

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: P926428

Luminaire Tested: DFN2DIP-TR4F0-050D100US950-RLFL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P926428  
REPORT IS A COMBINATION OF REPORTS P900480 AND P897293  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-050D100US950-RLLFLL  
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

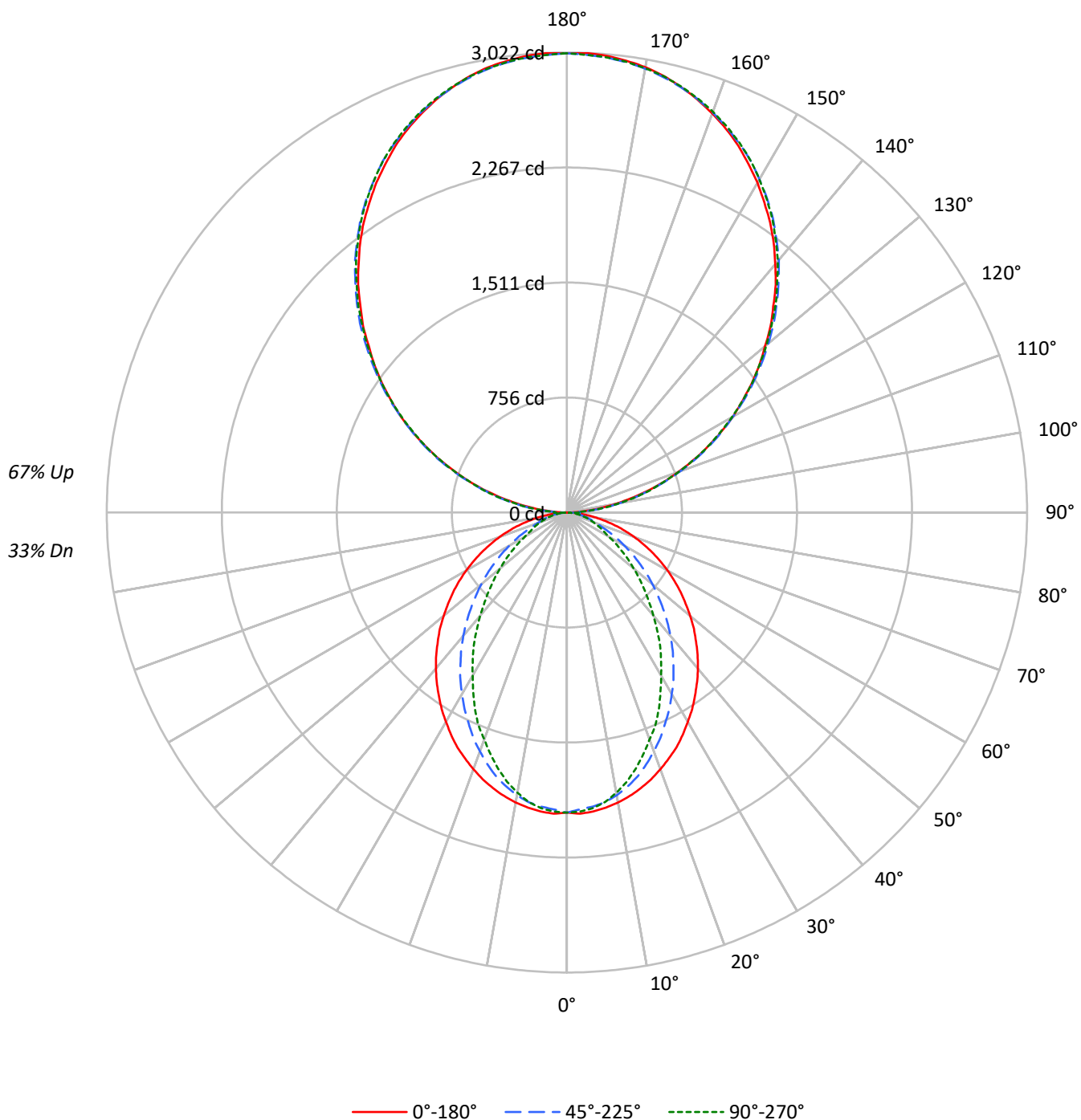
Lumens per Lamp: N/A  
Luminaire Lumens: 12497.5 lumens  
Efficiency: N/A  
Efficacy: 105.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')  
CIE Type: Semi-Indirect

Input Watts (W): 118.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.996  
Total Harmonic Distortion (THDi): 0.064  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P926428

CATALOG NUMBER: DFN2DIP-TR4F0-050D100US950-RLLFLL

### Luminous Intensity Polar Plot



TEST NUMBER: P926428

CATALOG NUMBER: DFN2DIP-TR4F0-050D100US950-RLLFLL

**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   | 103 | 103 | 103 | 103 | 93 | 93 | 93 | 93 | 74 | 74 | 74 | 56 | 56 | 56 | 40 | 40 | 40 |
| 1   | 94  | 90  | 86  | 83  | 85 | 81 | 78 | 75 | 65 | 63 | 61 | 50 | 48 | 47 | 36 | 35 | 34 |
| 2   | 86  | 79  | 73  | 68  | 77 | 71 | 67 | 62 | 57 | 54 | 51 | 44 | 42 | 40 | 32 | 31 | 29 |
| 3   | 79  | 70  | 63  | 57  | 71 | 63 | 57 | 52 | 51 | 46 | 43 | 39 | 36 | 34 | 29 | 27 | 25 |
| 4   | 72  | 62  | 54  | 49  | 65 | 56 | 50 | 45 | 45 | 41 | 37 | 35 | 32 | 29 | 26 | 24 | 22 |
| 5   | 66  | 55  | 47  | 42  | 59 | 50 | 43 | 38 | 40 | 36 | 32 | 32 | 28 | 26 | 23 | 21 | 19 |
| 6   | 61  | 49  | 42  | 36  | 55 | 45 | 38 | 33 | 36 | 32 | 28 | 29 | 25 | 23 | 21 | 19 | 17 |
| 7   | 56  | 45  | 37  | 32  | 51 | 41 | 34 | 29 | 33 | 28 | 25 | 26 | 23 | 20 | 19 | 17 | 15 |
| 8   | 52  | 40  | 33  | 28  | 47 | 37 | 30 | 26 | 30 | 25 | 22 | 24 | 20 | 18 | 18 | 16 | 14 |
| 9   | 49  | 37  | 30  | 25  | 44 | 34 | 27 | 23 | 28 | 23 | 20 | 22 | 19 | 16 | 17 | 14 | 13 |
| 10  | 45  | 34  | 27  | 22  | 41 | 31 | 25 | 21 | 25 | 21 | 18 | 20 | 17 | 15 | 15 | 13 | 11 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1566 | 1566 | 1566 |
| 5°  | 1569 | 1541 | 1551 |
| 10° | 1553 | 1511 | 1501 |
| 15° | 1532 | 1461 | 1423 |
| 20° | 1504 | 1392 | 1327 |
| 25° | 1475 | 1315 | 1234 |
| 30° | 1436 | 1236 | 1117 |
| 35° | 1398 | 1151 | 1014 |
| 40° | 1359 | 1063 | 896  |
| 45° | 1314 | 965  | 789  |
| 50° | 1267 | 867  | 684  |
| 55° | 1219 | 761  | 584  |
| 60° | 1162 | 651  | 480  |
| 65° | 1098 | 539  | 432  |
| 70° | 1019 | 435  | 391  |
| 75° | 921  | 383  | 356  |
| 80° | 778  | 321  | 308  |
| 85° | 542  | 215  | 232  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2351 cd/sqm

TEST NUMBER: P926428

CATALOG NUMBER: DFN2DIP-TR4F0-050D100US950-RLLFLL

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 184.8   | 1.5       |
| 10°-20°   | 507.2   | 4.1       |
| 20°-30°   | 712.1   | 5.7       |
| 30°-40°   | 776.3   | 6.2       |
| 40°-50°   | 713.5   | 5.7       |
| 50°-60°   | 560.3   | 4.5       |
| 60°-70°   | 364.7   | 2.9       |
| 70°-80°   | 187.7   | 1.5       |
| 80°-90°   | 56.5    | 0.5       |
| 90°-100°  | 186.7   | 1.5       |
| 100°-110° | 593.2   | 4.7       |
| 110°-120° | 1015.2  | 8.1       |
| 120°-130° | 1335.1  | 10.7      |
| 130°-140° | 1498.6  | 12.0      |
| 140°-150° | 1469.5  | 11.8      |
| 150°-160° | 1232.7  | 9.9       |
| 160°-170° | 817.5   | 6.5       |
| 170°-180° | 285.7   | 2.3       |
| 0°-30°    | 1404.1  | 11.2      |
| 0°-40°    | 2180.4  | 17.4      |
| 0°-60°    | 3454.1  | 27.6      |
| 0°-90°    | 4063.1  | 32.5      |
| 90°-120°  | 1795.1  | 14.4      |
| 90°-150°  | 6098.3  | 48.8      |
| 90°-180°  | 8434.0  | 67.5      |
| 0°-180°   | 12497.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1971 | 1971  | 1971 | 1971  | 1971 |      |
| 5°   | 1971 | 1963  | 1939 | 1955  | 1950 | 187  |
| 15°  | 1875 | 1855  | 1795 | 1761  | 1743 | 528  |
| 25°  | 1702 | 1645  | 1527 | 1454  | 1427 | 783  |
| 35°  | 1467 | 1376  | 1219 | 1106  | 1067 | 918  |
| 45°  | 1199 | 1079  | 892  | 765   | 722  | 926  |
| 55°  | 912  | 772   | 580  | 473   | 439  | 815  |
| 65°  | 616  | 471   | 310  | 250   | 244  | 610  |
| 75°  | 328  | 203   | 143  | 130   | 128  | 347  |
| 85°  | 77   | 39    | 34   | 34    | 34   | 88   |
| 90°  | 3    | 33    | 89   | 84    | 86   | 12   |
| 95°  | 133  | 158   | 163  | 163   | 158  | 148  |
| 105° | 548  | 555   | 560  | 565   | 565  | 578  |
| 115° | 1019 | 1033  | 1029 | 1026  | 1019 | 1008 |
| 125° | 1482 | 1504  | 1497 | 1489  | 1486 | 1324 |
| 135° | 1916 | 1945  | 1950 | 1948  | 1940 | 1481 |
| 145° | 2327 | 2345  | 2360 | 2362  | 2352 | 1454 |
| 155° | 2661 | 2668  | 2676 | 2689  | 2680 | 1225 |
| 165° | 2894 | 2892  | 2892 | 2910  | 2897 | 817  |
| 175° | 3012 | 3004  | 2999 | 3017  | 3002 | 286  |
| 180° | 3017 | 3017  | 3017 | 3017  | 3017 |      |

TEST NUMBER: P926428

CATALOG NUMBER: DFN2DIP-TR4F0-050D100US950-RLLFLL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1971.4 | 1971.4 | 1971.4 | 1971.4 | 1971.4 |
| 2.5°   | 1980.3 | 1971.4 | 1951.8 | 1969.7 | 1966.1 |
| 5°     | 1971.4 | 1962.6 | 1939.3 | 1955.3 | 1950.1 |
| 7.5°   | 1955.3 | 1944.7 | 1919.7 | 1926.8 | 1917.8 |
| 10°    | 1933.9 | 1921.5 | 1885.9 | 1880.4 | 1869.7 |
| 12.5°  | 1907.2 | 1891.2 | 1842.9 | 1832.3 | 1812.6 |
| 15°    | 1875.1 | 1855.4 | 1794.9 | 1761.0 | 1743.1 |
| 17.5°  | 1837.6 | 1809.1 | 1734.1 | 1694.9 | 1666.3 |
| 20°    | 1794.9 | 1759.1 | 1669.9 | 1625.4 | 1586.0 |
| 22.5°  | 1748.5 | 1707.4 | 1603.9 | 1543.3 | 1516.6 |
| 25°    | 1702.0 | 1644.9 | 1527.2 | 1454.1 | 1427.2 |
| 27.5°  | 1646.8 | 1586.0 | 1455.8 | 1371.9 | 1330.9 |
| 30°    | 1587.9 | 1520.0 | 1377.3 | 1286.4 | 1238.1 |
| 32.5°  | 1530.8 | 1448.6 | 1302.5 | 1195.4 | 1150.7 |
| 35°    | 1466.6 | 1375.6 | 1218.6 | 1106.2 | 1066.9 |
| 37.5°  | 1404.1 | 1305.9 | 1140.1 | 1016.9 | 972.4  |
| 40°    | 1338.1 | 1231.1 | 1057.9 | 931.3  | 884.9  |
| 42.5°  | 1270.3 | 1156.2 | 975.9  | 843.8  | 799.4  |
| 45°    | 1199.0 | 1079.4 | 892.1  | 765.3  | 722.5  |
| 47.5°  | 1131.2 | 1004.6 | 811.9  | 685.1  | 645.9  |
| 50°    | 1056.3 | 929.6  | 733.3  | 610.1  | 572.8  |
| 52.5°  | 983.0  | 849.2  | 658.4  | 540.6  | 506.8  |
| 55°    | 911.6  | 772.5  | 579.7  | 472.8  | 438.9  |
| 57.5°  | 838.6  | 695.8  | 510.3  | 410.4  | 381.8  |
| 60°    | 763.6  | 620.9  | 437.0  | 346.2  | 317.6  |
| 62.5°  | 690.5  | 547.8  | 374.6  | 289.1  | 274.8  |
| 65°    | 615.5  | 471.0  | 310.4  | 249.9  | 244.4  |
| 67.5°  | 544.2  | 399.6  | 249.9  | 219.4  | 214.1  |
| 70°    | 469.3  | 330.1  | 206.9  | 189.1  | 181.9  |
| 72.5°  | 397.9  | 265.8  | 173.1  | 158.8  | 155.2  |
| 75°    | 328.3  | 203.3  | 142.7  | 130.2  | 128.5  |
| 77.5°  | 258.7  | 144.4  | 112.5  | 105.2  | 101.6  |
| 80°    | 194.4  | 103.5  | 85.6   | 78.5   | 78.5   |
| 82.5°  | 135.6  | 69.6   | 58.9   | 55.2   | 55.2   |
| 85°    | 76.7   | 39.2   | 33.9   | 33.9   | 33.9   |
| 87.5°  | 28.6   | 14.2   | 14.2   | 12.5   | 12.5   |
| 90°    | 2.8    | 32.7   | 89.1   | 83.7   | 86.4   |
| 92.5°  | 56.4   | 76.4   | 79.2   | 81.9   | 81.9   |
| 95°    | 132.8  | 158.3  | 162.8  | 162.8  | 158.3  |
| 97.5°  | 221.0  | 244.7  | 254.7  | 254.7  | 254.7  |
| 100°   | 322.9  | 343.8  | 351.1  | 351.1  | 348.4  |
| 102.5° | 430.3  | 445.7  | 455.7  | 458.4  | 455.7  |
| 105°   | 547.6  | 554.8  | 560.3  | 564.9  | 564.9  |
| 107.5° | 664.0  | 675.0  | 675.0  | 676.8  | 664.0  |
| 110°   | 776.8  | 791.3  | 791.3  | 791.3  | 784.1  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 898.7  | 914.1  | 911.5  | 904.1  | 898.7  |
| 115°   | 1018.8 | 1033.3 | 1028.8 | 1026.0 | 1018.8 |
| 117.5° | 1137.9 | 1158.0 | 1145.2 | 1137.9 | 1130.6 |
| 120°   | 1257.9 | 1278.0 | 1257.9 | 1257.9 | 1249.8 |
| 122.5° | 1367.1 | 1392.6 | 1379.9 | 1372.6 | 1367.1 |
| 125°   | 1481.8 | 1504.5 | 1497.2 | 1489.0 | 1486.3 |
| 127.5° | 1593.7 | 1621.8 | 1611.8 | 1600.9 | 1593.7 |
| 130°   | 1698.2 | 1730.9 | 1726.5 | 1720.9 | 1711.0 |
| 132.5° | 1815.6 | 1841.0 | 1842.8 | 1830.2 | 1822.8 |
| 135°   | 1916.5 | 1944.7 | 1950.2 | 1947.5 | 1940.1 |
| 137.5° | 2029.3 | 2052.1 | 2056.6 | 2054.8 | 2043.8 |
| 140°   | 2128.5 | 2151.2 | 2164.0 | 2164.0 | 2153.9 |
| 142.5° | 2230.4 | 2253.1 | 2260.3 | 2263.1 | 2253.1 |
| 145°   | 2326.7 | 2344.9 | 2359.5 | 2362.2 | 2352.2 |
| 147.5° | 2413.1 | 2435.9 | 2446.8 | 2451.4 | 2441.4 |
| 150°   | 2502.3 | 2517.8 | 2527.8 | 2535.9 | 2527.8 |
| 152.5° | 2581.4 | 2596.9 | 2609.7 | 2619.7 | 2609.7 |
| 155°   | 2660.6 | 2667.9 | 2676.1 | 2688.8 | 2680.5 |
| 157.5° | 2728.8 | 2734.3 | 2738.8 | 2757.0 | 2744.3 |
| 160°   | 2789.8 | 2795.2 | 2797.9 | 2813.3 | 2802.5 |
| 162.5° | 2846.2 | 2846.2 | 2848.8 | 2866.1 | 2853.4 |
| 165°   | 2894.3 | 2891.6 | 2891.6 | 2909.8 | 2897.1 |
| 167.5° | 2938.0 | 2929.8 | 2929.8 | 2948.1 | 2935.3 |
| 170°   | 2970.8 | 2963.5 | 2960.7 | 2979.0 | 2963.5 |
| 172.5° | 2993.5 | 2986.2 | 2983.4 | 3001.7 | 2986.2 |
| 175°   | 3011.7 | 3004.4 | 2999.0 | 3017.1 | 3001.7 |
| 177.5° | 3021.7 | 3014.4 | 3008.9 | 3024.4 | 3008.9 |
| 180°   | 3017.1 | 3017.1 | 3017.1 | 3017.1 | 3017.1 |

TEST NUMBER: P926428

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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 | 6.80             | 7.50  | 7.90  | 8.60  | 10.10 | 2.77           | 3.48 | 3.87 | 4.57 | 6.07 |
|                 | 3H   | 8.47             | 9.10  | 9.57  | 10.20 | 11.72 | 3.95           | 4.58 | 5.06 | 5.69 | 7.21 |
|                 | 4H   | 9.07             | 9.67  | 10.19 | 10.77 | 12.30 | 4.40           | 5.00 | 5.52 | 6.10 | 7.62 |
|                 | 6H   | 9.48             | 10.03 | 10.61 | 11.14 | 12.68 | 4.71           | 5.26 | 5.84 | 6.37 | 7.91 |
|                 | 8H   | 9.61             | 10.13 | 10.74 | 11.25 | 12.78 | 4.80           | 5.32 | 5.93 | 6.44 | 7.97 |
|                 | 12H  | 9.66             | 10.16 | 10.80 | 11.28 | 12.83 | 4.84           | 5.34 | 5.97 | 6.45 | 8.00 |
| 4H              | 2H   | 6.80             | 7.40  | 7.93  | 8.50  | 10.03 | 3.35           | 3.95 | 4.48 | 5.05 | 6.58 |
|                 | 3H   | 8.62             | 9.12  | 9.75  | 10.25 | 11.78 | 4.69           | 5.19 | 5.82 | 6.32 | 7.86 |
|                 | 4H   | 9.31             | 9.76  | 10.44 | 10.88 | 12.44 | 5.24           | 5.69 | 6.37 | 6.81 | 8.37 |
|                 | 6H   | 9.81             | 10.21 | 10.96 | 11.35 | 12.90 | 5.65           | 6.04 | 6.79 | 7.18 | 8.73 |
|                 | 8H   | 9.99             | 10.35 | 11.13 | 11.49 | 13.05 | 5.78           | 6.14 | 6.92 | 7.27 | 8.84 |
|                 | 12H  | 10.08            | 10.41 | 11.23 | 11.55 | 13.12 | 5.84           | 6.17 | 6.99 | 7.31 | 8.88 |
| 8H              | 4H   | 9.27             | 9.63  | 10.41 | 10.76 | 12.33 | 5.51           | 5.87 | 6.65 | 7.00 | 8.57 |
|                 | 6H   | 9.83             | 10.13 | 10.99 | 11.30 | 12.87 | 6.02           | 6.32 | 7.18 | 7.50 | 9.06 |
|                 | 8H   | 10.04            | 10.31 | 11.21 | 11.46 | 13.04 | 6.21           | 6.47 | 7.38 | 7.63 | 9.21 |
|                 | 12H  | 10.18            | 10.41 | 11.35 | 11.56 | 13.18 | 6.33           | 6.56 | 7.50 | 7.71 | 9.33 |
| 12H             | 4H   | 9.21             | 9.54  | 10.37 | 10.69 | 12.26 | 5.51           | 5.84 | 6.66 | 6.98 | 8.55 |
|                 | 6H   | 9.80             | 10.07 | 10.97 | 11.22 | 12.80 | 6.07           | 6.33 | 7.24 | 7.49 | 9.07 |
|                 | 8H   | 10.02            | 10.25 | 11.19 | 11.40 | 13.02 | 6.28           | 6.51 | 7.45 | 7.66 | 9.28 |

END OF REPORT