

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: P919919

Luminaire Tested: DFN2DIP-SQ2F0-060D050US935-RLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P919919  
REPORT IS A COMBINATION OF REPORTS P901322 AND P898215  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-060D050US935-RLLONL  
Description: 2 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

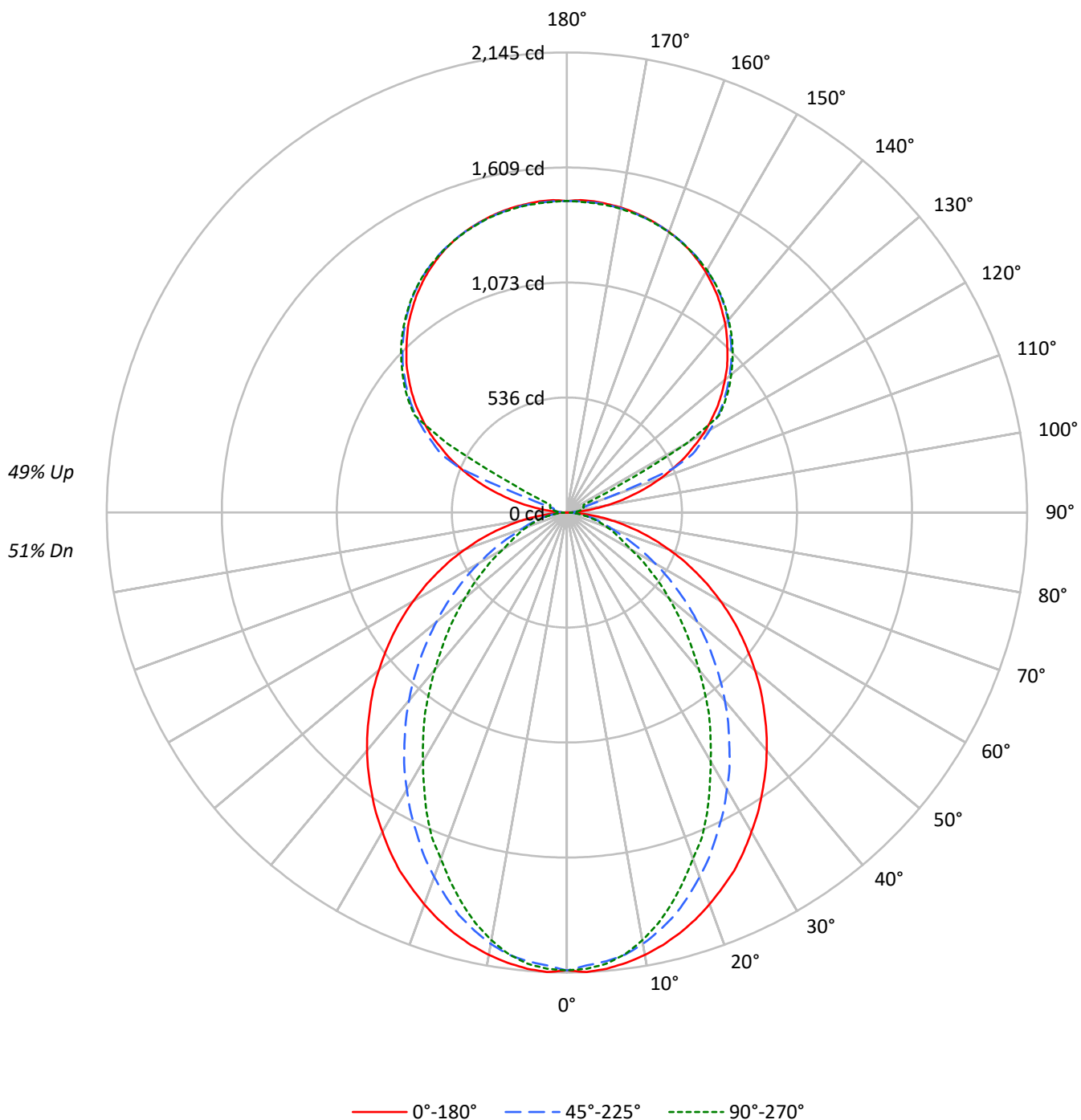
Lumens per Lamp: N/A  
Luminaire Lumens: 8653.0 lumens  
Efficiency: N/A  
Efficacy: 93.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 92.5  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9781  
Total Harmonic Distortion (THDi): 0.075  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P919919

CATALOG NUMBER: DFN2DIP-SQ2F0-060D050US935-RLLONL

### Luminous Intensity Polar Plot



TEST NUMBER: P919919

CATALOG NUMBER: DFN2DIP-SQ2F0-060D050US935-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 |
| RCR |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 0   | 107 | 107 | 107 | 107 | 99 | 99 | 99 | 99 | 84 | 84 | 84 | 70 | 70 | 70 | 57 | 57 | 57 |
| 1   | 98  | 94  | 91  | 87  | 91 | 87 | 84 | 81 | 74 | 72 | 70 | 62 | 61 | 59 | 51 | 50 | 49 |
| 2   | 90  | 83  | 77  | 72  | 83 | 77 | 72 | 67 | 66 | 62 | 59 | 55 | 52 | 50 | 45 | 44 | 42 |
| 3   | 82  | 73  | 66  | 61  | 76 | 68 | 62 | 57 | 58 | 54 | 50 | 49 | 46 | 43 | 41 | 38 | 36 |
| 4   | 76  | 65  | 58  | 52  | 70 | 61 | 54 | 49 | 52 | 47 | 43 | 44 | 40 | 37 | 37 | 34 | 32 |
| 5   | 70  | 58  | 50  | 45  | 64 | 54 | 47 | 42 | 47 | 41 | 37 | 40 | 36 | 33 | 33 | 30 | 28 |
| 6   | 64  | 53  | 45  | 39  | 59 | 49 | 42 | 37 | 42 | 37 | 33 | 36 | 32 | 29 | 30 | 27 | 25 |
| 7   | 60  | 48  | 40  | 34  | 55 | 45 | 38 | 33 | 39 | 33 | 29 | 33 | 29 | 26 | 28 | 25 | 22 |
| 8   | 55  | 43  | 36  | 31  | 51 | 41 | 34 | 29 | 35 | 30 | 26 | 30 | 26 | 23 | 26 | 23 | 20 |
| 9   | 52  | 40  | 32  | 27  | 48 | 37 | 31 | 26 | 32 | 27 | 23 | 28 | 24 | 21 | 24 | 21 | 18 |
| 10  | 48  | 36  | 29  | 25  | 45 | 34 | 28 | 24 | 30 | 25 | 21 | 26 | 22 | 19 | 22 | 19 | 17 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4695 | 4695 | 4695 |
| 5°  | 4694 | 4610 | 4643 |
| 10° | 4640 | 4510 | 4486 |
| 15° | 4567 | 4350 | 4246 |
| 20° | 4475 | 4136 | 3954 |
| 25° | 4380 | 3897 | 3673 |
| 30° | 4256 | 3652 | 3318 |
| 35° | 4133 | 3391 | 3006 |
| 40° | 4008 | 3121 | 2651 |
| 45° | 3863 | 2824 | 2328 |
| 50° | 3713 | 2525 | 2014 |
| 55° | 3555 | 2206 | 1712 |
| 60° | 3373 | 1874 | 1403 |
| 65° | 3162 | 1538 | 1256 |
| 70° | 2906 | 1225 | 1127 |
| 75° | 2584 | 1060 | 1012 |
| 80° | 2122 | 861  | 858  |
| 85° | 1381 | 535  | 611  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3863 cd/sqm

TEST NUMBER: P919919

CATALOG NUMBER: DFN2DIP-SQ2F0-060D050US935-RLLONL

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 200.1  | 2.3       |
| 10°-20°   | 549.3  | 6.3       |
| 20°-30°   | 771.2  | 8.9       |
| 30°-40°   | 840.7  | 9.7       |
| 40°-50°   | 772.7  | 8.9       |
| 50°-60°   | 606.8  | 7.0       |
| 60°-70°   | 395.0  | 4.6       |
| 70°-80°   | 203.3  | 2.3       |
| 80°-90°   | 54.4   | 0.6       |
| 90°-100°  | 47.9   | 0.6       |
| 100°-110° | 178.6  | 2.1       |
| 110°-120° | 473.7  | 5.5       |
| 120°-130° | 785.6  | 9.1       |
| 130°-140° | 834.5  | 9.6       |
| 140°-150° | 775.6  | 9.0       |
| 150°-160° | 623.5  | 7.2       |
| 160°-170° | 401.8  | 4.6       |
| 170°-180° | 138.3  | 1.6       |
| 0°-30°    | 1520.7 | 17.6      |
| 0°-40°    | 2361.4 | 27.3      |
| 0°-60°    | 3740.9 | 43.2      |
| 0°-90°    | 4393.6 | 50.8      |
| 90°-120°  | 700.2  | 8.1       |
| 90°-150°  | 3095.8 | 35.8      |
| 90°-180°  | 4259.0 | 49.2      |
| 0°-180°   | 8653.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2135 | 2135  | 2135 | 2135  | 2135 |      |
| 5°   | 2135 | 2126  | 2100 | 2118  | 2112 | 202  |
| 15°  | 2031 | 2009  | 1944 | 1907  | 1888 | 572  |
| 25°  | 1843 | 1782  | 1654 | 1575  | 1546 | 848  |
| 35°  | 1588 | 1490  | 1320 | 1198  | 1155 | 994  |
| 45°  | 1298 | 1169  | 966  | 829   | 782  | 1003 |
| 55°  | 987  | 837   | 628  | 512   | 475  | 882  |
| 65°  | 667  | 510   | 336  | 271   | 265  | 661  |
| 75°  | 356  | 220   | 154  | 141   | 139  | 376  |
| 85°  | 83   | 42    | 37   | 37    | 37   | 95   |
| 90°  | 1    | 13    | 21   | 26    | 28   | 8    |
| 95°  | 68   | 34    | 41   | 46    | 45   | 81   |
| 105° | 320  | 351   | 64   | 76    | 80   | 342  |
| 115° | 604  | 622   | 649  | 162   | 86   | 595  |
| 125° | 855  | 868   | 888  | 896   | 899  | 762  |
| 135° | 1058 | 1074  | 1084 | 1094  | 1092 | 817  |
| 145° | 1227 | 1226  | 1244 | 1251  | 1246 | 767  |
| 155° | 1351 | 1342  | 1354 | 1360  | 1352 | 622  |
| 165° | 1423 | 1417  | 1420 | 1428  | 1420 | 402  |
| 175° | 1456 | 1449  | 1451 | 1458  | 1448 | 139  |
| 180° | 1453 | 1453  | 1453 | 1453  | 1453 |      |

TEST NUMBER: P919919

CATALOG NUMBER: DFN2DIP-SQ2F0-060D050US935-RLLONL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2135.1 | 2135.1 | 2135.1 | 2135.1 | 2135.1 |
| 2.5°   | 2144.7 | 2135.1 | 2113.7 | 2133.2 | 2129.3 |
| 5°     | 2135.1 | 2125.5 | 2100.2 | 2117.7 | 2111.9 |
| 7.5°   | 2117.7 | 2106.2 | 2079.1 | 2086.7 | 2077.1 |
| 10°    | 2094.5 | 2080.9 | 2042.5 | 2036.5 | 2025.0 |
| 12.5°  | 2065.6 | 2048.1 | 1995.9 | 1984.4 | 1963.1 |
| 15°    | 2030.7 | 2009.4 | 1943.8 | 1907.1 | 1887.8 |
| 17.5°  | 1990.2 | 1959.2 | 1878.0 | 1835.6 | 1804.7 |
| 20°    | 1943.8 | 1905.0 | 1808.5 | 1760.3 | 1717.7 |
| 22.5°  | 1893.6 | 1849.1 | 1737.0 | 1671.4 | 1642.4 |
| 25°    | 1843.4 | 1781.5 | 1654.0 | 1574.9 | 1545.7 |
| 27.5°  | 1783.6 | 1717.7 | 1576.7 | 1485.8 | 1441.4 |
| 30°    | 1719.8 | 1646.1 | 1491.6 | 1393.2 | 1340.9 |
| 32.5°  | 1657.9 | 1568.9 | 1410.7 | 1294.6 | 1246.2 |
| 35°    | 1588.4 | 1489.8 | 1319.8 | 1198.0 | 1155.4 |
| 37.5°  | 1520.7 | 1414.3 | 1234.8 | 1101.3 | 1053.1 |
| 40°    | 1449.1 | 1333.3 | 1145.7 | 1008.6 | 958.4  |
| 42.5°  | 1375.8 | 1252.1 | 1057.0 | 913.9  | 865.7  |
| 45°    | 1298.5 | 1168.9 | 966.2  | 828.8  | 782.5  |
| 47.5°  | 1225.1 | 1088.0 | 879.3  | 741.9  | 699.5  |
| 50°    | 1143.9 | 1006.8 | 794.2  | 660.7  | 620.3  |
| 52.5°  | 1064.5 | 919.6  | 713.0  | 585.5  | 548.8  |
| 55°    | 987.3  | 836.6  | 627.9  | 512.1  | 475.4  |
| 57.5°  | 908.2  | 753.5  | 552.7  | 444.4  | 413.5  |
| 60°    | 827.0  | 672.4  | 473.4  | 375.0  | 344.0  |
| 62.5°  | 747.9  | 593.3  | 405.7  | 313.1  | 297.6  |
| 65°    | 666.7  | 510.1  | 336.2  | 270.6  | 264.7  |
| 67.5°  | 589.4  | 432.7  | 270.6  | 237.6  | 231.9  |
| 70°    | 508.2  | 357.5  | 224.0  | 204.8  | 197.0  |
| 72.5°  | 430.9  | 287.8  | 187.4  | 172.0  | 168.1  |
| 75°    | 355.5  | 220.2  | 154.5  | 141.0  | 139.2  |
| 77.5°  | 280.3  | 156.4  | 121.7  | 114.0  | 110.1  |
| 80°    | 210.5  | 112.1  | 92.6   | 85.1   | 85.1   |
| 82.5°  | 146.8  | 75.4   | 63.7   | 59.8   | 59.8   |
| 85°    | 83.0   | 42.4   | 36.7   | 36.7   | 36.7   |
| 87.5°  | 31.0   | 15.4   | 15.4   | 13.5   | 13.5   |
| 90°    | 1.0    | 12.6   | 21.0   | 26.3   | 28.3   |
| 92.5°  | 26.3   | 22.1   | 25.2   | 27.4   | 28.3   |
| 95°    | 68.3   | 33.6   | 41.0   | 46.3   | 45.2   |
| 97.5°  | 123.0  | 36.9   | 53.6   | 56.8   | 57.8   |
| 100°   | 186.1  | 42.1   | 59.9   | 68.3   | 70.4   |
| 102.5° | 255.5  | 253.4  | 62.1   | 73.5   | 76.8   |
| 105°   | 319.6  | 351.2  | 64.1   | 75.7   | 79.9   |
| 107.5° | 394.3  | 420.4  | 66.3   | 77.7   | 82.1   |
| 110°   | 465.8  | 487.8  | 184.0  | 78.9   | 83.0   |

TEST NUMBER: P919919

CATALOG NUMBER: DFN2DIP-SQ2F0-060D050US935-RLLONL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 533.0  | 551.9  | 534.1  | 80.9   | 84.1   |
| 115°   | 604.5  | 622.3  | 648.7  | 162.0  | 86.3   |
| 117.5° | 666.5  | 687.5  | 705.5  | 555.0  | 279.7  |
| 120°   | 735.9  | 751.7  | 770.6  | 783.2  | 641.3  |
| 122.5° | 794.7  | 811.6  | 832.7  | 839.0  | 840.1  |
| 125°   | 854.6  | 868.4  | 888.4  | 895.7  | 898.9  |
| 127.5° | 909.3  | 924.0  | 940.0  | 950.4  | 951.4  |
| 130°   | 960.9  | 977.7  | 989.2  | 1000.8 | 999.9  |
| 132.5° | 1013.5 | 1027.2 | 1038.6 | 1048.2 | 1047.1 |
| 135°   | 1057.6 | 1074.5 | 1083.8 | 1094.5 | 1092.3 |
| 137.5° | 1103.8 | 1116.5 | 1127.0 | 1137.6 | 1134.5 |
| 140°   | 1149.0 | 1157.5 | 1169.0 | 1178.4 | 1173.3 |
| 142.5° | 1187.0 | 1194.4 | 1208.0 | 1216.3 | 1211.1 |
| 145°   | 1226.9 | 1225.8 | 1243.6 | 1251.0 | 1245.8 |
| 147.5° | 1261.5 | 1258.3 | 1276.3 | 1281.5 | 1277.4 |
| 150°   | 1295.2 | 1287.9 | 1304.7 | 1311.0 | 1305.7 |
| 152.5° | 1323.5 | 1315.2 | 1330.9 | 1337.3 | 1329.9 |
| 155°   | 1350.9 | 1341.5 | 1354.1 | 1360.4 | 1352.0 |
| 157.5° | 1372.9 | 1364.6 | 1374.1 | 1381.5 | 1372.9 |
| 160°   | 1392.0 | 1385.6 | 1392.0 | 1398.2 | 1390.9 |
| 162.5° | 1408.7 | 1402.5 | 1407.6 | 1415.0 | 1405.6 |
| 165°   | 1423.4 | 1417.2 | 1420.3 | 1427.6 | 1420.3 |
| 167.5° | 1435.0 | 1428.7 | 1431.9 | 1439.2 | 1429.8 |
| 170°   | 1444.5 | 1438.1 | 1440.3 | 1447.6 | 1438.1 |
| 172.5° | 1450.8 | 1444.5 | 1446.6 | 1454.0 | 1444.5 |
| 175°   | 1456.0 | 1448.6 | 1450.8 | 1458.1 | 1447.6 |
| 177.5° | 1458.1 | 1450.8 | 1451.9 | 1459.2 | 1449.7 |
| 180°   | 1452.8 | 1452.8 | 1452.8 | 1452.8 | 1452.8 |

TEST NUMBER: P919919

CATALOG NUMBER: DFN2DIP-SQ2F0-060D050US935-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 | 12.48            | 13.31 | 13.43 | 14.28 | 15.54 | 8.44           | 9.27  | 9.39  | 10.24 | 11.50 |
|                 | 3H   | 14.14            | 14.88 | 15.10 | 15.86 | 17.15 | 9.61           | 10.36 | 10.58 | 11.33 | 12.62 |
|                 | 4H   | 14.73            | 15.44 | 15.71 | 16.42 | 17.71 | 10.05          | 10.75 | 11.03 | 11.73 | 13.03 |
|                 | 6H   | 15.14            | 15.79 | 16.13 | 16.77 | 18.08 | 10.35          | 11.00 | 11.35 | 11.99 | 13.30 |
|                 | 8H   | 15.26            | 15.87 | 16.26 | 16.88 | 18.18 | 10.43          | 11.05 | 11.43 | 12.06 | 13.36 |
|                 | 12H  | 15.31            | 15.90 | 16.31 | 16.89 | 18.22 | 10.47          | 11.06 | 11.47 | 12.05 | 13.38 |
| 4H              | 2H   | 12.49            | 13.20 | 13.48 | 14.18 | 15.47 | 9.02           | 9.73  | 10.01 | 10.71 | 12.01 |
|                 | 3H   | 14.30            | 14.89 | 15.30 | 15.90 | 17.20 | 10.35          | 10.94 | 11.35 | 11.95 | 13.26 |
|                 | 4H   | 14.98            | 15.51 | 15.98 | 16.52 | 17.85 | 10.89          | 11.42 | 11.89 | 12.43 | 13.76 |
|                 | 6H   | 15.47            | 15.93 | 16.49 | 16.96 | 18.29 | 11.29          | 11.75 | 12.30 | 12.77 | 14.10 |
|                 | 8H   | 15.64            | 16.07 | 16.65 | 17.09 | 18.43 | 11.40          | 11.83 | 12.42 | 12.85 | 14.20 |
|                 | 12H  | 15.72            | 16.11 | 16.76 | 17.14 | 18.49 | 11.46          | 11.85 | 12.49 | 12.88 | 14.23 |
| 8H              | 4H   | 14.94            | 15.37 | 15.96 | 16.39 | 17.73 | 11.15          | 11.59 | 12.17 | 12.60 | 13.95 |
|                 | 6H   | 15.48            | 15.84 | 16.53 | 16.90 | 18.24 | 11.65          | 12.00 | 12.69 | 13.07 | 14.41 |
|                 | 8H   | 15.69            | 16.00 | 16.74 | 17.05 | 18.41 | 11.83          | 12.14 | 12.88 | 13.19 | 14.55 |
|                 | 12H  | 15.81            | 16.09 | 16.87 | 17.13 | 18.53 | 11.93          | 12.21 | 12.98 | 13.25 | 14.65 |
| 12H             | 4H   | 14.89            | 15.28 | 15.93 | 16.31 | 17.66 | 11.16          | 11.54 | 12.19 | 12.58 | 13.93 |
|                 | 6H   | 15.46            | 15.77 | 16.51 | 16.82 | 18.18 | 11.69          | 12.01 | 12.74 | 13.05 | 14.41 |
|                 | 8H   | 15.66            | 15.94 | 16.72 | 16.98 | 18.38 | 11.89          | 12.16 | 12.94 | 13.20 | 14.61 |

END OF REPORT