

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: P907061

Luminaire Tested: DFN2DIP-TR2F0-050D050US835-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P907061  
REPORT IS A COMBINATION OF REPORTS P901777 AND P897145  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR2F0-050D050US835-FLLONL  
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

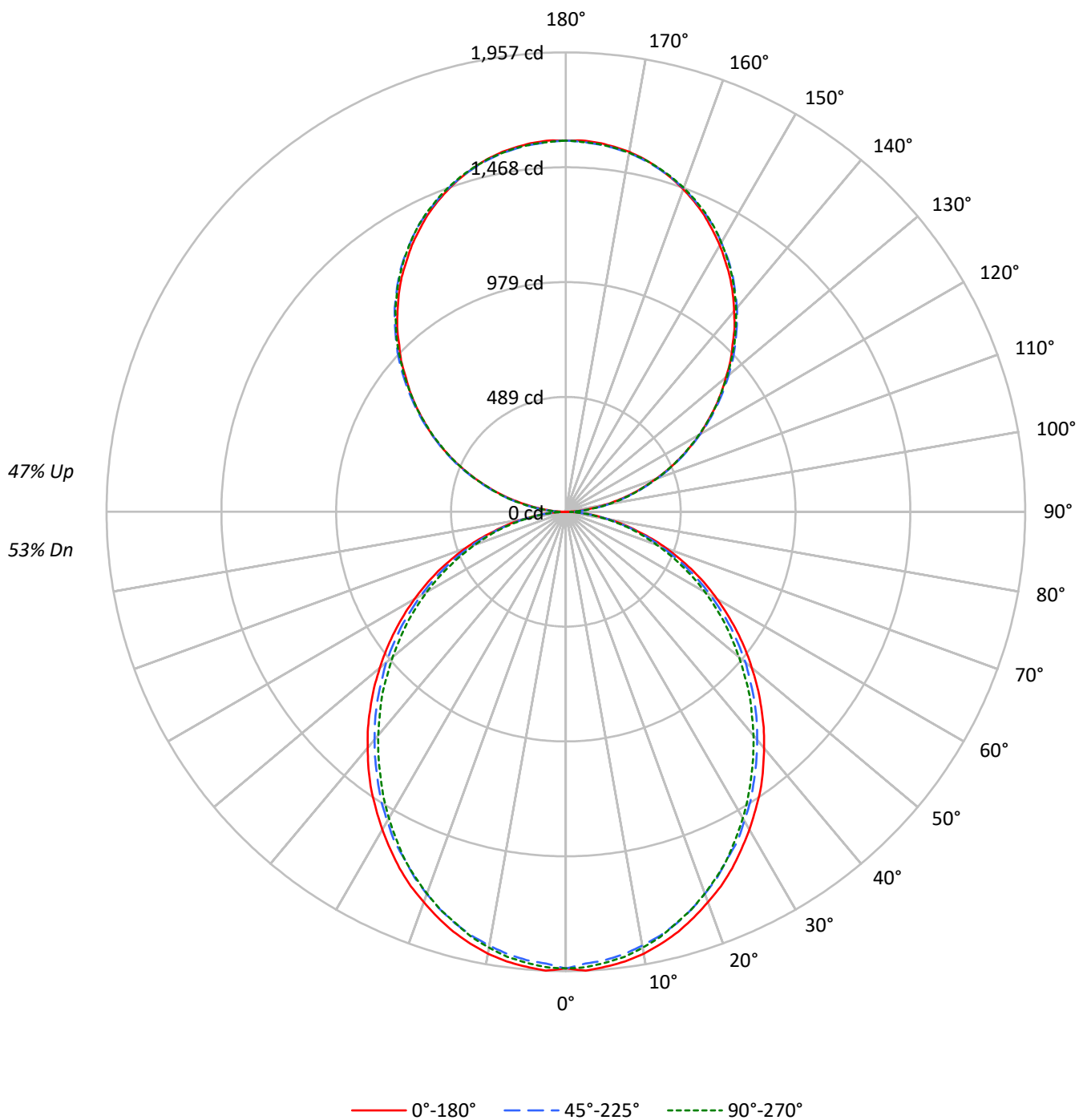
Lumens per Lamp: N/A  
Luminaire Lumens: 9375.0 lumens  
Efficiency: N/A  
Efficacy: 109.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 86  
Input Voltage (V): 120  
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

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### Luminous Intensity Polar Plot



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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   | 108 | 108 | 108 | 108 | 100 | 100 | 100 | 100 | 85 | 85 | 85 | 71 | 71 | 71 | 59 | 59 | 59 |
| 1   | 98  | 94  | 90  | 87  | 91  | 87  | 84  | 81  | 74 | 72 | 70 | 63 | 61 | 59 | 52 | 51 | 50 |
| 2   | 90  | 82  | 76  | 71  | 83  | 76  | 71  | 66  | 65 | 61 | 58 | 55 | 52 | 50 | 46 | 44 | 42 |
| 3   | 82  | 72  | 65  | 59  | 75  | 67  | 61  | 55  | 58 | 53 | 49 | 49 | 45 | 42 | 41 | 38 | 36 |
| 4   | 75  | 64  | 56  | 50  | 69  | 60  | 52  | 47  | 51 | 46 | 41 | 43 | 39 | 36 | 36 | 33 | 31 |
| 5   | 69  | 57  | 49  | 43  | 63  | 53  | 46  | 40  | 46 | 40 | 36 | 39 | 35 | 31 | 33 | 29 | 27 |
| 6   | 63  | 51  | 43  | 37  | 58  | 48  | 40  | 35  | 41 | 36 | 31 | 35 | 31 | 27 | 30 | 26 | 24 |
| 7   | 59  | 46  | 38  | 33  | 54  | 43  | 36  | 31  | 37 | 32 | 28 | 32 | 28 | 24 | 27 | 24 | 21 |
| 8   | 54  | 42  | 34  | 29  | 50  | 39  | 32  | 27  | 34 | 29 | 24 | 29 | 25 | 22 | 25 | 21 | 19 |
| 9   | 51  | 38  | 31  | 26  | 47  | 36  | 29  | 24  | 31 | 26 | 22 | 27 | 23 | 19 | 23 | 20 | 17 |
| 10  | 47  | 35  | 28  | 23  | 44  | 33  | 26  | 22  | 29 | 23 | 20 | 25 | 21 | 18 | 21 | 18 | 15 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4339 | 4339 | 4339 |
| 5°  | 4340 | 4269 | 4300 |
| 10° | 4298 | 4202 | 4235 |
| 15° | 4228 | 4123 | 4136 |
| 20° | 4137 | 4018 | 4036 |
| 25° | 4045 | 3893 | 3921 |
| 30° | 3932 | 3777 | 3777 |
| 35° | 3824 | 3641 | 3625 |
| 40° | 3693 | 3503 | 3480 |
| 45° | 3561 | 3365 | 3330 |
| 50° | 3417 | 3219 | 3159 |
| 55° | 3266 | 3051 | 2999 |
| 60° | 3094 | 2853 | 2816 |
| 65° | 2906 | 2645 | 2600 |
| 70° | 2667 | 2393 | 2367 |
| 75° | 2338 | 2091 | 2141 |
| 80° | 1939 | 1706 | 1730 |
| 85° | 1321 | 1075 | 1075 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3561 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 183.1  | 2.0       |
| 10°-20°   | 515.2  | 5.5       |
| 20°-30°   | 757.2  | 8.1       |
| 30°-40°   | 879.4  | 9.4       |
| 40°-50°   | 878.3  | 9.4       |
| 50°-60°   | 765.8  | 8.2       |
| 60°-70°   | 566.1  | 6.0       |
| 70°-80°   | 320.3  | 3.4       |
| 80°-90°   | 89.0   | 0.9       |
| 90°-100°  | 97.8   | 1.0       |
| 100°-110° | 310.9  | 3.3       |
| 110°-120° | 532.1  | 5.7       |
| 120°-130° | 699.7  | 7.5       |
| 130°-140° | 785.4  | 8.4       |
| 140°-150° | 770.2  | 8.2       |
| 150°-160° | 646.1  | 6.9       |
| 160°-170° | 428.5  | 4.6       |
| 170°-180° | 149.8  | 1.6       |
| 0°-30°    | 1455.5 | 15.5      |
| 0°-40°    | 2334.9 | 24.9      |
| 0°-60°    | 3979.0 | 42.4      |
| 0°-90°    | 4954.5 | 52.8      |
| 90°-120°  | 940.8  | 10.0      |
| 90°-150°  | 3196.2 | 34.1      |
| 90°-180°  | 4421.0 | 47.2      |
| 0°-180°   | 9375.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1946 | 1946  | 1946 | 1946  | 1946 |      |
| 5°   | 1946 | 1938  | 1918 | 1932  | 1929 | 185  |
| 15°  | 1852 | 1841  | 1816 | 1824  | 1815 | 522  |
| 25°  | 1676 | 1661  | 1630 | 1633  | 1630 | 771  |
| 35°  | 1446 | 1428  | 1398 | 1386  | 1377 | 903  |
| 45°  | 1177 | 1164  | 1136 | 1115  | 1108 | 908  |
| 55°  | 891  | 879   | 857  | 834   | 825  | 796  |
| 65°  | 601  | 589   | 571  | 554   | 544  | 594  |
| 75°  | 314  | 311   | 301  | 290   | 294  | 335  |
| 85°  | 77   | 75    | 73   | 67    | 66   | 85   |
| 90°  | 1    | 17    | 47   | 44    | 45   | 9    |
| 95°  | 70   | 83    | 85   | 85    | 83   | 77   |
| 105° | 287  | 291   | 294  | 296   | 296  | 303  |
| 115° | 534  | 542   | 539  | 538   | 534  | 528  |
| 125° | 777  | 788   | 785  | 780   | 779  | 694  |
| 135° | 1004 | 1019  | 1022 | 1021  | 1017 | 776  |
| 145° | 1220 | 1229  | 1237 | 1238  | 1233 | 762  |
| 155° | 1394 | 1398  | 1402 | 1409  | 1405 | 642  |
| 165° | 1517 | 1516  | 1516 | 1525  | 1518 | 428  |
| 175° | 1578 | 1575  | 1572 | 1581  | 1573 | 150  |
| 180° | 1581 | 1581  | 1581 | 1581  | 1581 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1945.5 | 1945.5 | 1945.5 | 1945.5 | 1945.5 |
| 2.5°   | 1956.8 | 1947.5 | 1926.9 | 1945.5 | 1942.0 |
| 5°     | 1945.5 | 1938.2 | 1917.5 | 1932.4 | 1928.9 |
| 7.5°   | 1932.4 | 1921.3 | 1900.7 | 1915.8 | 1912.0 |
| 10°    | 1912.0 | 1898.9 | 1876.5 | 1891.3 | 1885.8 |
| 12.5°  | 1883.8 | 1872.7 | 1850.3 | 1859.6 | 1855.8 |
| 15°    | 1852.0 | 1840.9 | 1816.5 | 1824.1 | 1814.7 |
| 17.5°  | 1812.7 | 1801.6 | 1777.2 | 1786.5 | 1777.2 |
| 20°    | 1769.7 | 1758.6 | 1732.4 | 1737.9 | 1730.6 |
| 22.5°  | 1726.8 | 1709.9 | 1685.5 | 1685.5 | 1681.7 |
| 25°    | 1676.2 | 1661.3 | 1629.5 | 1633.1 | 1629.5 |
| 27.5°  | 1620.0 | 1606.9 | 1582.7 | 1577.1 | 1567.8 |
| 30°    | 1564.0 | 1549.0 | 1521.0 | 1515.4 | 1507.9 |
| 32.5°  | 1504.1 | 1493.0 | 1463.0 | 1451.7 | 1444.2 |
| 35°    | 1446.1 | 1427.5 | 1397.5 | 1386.2 | 1376.9 |
| 37.5°  | 1380.6 | 1363.8 | 1333.8 | 1320.7 | 1311.4 |
| 40°    | 1313.4 | 1298.3 | 1268.3 | 1251.6 | 1244.1 |
| 42.5°  | 1247.9 | 1232.8 | 1203.0 | 1184.1 | 1173.0 |
| 45°    | 1176.8 | 1163.7 | 1135.5 | 1115.1 | 1107.5 |
| 47.5°  | 1107.5 | 1094.4 | 1064.5 | 1043.8 | 1032.7 |
| 50°    | 1034.5 | 1025.2 | 999.0  | 972.8  | 963.4  |
| 52.5°  | 963.4  | 950.3  | 926.1  | 905.5  | 892.4  |
| 55°    | 890.6  | 879.3  | 856.8  | 834.4  | 825.1  |
| 57.5°  | 817.5  | 808.2  | 783.8  | 761.4  | 753.8  |
| 60°    | 744.5  | 737.2  | 711.0  | 690.3  | 684.8  |
| 62.5°  | 673.5  | 660.4  | 641.7  | 623.0  | 615.5  |
| 65°    | 600.6  | 589.3  | 570.6  | 553.8  | 544.4  |
| 67.5°  | 525.8  | 516.3  | 499.6  | 486.5  | 478.9  |
| 70°    | 456.5  | 449.0  | 432.1  | 419.0  | 411.7  |
| 72.5°  | 385.5  | 377.9  | 368.6  | 355.5  | 349.9  |
| 75°    | 314.2  | 310.6  | 301.1  | 290.0  | 293.8  |
| 77.5°  | 250.7  | 243.1  | 239.4  | 233.8  | 228.3  |
| 80°    | 187.2  | 185.2  | 181.4  | 175.9  | 172.1  |
| 82.5°  | 127.2  | 127.2  | 125.4  | 117.9  | 117.9  |
| 85°    | 76.6   | 74.8   | 73.0   | 67.3   | 65.5   |
| 87.5°  | 33.7   | 30.0   | 26.2   | 20.6   | 18.7   |
| 90°    | 1.4    | 17.2   | 46.7   | 43.9   | 45.3   |
| 92.5°  | 29.6   | 40.0   | 41.5   | 42.9   | 42.9   |
| 95°    | 69.6   | 83.0   | 85.3   | 85.3   | 83.0   |
| 97.5°  | 115.8  | 128.2  | 133.5  | 133.5  | 133.5  |
| 100°   | 169.2  | 180.2  | 184.0  | 184.0  | 182.6  |
| 102.5° | 225.5  | 233.6  | 238.8  | 240.3  | 238.8  |
| 105°   | 287.0  | 290.8  | 293.7  | 296.0  | 296.0  |
| 107.5° | 348.0  | 353.7  | 353.7  | 354.7  | 348.0  |
| 110°   | 407.1  | 414.8  | 414.8  | 414.8  | 410.9  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 471.0  | 479.1  | 477.7  | 473.9  | 471.0  |
| 115°   | 533.9  | 541.6  | 539.2  | 537.8  | 533.9  |
| 117.5° | 596.4  | 606.9  | 600.2  | 596.4  | 592.6  |
| 120°   | 659.3  | 669.8  | 659.3  | 659.3  | 655.0  |
| 122.5° | 716.5  | 729.9  | 723.2  | 719.4  | 716.5  |
| 125°   | 776.6  | 788.5  | 784.7  | 780.4  | 779.0  |
| 127.5° | 835.2  | 850.0  | 844.8  | 839.0  | 835.2  |
| 130°   | 890.1  | 907.2  | 904.8  | 902.0  | 896.7  |
| 132.5° | 951.6  | 964.9  | 965.9  | 959.2  | 955.4  |
| 135°   | 1004.5 | 1019.2 | 1022.1 | 1020.7 | 1016.9 |
| 137.5° | 1063.6 | 1075.5 | 1077.9 | 1076.9 | 1071.2 |
| 140°   | 1115.5 | 1127.5 | 1134.1 | 1134.1 | 1128.9 |
| 142.5° | 1168.9 | 1180.9 | 1184.7 | 1186.1 | 1180.9 |
| 145°   | 1219.5 | 1229.0 | 1236.6 | 1238.1 | 1232.8 |
| 147.5° | 1264.8 | 1276.7 | 1282.4 | 1284.8 | 1279.5 |
| 150°   | 1311.5 | 1319.6 | 1324.8 | 1329.1 | 1324.8 |
| 152.5° | 1353.0 | 1361.1 | 1367.7 | 1373.0 | 1367.7 |
| 155°   | 1394.4 | 1398.2 | 1402.5 | 1409.2 | 1404.9 |
| 157.5° | 1430.2 | 1433.0 | 1435.4 | 1445.0 | 1438.3 |
| 160°   | 1462.1 | 1465.0 | 1466.4 | 1474.5 | 1468.8 |
| 162.5° | 1491.7 | 1491.7 | 1493.1 | 1502.2 | 1495.5 |
| 165°   | 1517.0 | 1515.5 | 1515.5 | 1525.1 | 1518.4 |
| 167.5° | 1539.8 | 1535.5 | 1535.5 | 1545.1 | 1538.4 |
| 170°   | 1557.0 | 1553.2 | 1551.8 | 1561.3 | 1553.2 |
| 172.5° | 1568.9 | 1565.1 | 1563.7 | 1573.2 | 1565.1 |
| 175°   | 1578.5 | 1574.6 | 1571.8 | 1581.3 | 1573.2 |
| 177.5° | 1583.7 | 1579.9 | 1577.0 | 1585.1 | 1577.0 |
| 180°   | 1581.3 | 1581.3 | 1581.3 | 1581.3 | 1581.3 |

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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 | 12.50            | 13.39 | 13.43 | 14.34 | 15.57 | 12.08          | 12.97 | 13.01 | 13.92 | 15.15 |
|                 | 3H   | 14.14            | 14.94 | 15.08 | 15.90 | 17.15 | 13.68          | 14.47 | 14.62 | 15.43 | 16.69 |
|                 | 4H   | 14.71            | 15.47 | 15.67 | 16.43 | 17.69 | 14.25          | 15.01 | 15.21 | 15.97 | 17.23 |
|                 | 6H   | 15.10            | 15.79 | 16.07 | 16.76 | 18.03 | 14.64          | 15.33 | 15.61 | 16.30 | 17.57 |
|                 | 8H   | 15.19            | 15.85 | 16.17 | 16.84 | 18.11 | 14.73          | 15.39 | 15.71 | 16.38 | 17.65 |
|                 | 12H  | 15.23            | 15.86 | 16.21 | 16.84 | 18.14 | 14.77          | 15.40 | 15.75 | 16.38 | 17.68 |
| 4H              | 2H   | 12.96            | 13.71 | 13.92 | 14.67 | 15.94 | 12.62          | 13.37 | 13.58 | 14.33 | 15.60 |
|                 | 3H   | 14.80            | 15.43 | 15.77 | 16.42 | 17.70 | 14.41          | 15.04 | 15.39 | 16.04 | 17.31 |
|                 | 4H   | 15.49            | 16.07 | 16.48 | 17.06 | 18.36 | 15.10          | 15.67 | 16.08 | 16.66 | 17.96 |
|                 | 6H   | 15.99            | 16.48 | 16.98 | 17.49 | 18.79 | 15.59          | 16.09 | 16.59 | 17.10 | 18.40 |
|                 | 8H   | 16.13            | 16.59 | 17.12 | 17.59 | 18.91 | 15.73          | 16.19 | 16.73 | 17.20 | 18.51 |
|                 | 12H  | 16.19            | 16.61 | 17.21 | 17.63 | 18.95 | 15.79          | 16.20 | 16.80 | 17.22 | 18.54 |
| 8H              | 4H   | 15.68            | 16.15 | 16.68 | 17.15 | 18.46 | 15.33          | 15.79 | 16.33 | 16.80 | 18.11 |
|                 | 6H   | 16.29            | 16.67 | 17.31 | 17.72 | 19.03 | 15.94          | 16.32 | 16.96 | 17.36 | 18.67 |
|                 | 8H   | 16.49            | 16.83 | 17.52 | 17.86 | 19.19 | 16.14          | 16.47 | 17.17 | 17.51 | 18.84 |
|                 | 12H  | 16.61            | 16.91 | 17.64 | 17.93 | 19.31 | 16.24          | 16.54 | 17.27 | 17.56 | 18.94 |
| 12H             | 4H   | 15.67            | 16.09 | 16.68 | 17.10 | 18.42 | 15.32          | 15.74 | 16.34 | 16.76 | 18.08 |
|                 | 6H   | 16.31            | 16.65 | 17.34 | 17.68 | 19.01 | 15.97          | 16.31 | 17.00 | 17.34 | 18.67 |
|                 | 8H   | 16.54            | 16.84 | 17.57 | 17.86 | 19.24 | 16.19          | 16.49 | 17.23 | 17.52 | 18.89 |

END OF REPORT