

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: P907112

Luminaire Tested: DFN2DIP-TR3F0-030D090US835-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P907112  
REPORT IS A COMBINATION OF REPORTS P900355 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-030D090US835-FLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

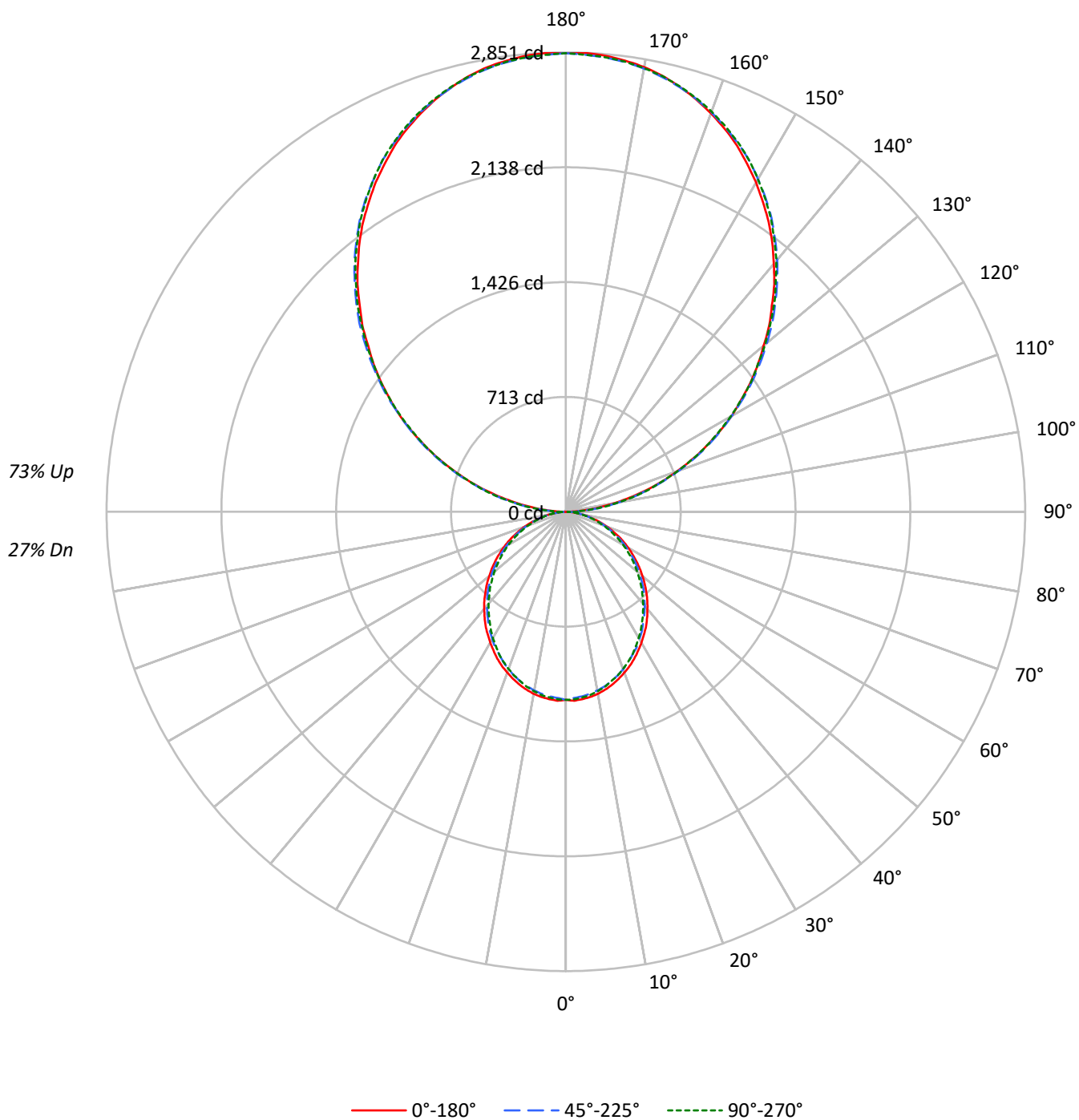
Lumens per Lamp: N/A  
Luminaire Lumens: 10935.0 lumens  
Efficiency: N/A  
Efficacy: 115.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: Semi-Indirect

Input Watts (W): 94.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
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: P907112

CATALOG NUMBER: DFN2DIP-TR3F0-030D090US835-FLLFLL

### Luminous Intensity Polar Plot



TEST NUMBER: P907112

CATALOG NUMBER: DFN2DIP-TR3F0-030D090US835-FLLFL

**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   | 102 | 102 | 102 | 102 | 91 | 91 | 91 | 91 | 71 | 71 | 71 | 52 | 52 | 52 | 35 | 35 | 35 |
| 1   | 93  | 88  | 85  | 81  | 83 | 79 | 76 | 73 | 62 | 60 | 58 | 46 | 44 | 43 | 31 | 30 | 30 |
| 2   | 84  | 77  | 71  | 66  | 75 | 69 | 64 | 60 | 54 | 51 | 48 | 40 | 38 | 36 | 27 | 26 | 25 |
| 3   | 77  | 68  | 61  | 55  | 68 | 61 | 55 | 50 | 48 | 44 | 40 | 35 | 33 | 30 | 24 | 23 | 21 |
| 4   | 70  | 60  | 52  | 47  | 62 | 54 | 47 | 42 | 42 | 38 | 34 | 32 | 29 | 26 | 22 | 20 | 18 |
| 5   | 64  | 53  | 45  | 40  | 57 | 48 | 41 | 36 | 38 | 33 | 29 | 28 | 25 | 22 | 19 | 17 | 16 |
| 6   | 59  | 48  | 40  | 34  | 53 | 43 | 36 | 31 | 34 | 29 | 25 | 25 | 22 | 20 | 18 | 16 | 14 |
| 7   | 55  | 43  | 35  | 30  | 49 | 39 | 32 | 27 | 31 | 26 | 22 | 23 | 20 | 17 | 16 | 14 | 12 |
| 8   | 51  | 39  | 31  | 26  | 45 | 35 | 28 | 24 | 28 | 23 | 20 | 21 | 18 | 15 | 15 | 13 | 11 |
| 9   | 47  | 35  | 28  | 23  | 42 | 32 | 26 | 21 | 25 | 21 | 17 | 19 | 16 | 14 | 14 | 11 | 10 |
| 10  | 44  | 32  | 25  | 21  | 39 | 29 | 23 | 19 | 23 | 19 | 16 | 18 | 15 | 12 | 13 | 10 | 9  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1455 | 1455 | 1455 |
| 5°  | 1456 | 1433 | 1443 |
| 10° | 1444 | 1413 | 1423 |
| 15° | 1421 | 1388 | 1391 |
| 20° | 1392 | 1355 | 1359 |
| 25° | 1363 | 1315 | 1322 |
| 30° | 1326 | 1278 | 1275 |
| 35° | 1291 | 1234 | 1225 |
| 40° | 1249 | 1190 | 1178 |
| 45° | 1206 | 1145 | 1130 |
| 50° | 1160 | 1099 | 1074 |
| 55° | 1111 | 1045 | 1022 |
| 60° | 1055 | 981  | 963  |
| 65° | 995  | 915  | 893  |
| 70° | 918  | 834  | 818  |
| 75° | 812  | 737  | 747  |
| 80° | 683  | 613  | 614  |
| 85° | 483  | 404  | 396  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2778 cd/sqm

TEST NUMBER: P907112

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 109.9   | 1.0       |
| 10°-20°   | 309.1   | 2.8       |
| 20°-30°   | 454.3   | 4.2       |
| 30°-40°   | 527.6   | 4.8       |
| 40°-50°   | 527.0   | 4.8       |
| 50°-60°   | 459.5   | 4.2       |
| 60°-70°   | 339.7   | 3.1       |
| 70°-80°   | 192.2   | 1.8       |
| 80°-90°   | 58.8    | 0.5       |
| 90°-100°  | 176.1   | 1.6       |
| 100°-110° | 559.6   | 5.1       |
| 110°-120° | 957.7   | 8.8       |
| 120°-130° | 1259.5  | 11.5      |
| 130°-140° | 1413.8  | 12.9      |
| 140°-150° | 1386.4  | 12.7      |
| 150°-160° | 1163.0  | 10.6      |
| 160°-170° | 771.2   | 7.1       |
| 170°-180° | 269.6   | 2.5       |
| 0°-30°    | 873.3   | 8.0       |
| 0°-40°    | 1400.9  | 12.8      |
| 0°-60°    | 2387.4  | 21.8      |
| 0°-90°    | 2978.1  | 27.2      |
| 90°-120°  | 1693.5  | 15.5      |
| 90°-150°  | 5753.1  | 52.6      |
| 90°-180°  | 7957.0  | 72.8      |
| 0°-180°   | 10935.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1167 | 1167  | 1167 | 1167  | 1167 |      |
| 5°   | 1167 | 1163  | 1150 | 1160  | 1157 | 111  |
| 15°  | 1111 | 1105  | 1090 | 1094  | 1089 | 313  |
| 25°  | 1006 | 997   | 978  | 980   | 978  | 463  |
| 35°  | 868  | 856   | 838  | 832   | 826  | 542  |
| 45°  | 706  | 698   | 681  | 669   | 664  | 545  |
| 55°  | 534  | 528   | 514  | 501   | 495  | 478  |
| 65°  | 360  | 354   | 342  | 332   | 327  | 356  |
| 75°  | 188  | 186   | 181  | 174   | 176  | 201  |
| 85°  | 46   | 45    | 44   | 40    | 39   | 51   |
| 90°  | 3    | 31    | 84   | 79    | 82   | 11   |
| 95°  | 125  | 149   | 154  | 154   | 149  | 139  |
| 105° | 517  | 523   | 529  | 533   | 533  | 545  |
| 115° | 961  | 975   | 970  | 968   | 961  | 951  |
| 125° | 1398 | 1419  | 1412 | 1405  | 1402 | 1249 |
| 135° | 1808 | 1835  | 1840 | 1837  | 1830 | 1398 |
| 145° | 2195 | 2212  | 2226 | 2228  | 2219 | 1372 |
| 155° | 2510 | 2517  | 2525 | 2537  | 2529 | 1155 |
| 165° | 2730 | 2728  | 2728 | 2745  | 2733 | 770  |
| 175° | 2841 | 2834  | 2829 | 2846  | 2832 | 270  |
| 180° | 2846 | 2846  | 2846 | 2846  | 2846 |      |

TEST NUMBER: P907112

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1167.3 | 1167.3 | 1167.3 | 1167.3 | 1167.3 |
| 2.5°   | 1174.1 | 1168.5 | 1156.1 | 1167.3 | 1165.2 |
| 5°     | 1167.3 | 1162.9 | 1150.5 | 1159.5 | 1157.3 |
| 7.5°   | 1159.5 | 1152.8 | 1140.4 | 1149.5 | 1147.2 |
| 10°    | 1147.2 | 1139.3 | 1125.9 | 1134.8 | 1131.5 |
| 12.5°  | 1130.3 | 1123.6 | 1110.2 | 1115.7 | 1113.5 |
| 15°    | 1111.2 | 1104.6 | 1089.9 | 1094.4 | 1088.8 |
| 17.5°  | 1087.6 | 1081.0 | 1066.3 | 1071.9 | 1066.3 |
| 20°    | 1061.8 | 1055.1 | 1039.4 | 1042.7 | 1038.3 |
| 22.5°  | 1036.1 | 1026.0 | 1011.3 | 1011.3 | 1009.0 |
| 25°    | 1005.7 | 996.8  | 977.7  | 979.9  | 977.7  |
| 27.5°  | 972.0  | 964.1  | 949.6  | 946.3  | 940.7  |
| 30°    | 938.4  | 929.4  | 912.6  | 909.2  | 904.7  |
| 32.5°  | 902.5  | 895.8  | 877.8  | 871.0  | 866.5  |
| 35°    | 867.7  | 856.5  | 838.5  | 831.7  | 826.1  |
| 37.5°  | 828.4  | 818.3  | 800.3  | 792.4  | 786.8  |
| 40°    | 788.0  | 779.0  | 761.0  | 751.0  | 746.5  |
| 42.5°  | 748.7  | 739.7  | 721.8  | 710.5  | 703.8  |
| 45°    | 706.1  | 698.2  | 681.3  | 669.0  | 664.5  |
| 47.5°  | 664.5  | 656.7  | 638.7  | 626.3  | 619.6  |
| 50°    | 620.7  | 615.1  | 599.4  | 583.7  | 578.1  |
| 52.5°  | 578.1  | 570.2  | 555.7  | 543.3  | 535.4  |
| 55°    | 534.4  | 527.6  | 514.1  | 500.7  | 495.1  |
| 57.5°  | 490.5  | 484.9  | 470.3  | 456.8  | 452.3  |
| 60°    | 446.7  | 442.3  | 426.6  | 414.2  | 410.9  |
| 62.5°  | 404.1  | 396.2  | 385.0  | 373.8  | 369.3  |
| 65°    | 360.4  | 353.6  | 342.4  | 332.3  | 326.7  |
| 67.5°  | 315.5  | 309.8  | 299.7  | 291.9  | 287.4  |
| 70°    | 273.9  | 269.4  | 259.3  | 251.4  | 247.0  |
| 72.5°  | 231.3  | 226.7  | 221.1  | 213.3  | 210.0  |
| 75°    | 188.5  | 186.4  | 180.7  | 174.0  | 176.3  |
| 77.5°  | 150.4  | 145.9  | 143.6  | 140.3  | 137.0  |
| 80°    | 112.3  | 111.1  | 108.8  | 105.5  | 103.3  |
| 82.5°  | 76.3   | 76.3   | 75.3   | 70.7   | 70.7   |
| 85°    | 46.0   | 44.9   | 43.8   | 40.4   | 39.3   |
| 87.5°  | 20.2   | 18.0   | 15.7   | 12.4   | 11.2   |
| 90°    | 2.6    | 30.9   | 84.1   | 78.9   | 81.5   |
| 92.5°  | 53.2   | 72.1   | 74.7   | 77.2   | 77.2   |
| 95°    | 125.3  | 149.3  | 153.6  | 153.6  | 149.3  |
| 97.5°  | 208.5  | 230.8  | 240.3  | 240.3  | 240.3  |
| 100°   | 304.6  | 324.4  | 331.2  | 331.2  | 328.7  |
| 102.5° | 405.9  | 420.5  | 429.9  | 432.5  | 429.9  |
| 105°   | 516.6  | 523.4  | 528.6  | 532.9  | 532.9  |
| 107.5° | 626.4  | 636.7  | 636.7  | 638.4  | 626.4  |
| 110°   | 732.8  | 746.6  | 746.6  | 746.6  | 739.7  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 847.8  | 862.4  | 859.8  | 853.0  | 847.8  |
| 115°   | 961.1  | 974.8  | 970.5  | 968.0  | 961.1  |
| 117.5° | 1073.5 | 1092.4 | 1080.4 | 1073.5 | 1066.6 |
| 120°   | 1186.8 | 1205.6 | 1186.8 | 1186.8 | 1179.0 |
| 122.5° | 1289.7 | 1313.8 | 1301.8 | 1294.9 | 1289.7 |
| 125°   | 1397.9 | 1419.3 | 1412.5 | 1404.7 | 1402.2 |
| 127.5° | 1503.4 | 1530.0 | 1520.6 | 1510.3 | 1503.4 |
| 130°   | 1602.1 | 1633.0 | 1628.7 | 1623.5 | 1614.1 |
| 132.5° | 1712.8 | 1736.8 | 1738.5 | 1726.5 | 1719.7 |
| 135°   | 1808.0 | 1834.6 | 1839.8 | 1837.2 | 1830.4 |
| 137.5° | 1914.4 | 1935.9 | 1940.2 | 1938.5 | 1928.2 |
| 140°   | 2008.0 | 2029.4 | 2041.4 | 2041.4 | 2032.0 |
| 142.5° | 2104.1 | 2125.5 | 2132.4 | 2135.0 | 2125.5 |
| 145°   | 2195.1 | 2212.2 | 2225.9 | 2228.5 | 2219.1 |
| 147.5° | 2276.6 | 2298.0 | 2308.3 | 2312.6 | 2303.2 |
| 150°   | 2360.7 | 2375.3 | 2384.7 | 2392.4 | 2384.7 |
| 152.5° | 2435.3 | 2449.9 | 2461.9 | 2471.4 | 2461.9 |
| 155°   | 2510.0 | 2516.8 | 2524.6 | 2536.6 | 2528.9 |
| 157.5° | 2574.3 | 2579.5 | 2583.8 | 2600.9 | 2588.9 |
| 160°   | 2631.8 | 2637.0 | 2639.6 | 2654.1 | 2643.8 |
| 162.5° | 2685.0 | 2685.0 | 2687.6 | 2703.9 | 2691.9 |
| 165°   | 2730.5 | 2727.9 | 2727.9 | 2745.1 | 2733.1 |
| 167.5° | 2771.7 | 2764.0 | 2764.0 | 2781.1 | 2769.1 |
| 170°   | 2802.6 | 2795.7 | 2793.2 | 2810.3 | 2795.7 |
| 172.5° | 2824.0 | 2817.2 | 2814.6 | 2831.8 | 2817.2 |
| 175°   | 2841.2 | 2834.3 | 2829.2 | 2846.4 | 2831.8 |
| 177.5° | 2850.6 | 2843.8 | 2838.6 | 2853.2 | 2838.6 |
| 180°   | 2846.4 | 2846.4 | 2846.4 | 2846.4 | 2846.4 |

TEST NUMBER: P907112

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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 | 5.91             | 6.60  | 7.04  | 7.72  | 9.28  | 5.48           | 6.17 | 6.61  | 7.29  | 8.86  |
|                 | 3H   | 7.55             | 8.17  | 8.69  | 9.30  | 10.88 | 7.08           | 7.70 | 8.22  | 8.83  | 10.41 |
|                 | 4H   | 8.12             | 8.71  | 9.27  | 9.84  | 11.42 | 7.65           | 8.24 | 8.80  | 9.37  | 10.96 |
|                 | 6H   | 8.51             | 9.04  | 9.66  | 10.18 | 11.77 | 8.04           | 8.58 | 9.19  | 9.71  | 11.30 |
|                 | 8H   | 8.60             | 9.11  | 9.76  | 10.26 | 11.85 | 8.13           | 8.65 | 9.29  | 9.80  | 11.38 |
|                 | 12H  | 8.64             | 9.13  | 9.80  | 10.27 | 11.88 | 8.17           | 8.65 | 9.33  | 9.80  | 11.41 |
| 4H              | 2H   | 6.35             | 6.93  | 7.50  | 8.06  | 9.65  | 6.01           | 6.59 | 7.16  | 7.72  | 9.31  |
|                 | 3H   | 8.19             | 8.68  | 9.35  | 9.83  | 11.43 | 7.80           | 8.29 | 8.96  | 9.44  | 11.04 |
|                 | 4H   | 8.89             | 9.34  | 10.05 | 10.48 | 12.10 | 8.49           | 8.94 | 9.65  | 10.08 | 11.70 |
|                 | 6H   | 9.38             | 9.77  | 10.55 | 10.94 | 12.54 | 8.98           | 9.36 | 10.15 | 10.53 | 12.14 |
|                 | 8H   | 9.52             | 9.88  | 10.69 | 11.04 | 12.67 | 9.12           | 9.48 | 10.29 | 10.64 | 12.26 |
|                 | 12H  | 9.58             | 9.91  | 10.77 | 11.08 | 12.71 | 9.17           | 9.50 | 10.35 | 10.67 | 12.29 |
| 8H              | 4H   | 9.07             | 9.43  | 10.23 | 10.58 | 12.21 | 8.71           | 9.07 | 9.88  | 10.23 | 11.85 |
|                 | 6H   | 9.68             | 9.98  | 10.87 | 11.18 | 12.80 | 9.32           | 9.62 | 10.51 | 10.82 | 12.44 |
|                 | 8H   | 9.89             | 10.15 | 11.08 | 11.33 | 12.97 | 9.53           | 9.79 | 10.72 | 10.97 | 12.61 |
|                 | 12H  | 10.01            | 10.24 | 11.20 | 11.41 | 13.08 | 9.63           | 9.86 | 10.83 | 11.03 | 12.71 |
| 12H             | 4H   | 9.04             | 9.37  | 10.23 | 10.54 | 12.17 | 8.69           | 9.02 | 9.88  | 10.19 | 11.82 |
|                 | 6H   | 9.71             | 9.96  | 10.90 | 11.14 | 12.78 | 9.36           | 9.62 | 10.55 | 10.80 | 12.44 |
|                 | 8H   | 9.93             | 10.16 | 11.13 | 11.34 | 13.01 | 9.58           | 9.81 | 10.78 | 10.98 | 12.66 |

END OF REPORT