

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: P923522

Luminaire Tested: DFN2DIP-TR3F0-050D060US940-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P923522  
REPORT IS A COMBINATION OF REPORTS P900318 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-050D060US940-RLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

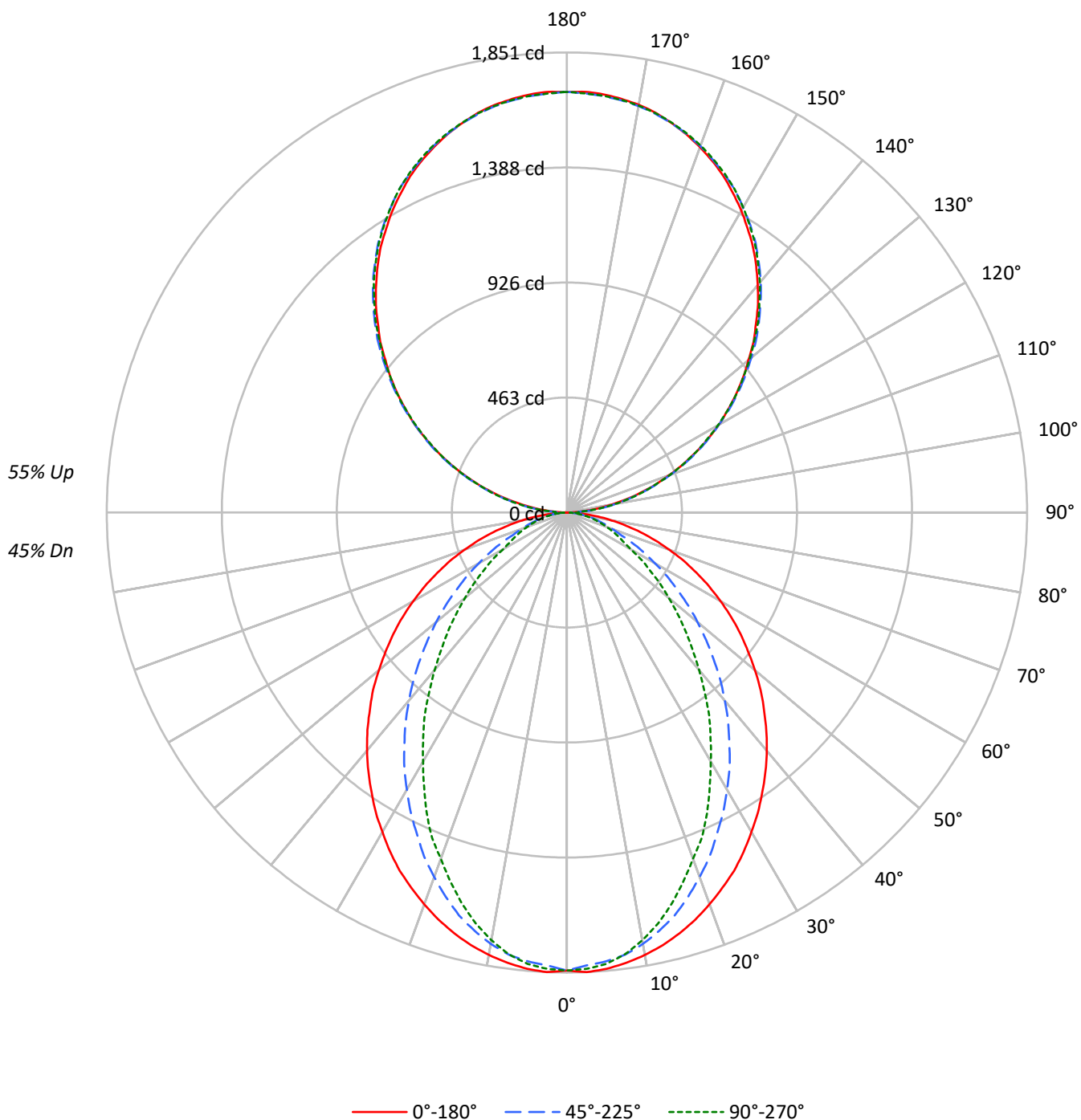
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8524.8 lumens  
Efficiency: N/A  
Efficacy: 94.2 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): 90.5  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P923522

CATALOG NUMBER: DFN2DIP-TR3F0-050D060US940-RLLFLL

### Luminous Intensity Polar Plot



TEST NUMBER: P923522

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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| RF  | 20  |     |     |     | 20 |    |    |    |    | 20 |    |    |    |    | 20 |    |    |    |    | 20 |
| RC  | 80  |     |     |     | 70 |    |    |    |    | 50 |    |    |    |    | 30 |    |    |    |    | 0  |
| RW  | 70  | 50  | 30  | 10  | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 |
| RCR |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 0   | 106 | 106 | 106 | 106 | 97 | 97 | 97 | 97 | 80 | 80 | 80 | 65 | 65 | 65 | 51 | 51 | 51 |    |    | 45 |
| 1   | 97  | 93  | 89  | 86  | 89 | 85 | 82 | 79 | 71 | 69 | 67 | 58 | 56 | 55 | 46 | 45 | 44 |    |    | 38 |
| 2   | 89  | 82  | 76  | 71  | 81 | 75 | 70 | 66 | 63 | 59 | 56 | 51 | 49 | 47 | 41 | 39 | 38 |    |    | 33 |
| 3   | 81  | 72  | 65  | 59  | 74 | 66 | 60 | 55 | 56 | 51 | 47 | 46 | 43 | 40 | 37 | 34 | 33 |    |    | 28 |
| 4   | 74  | 64  | 56  | 51  | 68 | 59 | 52 | 47 | 50 | 45 | 41 | 41 | 37 | 35 | 33 | 30 | 28 |    |    | 25 |
| 5   | 68  | 57  | 49  | 44  | 63 | 53 | 46 | 41 | 45 | 39 | 35 | 37 | 33 | 30 | 30 | 27 | 25 |    |    | 22 |
| 6   | 63  | 51  | 44  | 38  | 58 | 48 | 41 | 36 | 40 | 35 | 31 | 34 | 30 | 27 | 27 | 24 | 22 |    |    | 19 |
| 7   | 58  | 47  | 39  | 33  | 54 | 43 | 36 | 31 | 37 | 31 | 28 | 31 | 27 | 24 | 25 | 22 | 20 |    |    | 17 |
| 8   | 54  | 42  | 35  | 30  | 50 | 39 | 33 | 28 | 34 | 28 | 25 | 28 | 24 | 21 | 23 | 20 | 18 |    |    | 16 |
| 9   | 51  | 39  | 31  | 27  | 46 | 36 | 29 | 25 | 31 | 26 | 22 | 26 | 22 | 19 | 21 | 18 | 16 |    |    | 14 |
| 10  | 47  | 36  | 29  | 24  | 43 | 33 | 27 | 23 | 28 | 23 | 20 | 24 | 20 | 17 | 20 | 17 | 15 |    |    | 13 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2296 | 2296 | 2296 |
| 5°  | 2299 | 2258 | 2273 |
| 10° | 2275 | 2212 | 2197 |
| 15° | 2242 | 2137 | 2082 |
| 20° | 2199 | 2034 | 1940 |
| 25° | 2156 | 1919 | 1803 |
| 30° | 2097 | 1802 | 1631 |
| 35° | 2040 | 1676 | 1479 |
| 40° | 1982 | 1546 | 1306 |
| 45° | 1914 | 1402 | 1148 |
| 50° | 1844 | 1257 | 995  |
| 55° | 1771 | 1101 | 847  |
| 60° | 1686 | 940  | 696  |
| 65° | 1588 | 775  | 625  |
| 70° | 1470 | 622  | 563  |
| 75° | 1321 | 544  | 509  |
| 80° | 1105 | 451  | 436  |
| 85° | 753  | 292  | 320  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1914 cd/sqm

TEST NUMBER: P923522

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 172.7  | 2.0       |
| 10°-20°   | 474.1  | 5.6       |
| 20°-30°   | 665.6  | 7.8       |
| 30°-40°   | 725.6  | 8.5       |
| 40°-50°   | 666.9  | 7.8       |
| 50°-60°   | 523.7  | 6.1       |
| 60°-70°   | 340.9  | 4.0       |
| 70°-80°   | 175.5  | 2.1       |
| 80°-90°   | 49.6   | 0.6       |
| 90°-100°  | 104.7  | 1.2       |
| 100°-110° | 332.7  | 3.9       |
| 110°-120° | 569.3  | 6.7       |
| 120°-130° | 748.8  | 8.8       |
| 130°-140° | 840.5  | 9.9       |
| 140°-150° | 824.2  | 9.7       |
| 150°-160° | 691.4  | 8.1       |
| 160°-170° | 458.5  | 5.4       |
| 170°-180° | 160.3  | 1.9       |
| 0°-30°    | 1312.4 | 15.4      |
| 0°-40°    | 2038.0 | 23.9      |
| 0°-60°    | 3228.6 | 37.9      |
| 0°-90°    | 3794.6 | 44.5      |
| 90°-120°  | 1006.7 | 11.8      |
| 90°-150°  | 3420.1 | 40.1      |
| 90°-180°  | 4730.0 | 55.5      |
| 0°-180°   | 8524.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1843 | 1843  | 1843 | 1843  | 1843 |      |
| 5°   | 1843 | 1834  | 1813 | 1828  | 1823 | 175  |
| 15°  | 1753 | 1734  | 1678 | 1646  | 1629 | 494  |
| 25°  | 1591 | 1538  | 1427 | 1359  | 1334 | 732  |
| 35°  | 1371 | 1286  | 1139 | 1034  | 997  | 858  |
| 45°  | 1121 | 1009  | 834  | 715   | 675  | 865  |
| 55°  | 852  | 722   | 542  | 442   | 410  | 761  |
| 65°  | 575  | 440   | 290  | 234   | 228  | 570  |
| 75°  | 307  | 190   | 133  | 122   | 120  | 324  |
| 85°  | 72   | 37    | 32   | 32    | 32   | 82   |
| 90°  | 2    | 18    | 50   | 47    | 48   | 8    |
| 95°  | 74   | 89    | 91   | 91    | 89   | 83   |
| 105° | 307  | 311   | 314  | 317   | 317  | 324  |
| 115° | 571  | 580   | 577  | 575   | 571  | 565  |
| 125° | 831  | 844   | 840  | 835   | 834  | 743  |
| 135° | 1075 | 1091  | 1094 | 1092  | 1088 | 831  |
| 145° | 1305 | 1315  | 1323 | 1325  | 1319 | 815  |
| 155° | 1492 | 1496  | 1501 | 1508  | 1503 | 687  |
| 165° | 1623 | 1622  | 1622 | 1632  | 1625 | 458  |
| 175° | 1689 | 1685  | 1682 | 1692  | 1683 | 160  |
| 180° | 1692 | 1692  | 1692 | 1692  | 1692 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1842.7 | 1842.7 | 1842.7 | 1842.7 | 1842.7 |
| 2.5°   | 1851.0 | 1842.7 | 1824.4 | 1841.1 | 1837.7 |
| 5°     | 1842.7 | 1834.4 | 1812.7 | 1827.6 | 1822.7 |
| 7.5°   | 1827.6 | 1817.8 | 1794.4 | 1801.0 | 1792.6 |
| 10°    | 1807.7 | 1796.0 | 1762.7 | 1757.7 | 1747.7 |
| 12.5°  | 1782.7 | 1767.7 | 1722.6 | 1712.7 | 1694.2 |
| 15°    | 1752.7 | 1734.3 | 1677.7 | 1646.0 | 1629.3 |
| 17.5°  | 1717.6 | 1691.0 | 1620.9 | 1584.2 | 1557.5 |
| 20°    | 1677.7 | 1644.2 | 1560.8 | 1519.3 | 1482.5 |
| 22.5°  | 1634.3 | 1595.9 | 1499.1 | 1442.5 | 1417.6 |
| 25°    | 1590.9 | 1537.5 | 1427.4 | 1359.1 | 1334.0 |
| 27.5°  | 1539.3 | 1482.5 | 1360.8 | 1282.4 | 1244.0 |
| 30°    | 1484.3 | 1420.8 | 1287.4 | 1202.4 | 1157.3 |
| 32.5°  | 1430.8 | 1354.1 | 1217.5 | 1117.3 | 1075.6 |
| 35°    | 1370.8 | 1285.8 | 1139.1 | 1033.9 | 997.2  |
| 37.5°  | 1312.4 | 1220.7 | 1065.7 | 950.5  | 908.9  |
| 40°    | 1250.7 | 1150.8 | 988.8  | 870.5  | 827.2  |
| 42.5°  | 1187.4 | 1080.7 | 912.2  | 788.7  | 747.2  |
| 45°    | 1120.7 | 1008.9 | 833.8  | 715.3  | 675.3  |
| 47.5°  | 1057.3 | 939.0  | 758.8  | 640.3  | 603.7  |
| 50°    | 987.3  | 868.9  | 685.5  | 570.2  | 535.4  |
| 52.5°  | 918.8  | 793.7  | 615.4  | 505.3  | 473.7  |
| 55°    | 852.1  | 722.0  | 541.9  | 441.9  | 410.3  |
| 57.5°  | 783.8  | 650.4  | 477.0  | 383.6  | 356.9  |
| 60°    | 713.7  | 580.3  | 408.5  | 323.6  | 296.9  |
| 62.5°  | 645.4  | 512.0  | 350.2  | 270.2  | 256.9  |
| 65°    | 575.3  | 440.2  | 290.2  | 233.5  | 228.5  |
| 67.5°  | 508.6  | 373.5  | 233.5  | 205.1  | 200.1  |
| 70°    | 438.6  | 308.5  | 193.4  | 176.7  | 170.0  |
| 72.5°  | 371.9  | 248.4  | 161.8  | 148.5  | 145.1  |
| 75°    | 306.8  | 190.0  | 133.4  | 121.7  | 120.1  |
| 77.5°  | 241.8  | 135.0  | 105.1  | 98.4   | 95.0   |
| 80°    | 181.7  | 96.8   | 80.0   | 73.4   | 73.4   |
| 82.5°  | 126.7  | 65.1   | 55.0   | 51.6   | 51.6   |
| 85°    | 71.7   | 36.6   | 31.7   | 31.7   | 31.7   |
| 87.5°  | 26.8   | 13.3   | 13.3   | 11.7   | 11.7   |
| 90°    | 1.5    | 18.4   | 50.0   | 46.9   | 48.4   |
| 92.5°  | 31.7   | 42.9   | 44.4   | 45.9   | 45.9   |
| 95°    | 74.5   | 88.7   | 91.3   | 91.3   | 88.7   |
| 97.5°  | 123.9  | 137.2  | 142.9  | 142.9  | 142.9  |
| 100°   | 181.1  | 192.8  | 196.9  | 196.9  | 195.4  |
| 102.5° | 241.3  | 249.9  | 255.6  | 257.1  | 255.6  |
| 105°   | 307.1  | 311.2  | 314.2  | 316.8  | 316.8  |
| 107.5° | 372.4  | 378.5  | 378.5  | 379.5  | 372.4  |
| 110°   | 435.7  | 443.8  | 443.8  | 443.8  | 439.7  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 504.0  | 512.6  | 511.1  | 507.0  | 504.0  |
| 115°   | 571.3  | 579.5  | 576.9  | 575.4  | 571.3  |
| 117.5° | 638.2  | 649.4  | 642.2  | 638.2  | 634.1  |
| 120°   | 705.5  | 716.8  | 705.5  | 705.5  | 700.9  |
| 122.5° | 766.7  | 781.0  | 773.8  | 769.8  | 766.7  |
| 125°   | 831.0  | 843.7  | 839.6  | 835.1  | 833.6  |
| 127.5° | 893.8  | 909.5  | 903.9  | 897.9  | 893.8  |
| 130°   | 952.4  | 970.8  | 968.2  | 965.2  | 959.6  |
| 132.5° | 1018.2 | 1032.5 | 1033.5 | 1026.4 | 1022.3 |
| 135°   | 1074.9 | 1090.7 | 1093.7 | 1092.2 | 1088.1 |
| 137.5° | 1138.1 | 1150.8 | 1153.4 | 1152.4 | 1146.3 |
| 140°   | 1193.7 | 1206.5 | 1213.6 | 1213.6 | 1208.0 |
| 142.5° | 1250.8 | 1263.6 | 1267.7 | 1269.2 | 1263.6 |
| 145°   | 1304.9 | 1315.1 | 1323.3 | 1324.8 | 1319.2 |
| 147.5° | 1353.3 | 1366.1 | 1372.3 | 1374.7 | 1369.1 |
| 150°   | 1403.4 | 1412.0 | 1417.6 | 1422.2 | 1417.6 |
| 152.5° | 1447.7 | 1456.4 | 1463.6 | 1469.2 | 1463.6 |
| 155°   | 1492.1 | 1496.2 | 1500.7 | 1508.0 | 1503.3 |
| 157.5° | 1530.4 | 1533.5 | 1536.0 | 1546.2 | 1539.1 |
| 160°   | 1564.6 | 1567.6 | 1569.1 | 1577.8 | 1571.7 |
| 162.5° | 1596.2 | 1596.2 | 1597.7 | 1607.4 | 1600.3 |
| 165°   | 1623.2 | 1621.7 | 1621.7 | 1631.9 | 1624.8 |
| 167.5° | 1647.7 | 1643.2 | 1643.2 | 1653.3 | 1646.2 |
| 170°   | 1666.1 | 1662.0 | 1660.5 | 1670.6 | 1662.0 |
| 172.5° | 1678.8 | 1674.7 | 1673.2 | 1683.4 | 1674.7 |
| 175°   | 1689.0 | 1685.0 | 1681.9 | 1692.1 | 1683.4 |
| 177.5° | 1694.6 | 1690.6 | 1687.5 | 1696.1 | 1687.5 |
| 180°   | 1692.1 | 1692.1 | 1692.1 | 1692.1 | 1692.1 |

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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 | 9.45             | 10.23 | 10.46 | 11.25 | 12.60 | 5.42           | 6.21 | 6.43  | 7.23  | 8.58  |
|                 | 3H   | 11.11            | 11.82 | 12.13 | 12.84 | 14.21 | 6.60           | 7.31 | 7.62  | 8.33  | 9.70  |
|                 | 4H   | 11.71            | 12.38 | 12.74 | 13.40 | 14.78 | 7.05           | 7.71 | 8.08  | 8.74  | 10.12 |
|                 | 6H   | 12.12            | 12.74 | 13.17 | 13.77 | 15.16 | 7.36           | 7.97 | 8.40  | 9.01  | 10.40 |
|                 | 8H   | 12.24            | 12.83 | 13.29 | 13.87 | 15.26 | 7.45           | 8.03 | 8.50  | 9.08  | 10.46 |
|                 | 12H  | 12.30            | 12.85 | 13.35 | 13.90 | 15.30 | 7.49           | 8.04 | 8.54  | 9.08  | 10.49 |
| 4H              | 2H   | 9.46             | 10.12 | 10.50 | 11.15 | 12.53 | 6.01           | 6.67 | 7.05  | 7.70  | 9.08  |
|                 | 3H   | 11.27            | 11.83 | 12.32 | 12.88 | 14.27 | 7.35           | 7.90 | 8.39  | 8.96  | 10.35 |
|                 | 4H   | 11.96            | 12.46 | 13.01 | 13.51 | 14.92 | 7.89           | 8.40 | 8.94  | 9.44  | 10.86 |
|                 | 6H   | 12.46            | 12.89 | 13.52 | 13.96 | 15.37 | 8.30           | 8.74 | 9.36  | 9.80  | 11.21 |
|                 | 8H   | 12.63            | 13.03 | 13.69 | 14.10 | 15.52 | 8.42           | 8.83 | 9.49  | 9.89  | 11.32 |
|                 | 12H  | 12.72            | 13.08 | 13.80 | 14.16 | 15.59 | 8.48           | 8.85 | 9.56  | 9.93  | 11.36 |
| 8H              | 4H   | 11.92            | 12.33 | 12.98 | 13.39 | 14.81 | 8.16           | 8.57 | 9.22  | 9.63  | 11.05 |
|                 | 6H   | 12.47            | 12.81 | 13.56 | 13.91 | 15.33 | 8.67           | 9.00 | 9.76  | 10.11 | 11.53 |
|                 | 8H   | 12.68            | 12.98 | 13.78 | 14.07 | 15.51 | 8.86           | 9.15 | 9.95  | 10.24 | 11.68 |
|                 | 12H  | 12.81            | 13.07 | 13.91 | 14.16 | 15.64 | 8.97           | 9.23 | 10.06 | 10.31 | 11.79 |
| 12H             | 4H   | 11.87            | 12.24 | 12.95 | 13.31 | 14.74 | 8.16           | 8.53 | 9.24  | 9.61  | 11.03 |
|                 | 6H   | 12.45            | 12.74 | 13.54 | 13.83 | 15.27 | 8.72           | 9.01 | 9.81  | 10.10 | 11.54 |
|                 | 8H   | 12.66            | 12.92 | 13.76 | 14.00 | 15.48 | 8.92           | 9.18 | 10.01 | 10.26 | 11.74 |

END OF REPORT