

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: P922699

Luminaire Tested: DFN2DIP-SQ2F0-080D060US940-RLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P922699  
REPORT IS A COMBINATION OF REPORTS P901338 AND P898215  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-080D060US940-RLLONL  
Description: 2 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

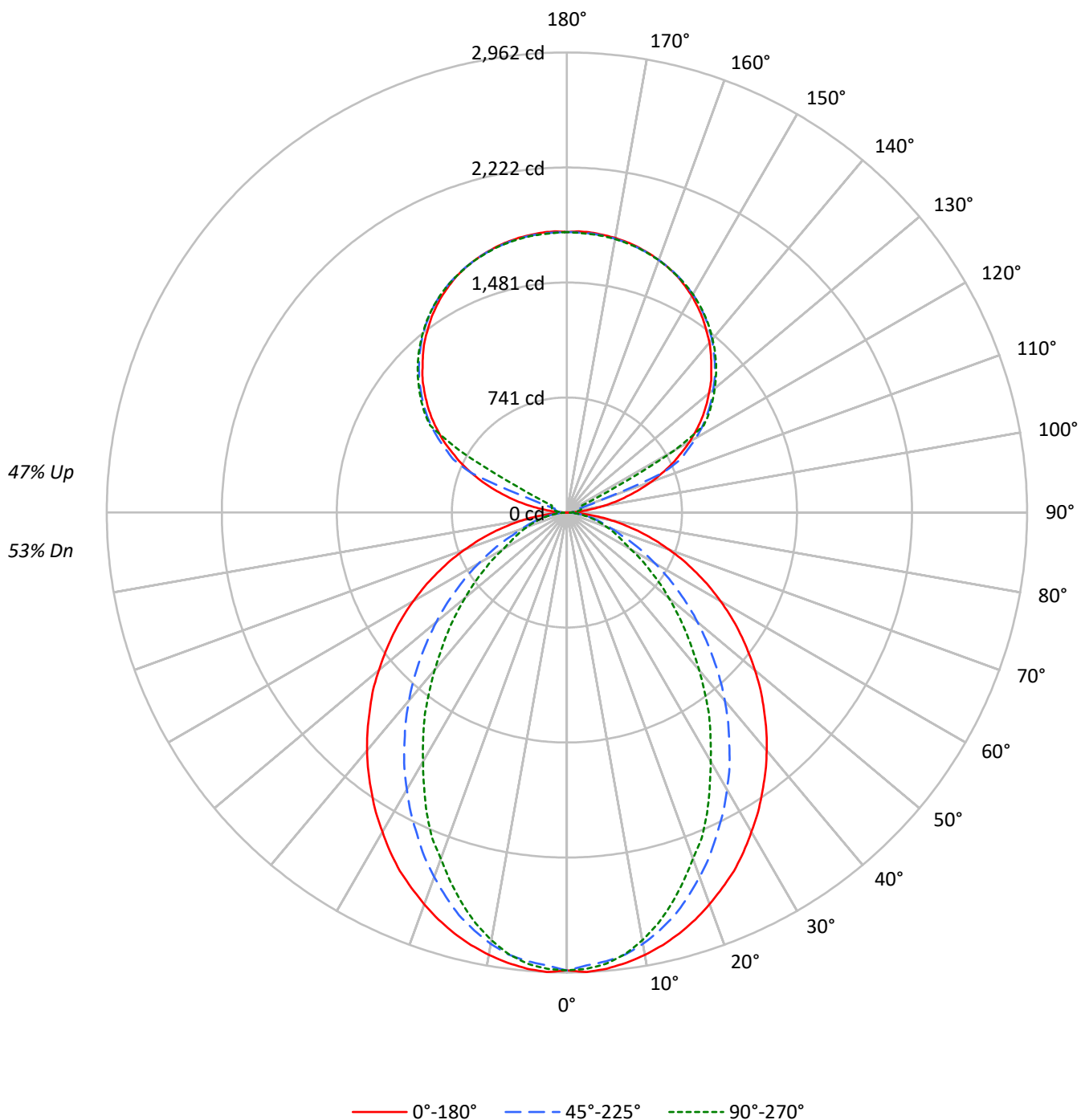
Lumens per Lamp: N/A  
Luminaire Lumens: 11360.4 lumens  
Efficiency: N/A  
Efficacy: 91.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 124.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9957  
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: P922699

CATALOG NUMBER: DFN2DIP-SQ2F0-080D060US940-RLONL

**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 | 59 | 59 | 59 |
| 1   | 99  | 95  | 91  | 88  | 92  | 88  | 85  | 82  | 76 | 73 | 71 | 64 | 62 | 61 | 53 | 52 | 51 |
| 2   | 91  | 83  | 78  | 73  | 84  | 78  | 73  | 68  | 67 | 63 | 60 | 57 | 54 | 52 | 47 | 45 | 44 |
| 3   | 83  | 74  | 67  | 61  | 77  | 69  | 63  | 58  | 59 | 55 | 51 | 51 | 47 | 44 | 42 | 40 | 38 |
| 4   | 76  | 66  | 58  | 52  | 70  | 61  | 55  | 49  | 53 | 48 | 44 | 45 | 42 | 38 | 38 | 35 | 33 |
| 5   | 70  | 59  | 51  | 45  | 65  | 55  | 48  | 43  | 48 | 42 | 38 | 41 | 37 | 34 | 35 | 32 | 29 |
| 6   | 65  | 53  | 45  | 39  | 60  | 50  | 43  | 37  | 43 | 38 | 34 | 37 | 33 | 30 | 32 | 28 | 26 |
| 7   | 60  | 48  | 40  | 35  | 56  | 45  | 38  | 33  | 39 | 34 | 30 | 34 | 30 | 26 | 29 | 26 | 23 |
| 8   | 56  | 44  | 36  | 31  | 52  | 41  | 34  | 29  | 36 | 31 | 27 | 31 | 27 | 24 | 27 | 24 | 21 |
| 9   | 52  | 40  | 33  | 28  | 48  | 38  | 31  | 26  | 33 | 28 | 24 | 29 | 25 | 22 | 25 | 22 | 19 |
| 10  | 49  | 37  | 30  | 25  | 45  | 35  | 28  | 24  | 31 | 25 | 22 | 27 | 23 | 20 | 23 | 20 | 17 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 6483 | 6483 | 6483 |
| 5°  | 6482 | 6366 | 6412 |
| 10° | 6407 | 6227 | 6194 |
| 15° | 6307 | 6008 | 5863 |
| 20° | 6179 | 5711 | 5460 |
| 25° | 6048 | 5381 | 5072 |
| 30° | 5876 | 5044 | 4582 |
| 35° | 5707 | 4683 | 4151 |
| 40° | 5534 | 4310 | 3660 |
| 45° | 5335 | 3900 | 3215 |
| 50° | 5127 | 3486 | 2781 |
| 55° | 4910 | 3046 | 2364 |
| 60° | 4657 | 2588 | 1937 |
| 65° | 4367 | 2124 | 1733 |
| 70° | 4014 | 1692 | 1556 |
| 75° | 3569 | 1465 | 1398 |
| 80° | 2930 | 1190 | 1183 |
| 85° | 1908 | 738  | 842  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 5335 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 276.3   | 2.4       |
| 10°-20°   | 758.6   | 6.7       |
| 20°-30°   | 1065.0  | 9.4       |
| 30°-40°   | 1160.9  | 10.2      |
| 40°-50°   | 1067.0  | 9.4       |
| 50°-60°   | 838.0   | 7.4       |
| 60°-70°   | 545.4   | 4.8       |
| 70°-80°   | 280.8   | 2.5       |
| 80°-90°   | 74.8    | 0.7       |
| 90°-100°  | 59.5    | 0.5       |
| 100°-110° | 222.0   | 2.0       |
| 110°-120° | 588.7   | 5.2       |
| 120°-130° | 976.3   | 8.6       |
| 130°-140° | 1037.1  | 9.1       |
| 140°-150° | 963.9   | 8.5       |
| 150°-160° | 774.9   | 6.8       |
| 160°-170° | 499.3   | 4.4       |
| 170°-180° | 171.9   | 1.5       |
| 0°-30°    | 2099.9  | 18.5      |
| 0°-40°    | 3260.8  | 28.7      |
| 0°-60°    | 5165.8  | 45.5      |
| 0°-90°    | 6066.8  | 53.4      |
| 90°-120°  | 870.2   | 7.7       |
| 90°-150°  | 3847.4  | 33.9      |
| 90°-180°  | 5294.0  | 46.6      |
| 0°-180°   | 11360.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2948 | 2948  | 2948 | 2948  | 2948 |      |
| 5°   | 2948 | 2935  | 2900 | 2924  | 2916 | 280  |
| 15°  | 2804 | 2775  | 2684 | 2634  | 2607 | 790  |
| 25°  | 2546 | 2460  | 2284 | 2175  | 2134 | 1171 |
| 35°  | 2193 | 2057  | 1822 | 1654  | 1595 | 1373 |
| 45°  | 1793 | 1614  | 1334 | 1144  | 1081 | 1385 |
| 55°  | 1363 | 1155  | 867  | 707   | 656  | 1218 |
| 65°  | 921  | 704   | 464  | 374   | 365  | 913  |
| 75°  | 491  | 304   | 214  | 195   | 192  | 519  |
| 85°  | 115  | 59    | 51   | 51    | 51   | 132  |
| 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 |      |



TEST NUMBER: P922699

CATALOG NUMBER: DFN2DIP-SQ2F0-080D060US940-RLONL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2948.4 | 2948.4 | 2948.4 | 2948.4 | 2948.4 |
| 2.5°   | 2961.6 | 2948.4 | 2918.9 | 2945.8 | 2940.4 |
| 5°     | 2948.4 | 2935.1 | 2900.2 | 2924.3 | 2916.3 |
| 7.5°   | 2924.3 | 2908.4 | 2871.0 | 2881.6 | 2868.2 |
| 10°    | 2892.3 | 2873.6 | 2820.4 | 2812.2 | 2796.3 |
| 12.5°  | 2852.4 | 2828.3 | 2756.1 | 2740.2 | 2710.8 |
| 15°    | 2804.3 | 2774.8 | 2684.2 | 2633.6 | 2606.9 |
| 17.5°  | 2748.2 | 2705.4 | 2593.4 | 2534.8 | 2492.0 |
| 20°    | 2684.2 | 2630.7 | 2497.4 | 2430.9 | 2371.9 |
| 22.5°  | 2614.9 | 2553.4 | 2398.6 | 2308.0 | 2268.1 |
| 25°    | 2545.5 | 2460.1 | 2283.9 | 2174.7 | 2134.5 |
| 27.5°  | 2462.8 | 2371.9 | 2177.2 | 2051.8 | 1990.4 |
| 30°    | 2374.8 | 2273.1 | 2059.8 | 1923.9 | 1851.6 |
| 32.5°  | 2289.3 | 2166.5 | 1947.9 | 1787.7 | 1720.9 |
| 35°    | 2193.3 | 2057.2 | 1822.5 | 1654.4 | 1595.4 |
| 37.5°  | 2099.9 | 1953.0 | 1705.0 | 1520.7 | 1454.2 |
| 40°    | 2001.2 | 1841.2 | 1582.2 | 1392.8 | 1323.4 |
| 42.5°  | 1899.8 | 1729.1 | 1459.6 | 1262.0 | 1195.4 |
| 45°    | 1793.1 | 1614.2 | 1334.2 | 1144.5 | 1080.6 |
| 47.5°  | 1691.8 | 1502.4 | 1214.2 | 1024.5 | 965.9  |
| 50°    | 1579.6 | 1390.3 | 1096.7 | 912.4  | 856.6  |
| 52.5°  | 1470.1 | 1269.9 | 984.5  | 808.5  | 757.9  |
| 55°    | 1363.3 | 1155.3 | 867.1  | 707.1  | 656.5  |
| 57.5°  | 1254.1 | 1040.6 | 763.2  | 613.8  | 571.0  |
| 60°    | 1141.9 | 928.5  | 653.6  | 517.7  | 475.0  |
| 62.5°  | 1032.7 | 819.2  | 560.3  | 432.3  | 411.1  |
| 65°    | 920.6  | 704.3  | 464.2  | 373.7  | 365.4  |
| 67.5°  | 813.9  | 597.6  | 373.7  | 328.1  | 320.2  |
| 70°    | 701.8  | 493.7  | 309.4  | 282.8  | 272.1  |
| 72.5°  | 595.0  | 397.4  | 258.8  | 237.6  | 232.1  |
| 75°    | 490.9  | 304.1  | 213.5  | 194.7  | 192.3  |
| 77.5°  | 387.0  | 216.0  | 168.2  | 157.4  | 152.0  |
| 80°    | 290.7  | 154.9  | 128.0  | 117.4  | 117.4  |
| 82.5°  | 202.7  | 104.2  | 88.0   | 82.7   | 82.7   |
| 85°    | 114.7  | 58.6   | 50.6   | 50.6   | 50.6   |
| 87.5°  | 42.7   | 21.2   | 21.2   | 18.7   | 18.7   |
| 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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CATALOG NUMBER: DFN2DIP-SQ2F0-080D060US940-RLLONL

**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 | 13.84            | 14.70 | 14.77 | 15.64 | 16.87 | 9.80           | 10.66 | 10.73 | 11.61 | 12.83 |
|                 | 3H   | 15.50            | 16.27 | 16.45 | 17.22 | 18.47 | 10.97          | 11.74 | 11.92 | 12.70 | 13.95 |
|                 | 4H   | 16.10            | 16.82 | 17.06 | 17.78 | 19.04 | 11.41          | 12.14 | 12.37 | 13.10 | 14.35 |
|                 | 6H   | 16.50            | 17.17 | 17.47 | 18.14 | 19.41 | 11.72          | 12.39 | 12.69 | 13.35 | 14.62 |
|                 | 8H   | 16.62            | 17.26 | 17.60 | 18.24 | 19.51 | 11.80          | 12.44 | 12.78 | 13.42 | 14.69 |
|                 | 12H  | 16.68            | 17.28 | 17.66 | 18.26 | 19.55 | 11.84          | 12.44 | 12.82 | 13.42 | 14.71 |
| 4H              | 2H   | 13.86            | 14.58 | 14.82 | 15.54 | 16.80 | 10.39          | 11.11 | 11.35 | 12.07 | 13.33 |
|                 | 3H   | 15.67            | 16.27 | 16.64 | 17.26 | 18.53 | 11.72          | 12.32 | 12.70 | 13.31 | 14.58 |
|                 | 4H   | 16.34            | 16.89 | 17.33 | 17.88 | 19.17 | 12.25          | 12.80 | 13.24 | 13.79 | 15.08 |
|                 | 6H   | 16.84            | 17.31 | 17.84 | 18.32 | 19.62 | 12.65          | 13.13 | 13.65 | 14.13 | 15.43 |
|                 | 8H   | 17.01            | 17.45 | 18.00 | 18.45 | 19.76 | 12.77          | 13.21 | 13.77 | 14.22 | 15.52 |
|                 | 12H  | 17.09            | 17.49 | 18.11 | 18.51 | 19.82 | 12.83          | 13.23 | 13.84 | 14.24 | 15.56 |
| 8H              | 4H   | 16.31            | 16.75 | 17.31 | 17.75 | 19.06 | 12.52          | 12.97 | 13.52 | 13.97 | 15.27 |
|                 | 6H   | 16.85            | 17.22 | 17.88 | 18.26 | 19.57 | 13.02          | 13.38 | 14.04 | 14.43 | 15.73 |
|                 | 8H   | 17.06            | 17.38 | 18.09 | 18.41 | 19.73 | 13.20          | 13.52 | 14.23 | 14.55 | 15.87 |
|                 | 12H  | 17.18            | 17.47 | 18.22 | 18.49 | 19.86 | 13.30          | 13.58 | 14.33 | 14.61 | 15.98 |
| 12H             | 4H   | 16.26            | 16.66 | 17.28 | 17.68 | 18.99 | 12.53          | 12.93 | 13.54 | 13.94 | 15.25 |
|                 | 6H   | 16.83            | 17.15 | 17.86 | 18.18 | 19.50 | 13.06          | 13.38 | 14.09 | 14.41 | 15.74 |
|                 | 8H   | 17.04            | 17.32 | 18.07 | 18.34 | 19.71 | 13.26          | 13.54 | 14.29 | 14.56 | 15.93 |

END OF REPORT