  | 530   | 492  | 914  |
| 65°  | 690  | 528   | 348  | 280   | 274  | 685  |
| 75°  | 368  | 228   | 160  | 146   | 144  | 389  |
| 85°  | 86   | 44    | 38   | 38    | 38   | 99   |
| 90°  | 2    | 21    | 58   | 55    | 56   | 10   |
| 95°  | 87   | 104   | 107  | 107   | 104  | 97   |
| 105° | 358  | 363   | 367  | 370   | 370  | 378  |
| 115° | 667  | 676   | 673  | 671   | 667  | 659  |
| 125° | 970  | 984   | 980  | 974   | 972  | 866  |
| 135° | 1254 | 1272  | 1276 | 1274  | 1269 | 969  |
| 145° | 1522 | 1534  | 1544 | 1546  | 1539 | 951  |
| 155° | 1741 | 1746  | 1751 | 1759  | 1754 | 801  |
| 165° | 1894 | 1892  | 1892 | 1904  | 1896 | 534  |
| 175° | 1970 | 1966  | 1962 | 1974  | 1964 | 187  |
| 180° | 1974 | 1974  | 1974 | 1974  | 1974 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2211.3 | 2211.3 | 2211.3 | 2211.3 | 2211.3 |
| 2.5°   | 2221.3 | 2211.3 | 2189.1 | 2209.3 | 2205.3 |
| 5°     | 2211.3 | 2201.3 | 2175.1 | 2193.3 | 2187.3 |
| 7.5°   | 2193.3 | 2181.3 | 2153.3 | 2161.1 | 2151.2 |
| 10°    | 2169.2 | 2155.2 | 2115.3 | 2109.2 | 2097.2 |
| 12.5°  | 2139.3 | 2121.2 | 2067.1 | 2055.2 | 2033.1 |
| 15°    | 2103.2 | 2081.1 | 2013.1 | 1975.1 | 1955.2 |
| 17.5°  | 2061.2 | 2029.1 | 1945.0 | 1901.0 | 1869.0 |
| 20°    | 2013.1 | 1973.0 | 1873.0 | 1823.1 | 1779.0 |
| 22.5°  | 1961.1 | 1915.0 | 1798.9 | 1731.0 | 1701.0 |
| 25°    | 1909.2 | 1845.0 | 1713.0 | 1631.0 | 1600.9 |
| 27.5°  | 1847.2 | 1779.0 | 1632.9 | 1538.8 | 1492.8 |
| 30°    | 1781.1 | 1704.9 | 1544.8 | 1442.9 | 1388.7 |
| 32.5°  | 1717.0 | 1624.9 | 1461.0 | 1340.8 | 1290.7 |
| 35°    | 1645.0 | 1542.9 | 1366.9 | 1240.7 | 1196.6 |
| 37.5°  | 1574.9 | 1464.7 | 1278.8 | 1140.6 | 1090.7 |
| 40°    | 1500.8 | 1380.9 | 1186.6 | 1044.5 | 992.6  |
| 42.5°  | 1424.9 | 1296.8 | 1094.7 | 946.5  | 896.6  |
| 45°    | 1344.8 | 1210.6 | 1000.7 | 858.4  | 810.4  |
| 47.5°  | 1268.8 | 1126.8 | 910.6  | 768.4  | 724.4  |
| 50°    | 1184.7 | 1042.7 | 822.5  | 684.3  | 642.5  |
| 52.5°  | 1102.5 | 952.4  | 738.4  | 606.4  | 568.4  |
| 55°    | 1022.5 | 866.5  | 650.3  | 530.4  | 492.3  |
| 57.5°  | 940.6  | 780.4  | 572.4  | 460.3  | 428.2  |
| 60°    | 856.5  | 696.4  | 490.3  | 388.3  | 356.2  |
| 62.5°  | 774.5  | 614.5  | 420.2  | 324.2  | 308.3  |
| 65°    | 690.5  | 528.2  | 348.2  | 280.3  | 274.1  |
| 67.5°  | 610.4  | 448.2  | 280.3  | 246.1  | 240.1  |
| 70°    | 526.3  | 370.2  | 232.0  | 212.1  | 204.0  |
| 72.5°  | 446.3  | 298.1  | 194.0  | 178.2  | 174.1  |
| 75°    | 368.2  | 228.0  | 160.1  | 146.1  | 144.2  |
| 77.5°  | 290.3  | 162.0  | 126.1  | 118.1  | 114.0  |
| 80°    | 218.0  | 116.1  | 95.9   | 88.1   | 88.1   |
| 82.5°  | 152.0  | 78.1   | 66.0   | 62.0   | 62.0   |
| 85°    | 86.0   | 44.0   | 38.0   | 38.0   | 38.0   |
| 87.5°  | 32.1   | 16.0   | 16.0   | 14.0   | 14.0   |
| 90°    | 1.8    | 21.4   | 58.3   | 54.8   | 56.5   |
| 92.5°  | 36.9   | 50.0   | 51.8   | 53.6   | 53.6   |
| 95°    | 86.9   | 103.5  | 106.6  | 106.6  | 103.5  |
| 97.5°  | 144.6  | 160.1  | 166.7  | 166.7  | 166.7  |
| 100°   | 211.2  | 225.0  | 229.7  | 229.7  | 227.9  |
| 102.5° | 281.5  | 291.6  | 298.2  | 300.0  | 298.2  |
| 105°   | 358.3  | 363.0  | 366.6  | 369.6  | 369.6  |
| 107.5° | 434.4  | 441.6  | 441.6  | 442.8  | 434.4  |
| 110°   | 508.3  | 517.8  | 517.8  | 517.8  | 513.0  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 588.0  | 598.2  | 596.4  | 591.6  | 588.0  |
| 115°   | 666.6  | 676.1  | 673.2  | 671.4  | 666.6  |
| 117.5° | 744.5  | 757.6  | 749.3  | 744.5  | 739.8  |
| 120°   | 823.0  | 836.2  | 823.0  | 823.0  | 817.7  |
| 122.5° | 894.5  | 911.1  | 902.9  | 898.0  | 894.5  |
| 125°   | 969.5  | 984.4  | 979.6  | 974.3  | 972.5  |
| 127.5° | 1042.7 | 1061.1 | 1054.6 | 1047.5 | 1042.7 |
| 130°   | 1111.2 | 1132.6 | 1129.6 | 1126.1 | 1119.5 |
| 132.5° | 1187.9 | 1204.6 | 1205.8 | 1197.5 | 1192.7 |
| 135°   | 1254.0 | 1272.4 | 1276.0 | 1274.2 | 1269.4 |
| 137.5° | 1327.8 | 1342.6 | 1345.6 | 1344.4 | 1337.3 |
| 140°   | 1392.7 | 1407.6 | 1415.9 | 1415.9 | 1409.3 |
| 142.5° | 1459.3 | 1474.2 | 1478.9 | 1480.7 | 1474.2 |
| 145°   | 1522.4 | 1534.3 | 1543.8 | 1545.6 | 1539.1 |
| 147.5° | 1579.0 | 1593.8 | 1601.0 | 1603.9 | 1597.4 |
| 150°   | 1637.3 | 1647.3 | 1653.9 | 1659.3 | 1653.9 |
| 152.5° | 1689.0 | 1699.2 | 1707.4 | 1714.0 | 1707.4 |
| 155°   | 1740.8 | 1745.5 | 1751.0 | 1759.3 | 1753.9 |
| 157.5° | 1785.5 | 1789.0 | 1792.0 | 1803.9 | 1795.5 |
| 160°   | 1825.3 | 1828.9 | 1830.7 | 1840.8 | 1833.6 |
| 162.5° | 1862.2 | 1862.2 | 1864.0 | 1875.3 | 1867.0 |
| 165°   | 1893.7 | 1891.9 | 1891.9 | 1903.9 | 1895.5 |
| 167.5° | 1922.3 | 1917.0 | 1917.0 | 1928.9 | 1920.6 |
| 170°   | 1943.8 | 1939.0 | 1937.2 | 1949.1 | 1939.0 |
| 172.5° | 1958.6 | 1953.8 | 1952.0 | 1964.0 | 1953.8 |
| 175°   | 1970.5 | 1965.8 | 1962.2 | 1974.1 | 1964.0 |
| 177.5° | 1977.1 | 1972.3 | 1968.7 | 1978.9 | 1968.7 |
| 180°   | 1974.1 | 1974.1 | 1974.1 | 1974.1 | 1974.1 |

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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 | 10.15            | 10.94 | 11.15 | 11.95 | 13.29 | 6.13           | 6.92 | 7.13  | 7.93  | 9.27  |
|                 | 3H   | 11.82            | 12.52 | 12.83 | 13.54 | 14.90 | 7.31           | 8.02 | 8.32  | 9.03  | 10.40 |
|                 | 4H   | 12.42            | 13.09 | 13.44 | 14.11 | 15.48 | 7.75           | 8.42 | 8.78  | 9.44  | 10.81 |
|                 | 6H   | 12.83            | 13.44 | 13.86 | 14.47 | 15.85 | 8.07           | 8.68 | 9.10  | 9.71  | 11.09 |
|                 | 8H   | 12.95            | 13.54 | 13.99 | 14.58 | 15.95 | 8.15           | 8.74 | 9.20  | 9.78  | 11.16 |
|                 | 12H  | 13.01            | 13.56 | 14.05 | 14.60 | 16.00 | 8.19           | 8.75 | 9.24  | 9.79  | 11.19 |
| 4H              | 2H   | 10.16            | 10.83 | 11.20 | 11.85 | 13.22 | 6.71           | 7.38 | 7.75  | 8.40  | 9.77  |
|                 | 3H   | 11.98            | 12.53 | 13.02 | 13.59 | 14.97 | 8.05           | 8.61 | 9.09  | 9.66  | 11.04 |
|                 | 4H   | 12.66            | 13.17 | 13.71 | 14.21 | 15.62 | 8.59           | 9.10 | 9.64  | 10.15 | 11.55 |
|                 | 6H   | 13.17            | 13.60 | 14.22 | 14.67 | 16.07 | 9.01           | 9.44 | 10.06 | 10.51 | 11.91 |
|                 | 8H   | 13.33            | 13.74 | 14.39 | 14.80 | 16.22 | 9.13           | 9.54 | 10.19 | 10.60 | 12.01 |
|                 | 12H  | 13.42            | 13.79 | 14.50 | 14.86 | 16.28 | 9.19           | 9.56 | 10.27 | 10.63 | 12.05 |
| 8H              | 4H   | 12.62            | 13.03 | 13.68 | 14.09 | 15.51 | 8.87           | 9.27 | 9.92  | 10.33 | 11.75 |
|                 | 6H   | 13.18            | 13.52 | 14.26 | 14.62 | 16.03 | 9.38           | 9.71 | 10.46 | 10.81 | 12.22 |
|                 | 8H   | 13.39            | 13.69 | 14.48 | 14.77 | 16.20 | 9.56           | 9.86 | 10.65 | 10.94 | 12.37 |
|                 | 12H  | 13.52            | 13.78 | 14.61 | 14.86 | 16.33 | 9.67           | 9.93 | 10.77 | 11.01 | 12.49 |
| 12H             | 4H   | 12.57            | 12.94 | 13.65 | 14.02 | 15.44 | 8.87           | 9.24 | 9.94  | 10.31 | 11.73 |
|                 | 6H   | 13.15            | 13.45 | 14.24 | 14.53 | 15.97 | 9.42           | 9.72 | 10.51 | 10.80 | 12.23 |
|                 | 8H   | 13.37            | 13.63 | 14.46 | 14.70 | 16.18 | 9.63           | 9.89 | 10.72 | 10.96 | 12.44 |

END OF REPORT