

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: P903762

Luminaire Tested: DFN2DIP-SQ3F0-080D050US830-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P903762  
REPORT IS A COMBINATION OF REPORTS P899888 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-080D050US830-RLLFLL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

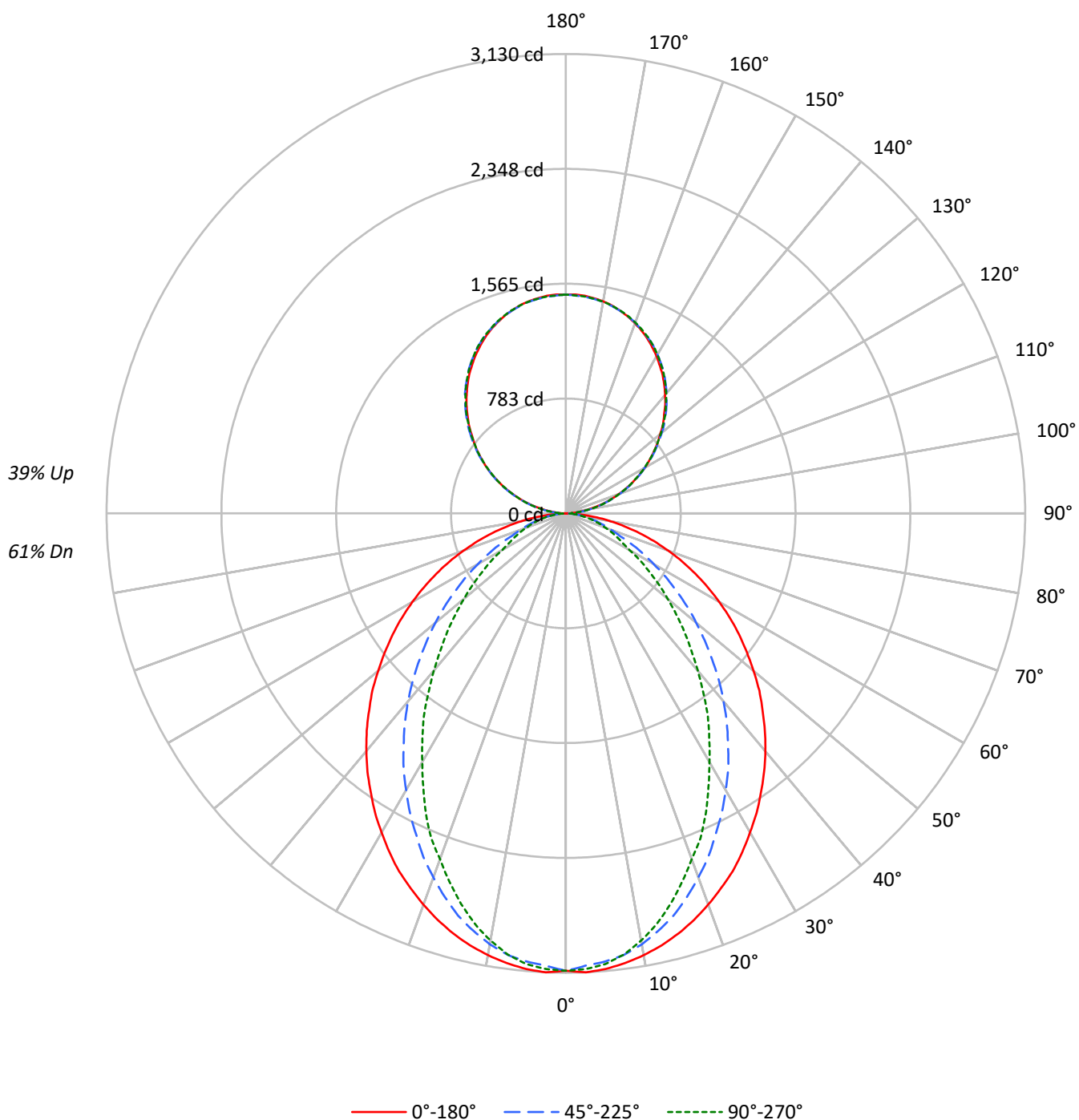
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10580.1 lumens  
Efficiency: N/A  
Efficacy: 93.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 113.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P903762

CATALOG NUMBER: DFN2DIP-SQ3F0-080D050US830-RLLFLL

### Luminous Intensity Polar Plot



TEST NUMBER: P903762

CATALOG NUMBER: DFN2DIP-SQ3F0-080D050US830-RLFL

**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   | 110 | 110 | 110 | 110 | 103 | 103 | 103 | 103 | 89 | 89 | 89 | 77 | 77 | 77 | 66 | 66 | 66 |
| 1   | 101 | 97  | 93  | 89  | 94  | 91  | 87  | 84  | 79 | 77 | 75 | 69 | 67 | 65 | 59 | 58 | 57 |
| 2   | 92  | 85  | 79  | 74  | 86  | 80  | 75  | 70  | 70 | 66 | 63 | 61 | 58 | 56 | 53 | 51 | 49 |
| 3   | 85  | 75  | 68  | 62  | 79  | 71  | 64  | 59  | 62 | 57 | 53 | 55 | 51 | 48 | 47 | 45 | 42 |
| 4   | 78  | 67  | 59  | 53  | 72  | 63  | 56  | 51  | 56 | 50 | 46 | 49 | 45 | 41 | 43 | 39 | 37 |
| 5   | 72  | 60  | 52  | 46  | 67  | 57  | 50  | 44  | 50 | 45 | 40 | 44 | 40 | 36 | 39 | 35 | 32 |
| 6   | 66  | 54  | 46  | 41  | 62  | 51  | 44  | 39  | 46 | 40 | 35 | 40 | 36 | 32 | 35 | 32 | 29 |
| 7   | 61  | 49  | 41  | 36  | 57  | 47  | 39  | 34  | 42 | 36 | 32 | 37 | 32 | 29 | 32 | 29 | 26 |
| 8   | 57  | 45  | 37  | 32  | 53  | 43  | 36  | 31  | 38 | 32 | 28 | 34 | 29 | 26 | 30 | 26 | 23 |
| 9   | 53  | 41  | 34  | 29  | 50  | 39  | 32  | 28  | 35 | 29 | 26 | 31 | 27 | 23 | 28 | 24 | 21 |
| 10  | 50  | 38  | 31  | 26  | 47  | 36  | 29  | 25  | 32 | 27 | 23 | 29 | 25 | 21 | 26 | 22 | 20 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3571 | 3571 | 3571 |
| 5°  | 3574 | 3512 | 3535 |
| 10° | 3537 | 3441 | 3419 |
| 15° | 3486 | 3324 | 3240 |
| 20° | 3419 | 3166 | 3021 |
| 25° | 3351 | 2988 | 2810 |
| 30° | 3260 | 2806 | 2542 |
| 35° | 3170 | 2610 | 2306 |
| 40° | 3080 | 2408 | 2036 |
| 45° | 2974 | 2184 | 1792 |
| 50° | 2865 | 1959 | 1554 |
| 55° | 2751 | 1718 | 1324 |
| 60° | 2618 | 1466 | 1089 |
| 65° | 2466 | 1211 | 979  |
| 70° | 2281 | 973  | 884  |
| 75° | 2048 | 852  | 802  |
| 80° | 1711 | 708  | 691  |
| 85° | 1161 | 460  | 512  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
Vertical Angle: 45°  
Luminance: 2974 cd/sqm

TEST NUMBER: P903762

CATALOG NUMBER: DFN2DIP-SQ3F0-080D050US830-RLFL

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 292.1   | 2.8       |
| 10°-20°   | 801.8   | 7.6       |
| 20°-30°   | 1125.7  | 10.6      |
| 30°-40°   | 1227.1  | 11.6      |
| 40°-50°   | 1127.8  | 10.7      |
| 50°-60°   | 885.7   | 8.4       |
| 60°-70°   | 576.5   | 5.4       |
| 70°-80°   | 296.8   | 2.8       |
| 80°-90°   | 80.0    | 0.8       |
| 90°-100°  | 92.2    | 0.9       |
| 100°-110° | 293.0   | 2.8       |
| 110°-120° | 501.5   | 4.7       |
| 120°-130° | 659.5   | 6.2       |
| 130°-140° | 740.3   | 7.0       |
| 140°-150° | 725.9   | 6.9       |
| 150°-160° | 609.0   | 5.8       |
| 160°-170° | 403.9   | 3.8       |
| 170°-180° | 141.2   | 1.3       |
| 0°-30°    | 2219.6  | 21.0      |
| 0°-40°    | 3446.7  | 32.6      |
| 0°-60°    | 5460.2  | 51.6      |
| 0°-90°    | 6413.6  | 60.6      |
| 90°-120°  | 886.7   | 8.4       |
| 90°-150°  | 3012.5  | 28.5      |
| 90°-180°  | 4167.0  | 39.4      |
| 0°-180°   | 10580.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 3116 | 3116  | 3116 | 3116  | 3116 |      |
| 5°   | 3116 | 3102  | 3066 | 3091  | 3083 | 296  |
| 15°  | 2964 | 2933  | 2837 | 2784  | 2756 | 835  |
| 25°  | 2691 | 2600  | 2414 | 2299  | 2256 | 1237 |
| 35°  | 2318 | 2174  | 1926 | 1749  | 1686 | 1451 |
| 45°  | 1895 | 1706  | 1410 | 1210  | 1142 | 1464 |
| 55°  | 1441 | 1221  | 916  | 747   | 694  | 1288 |
| 65°  | 973  | 744   | 491  | 395   | 386  | 965  |
| 75°  | 519  | 321   | 226  | 206   | 203  | 549  |
| 85°  | 121  | 62    | 54   | 54    | 54   | 139  |
| 90°  | 1    | 16    | 44   | 41    | 43   | 10   |
| 95°  | 66   | 78    | 80   | 80    | 78   | 73   |
| 105° | 270  | 274   | 277  | 279   | 279  | 285  |
| 115° | 503  | 510   | 508  | 507   | 503  | 498  |
| 125° | 732  | 743   | 740  | 736   | 734  | 654  |
| 135° | 947  | 961   | 963  | 962   | 958  | 732  |
| 145° | 1149 | 1158  | 1166 | 1167  | 1162 | 718  |
| 155° | 1314 | 1318  | 1322 | 1328  | 1324 | 605  |
| 165° | 1430 | 1428  | 1428 | 1438  | 1431 | 403  |
| 175° | 1488 | 1484  | 1482 | 1490  | 1483 | 141  |
| 180° | 1490 | 1490  | 1490 | 1490  | 1490 |      |

TEST NUMBER: P903762

CATALOG NUMBER: DFN2DIP-SQ3F0-080D050US830-RLLFLL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 3116.4 | 3116.4 | 3116.4 | 3116.4 | 3116.4 |
| 2.5°   | 3130.5 | 3116.4 | 3085.3 | 3113.7 | 3108.0 |
| 5°     | 3116.4 | 3102.4 | 3065.5 | 3091.0 | 3082.6 |
| 7.5°   | 3091.0 | 3074.2 | 3034.7 | 3045.8 | 3031.7 |
| 10°    | 3057.1 | 3037.4 | 2981.2 | 2972.5 | 2955.7 |
| 12.5°  | 3015.0 | 2989.6 | 2913.2 | 2896.4 | 2865.3 |
| 15°    | 2964.1 | 2933.0 | 2837.2 | 2783.7 | 2755.5 |
| 17.5°  | 2904.8 | 2859.7 | 2741.2 | 2679.3 | 2634.0 |
| 20°    | 2837.2 | 2780.7 | 2639.8 | 2569.5 | 2507.2 |
| 22.5°  | 2763.9 | 2699.0 | 2535.3 | 2439.6 | 2397.4 |
| 25°    | 2690.6 | 2600.3 | 2414.1 | 2298.7 | 2256.2 |
| 27.5°  | 2603.2 | 2507.2 | 2301.3 | 2168.8 | 2103.8 |
| 30°    | 2510.2 | 2402.7 | 2177.2 | 2033.5 | 1957.2 |
| 32.5°  | 2419.8 | 2290.0 | 2059.0 | 1889.6 | 1819.0 |
| 35°    | 2318.4 | 2174.4 | 1926.4 | 1748.7 | 1686.4 |
| 37.5°  | 2219.6 | 2064.4 | 1802.2 | 1607.4 | 1537.1 |
| 40°    | 2115.3 | 1946.2 | 1672.4 | 1472.2 | 1398.8 |
| 42.5°  | 2008.1 | 1827.7 | 1542.8 | 1334.0 | 1263.6 |
| 45°    | 1895.3 | 1706.2 | 1410.2 | 1209.8 | 1142.2 |
| 47.5°  | 1788.2 | 1588.0 | 1283.4 | 1082.9 | 1021.0 |
| 50°    | 1669.6 | 1469.5 | 1159.2 | 964.4  | 905.4  |
| 52.5°  | 1553.9 | 1342.3 | 1040.7 | 854.6  | 801.1  |
| 55°    | 1441.1 | 1221.2 | 916.5  | 747.4  | 693.9  |
| 57.5°  | 1325.6 | 1099.9 | 806.7  | 648.8  | 603.5  |
| 60°    | 1207.0 | 981.5  | 690.9  | 547.2  | 502.1  |
| 62.5°  | 1091.6 | 865.9  | 592.2  | 456.9  | 434.5  |
| 65°    | 973.1  | 744.4  | 490.7  | 395.0  | 386.3  |
| 67.5°  | 860.3  | 631.7  | 395.0  | 346.8  | 338.5  |
| 70°    | 741.8  | 521.9  | 327.1  | 298.9  | 287.6  |
| 72.5°  | 629.0  | 420.1  | 273.5  | 251.1  | 245.3  |
| 75°    | 518.9  | 321.4  | 225.6  | 205.9  | 203.2  |
| 77.5°  | 409.1  | 228.3  | 177.8  | 166.4  | 160.7  |
| 80°    | 307.3  | 163.7  | 135.3  | 124.1  | 124.1  |
| 82.5°  | 214.2  | 110.1  | 93.0   | 87.4   | 87.4   |
| 85°    | 121.2  | 61.9   | 53.5   | 53.5   | 53.5   |
| 87.5°  | 45.1   | 22.4   | 22.4   | 19.8   | 19.8   |
| 90°    | 1.3    | 16.2   | 44.0   | 41.4   | 42.7   |
| 92.5°  | 27.9   | 37.7   | 39.1   | 40.4   | 40.4   |
| 95°    | 65.6   | 78.2   | 80.4   | 80.4   | 78.2   |
| 97.5°  | 109.1  | 120.8  | 125.8  | 125.8  | 125.8  |
| 100°   | 159.5  | 169.8  | 173.4  | 173.4  | 172.1  |
| 102.5° | 212.5  | 220.2  | 225.1  | 226.5  | 225.1  |
| 105°   | 270.5  | 274.1  | 276.8  | 279.0  | 279.0  |
| 107.5° | 328.0  | 333.4  | 333.4  | 334.3  | 328.0  |
| 110°   | 383.7  | 391.0  | 391.0  | 391.0  | 387.3  |

TEST NUMBER: P903762

CATALOG NUMBER: DFN2DIP-SQ3F0-080D050US830-RLFL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 443.9  | 451.6  | 450.3  | 446.7  | 443.9  |
| 115°   | 503.2  | 510.5  | 508.2  | 506.9  | 503.2  |
| 117.5° | 562.1  | 572.0  | 565.7  | 562.1  | 558.6  |
| 120°   | 621.4  | 631.3  | 621.4  | 621.4  | 617.4  |
| 122.5° | 675.3  | 688.0  | 681.6  | 678.1  | 675.3  |
| 125°   | 732.0  | 743.2  | 739.6  | 735.6  | 734.2  |
| 127.5° | 787.2  | 801.2  | 796.3  | 790.8  | 787.2  |
| 130°   | 839.0  | 855.1  | 852.8  | 850.2  | 845.2  |
| 132.5° | 896.9  | 909.5  | 910.4  | 904.1  | 900.5  |
| 135°   | 946.8  | 960.6  | 963.4  | 962.1  | 958.5  |
| 137.5° | 1002.5 | 1013.7 | 1016.0 | 1015.0 | 1009.7 |
| 140°   | 1051.4 | 1062.7 | 1068.9 | 1068.9 | 1064.0 |
| 142.5° | 1101.7 | 1113.0 | 1116.6 | 1117.9 | 1113.0 |
| 145°   | 1149.4 | 1158.4 | 1165.5 | 1167.0 | 1162.0 |
| 147.5° | 1192.1 | 1203.3 | 1208.7 | 1211.0 | 1206.0 |
| 150°   | 1236.1 | 1243.8 | 1248.7 | 1252.7 | 1248.7 |
| 152.5° | 1275.3 | 1282.9 | 1289.1 | 1294.1 | 1289.1 |
| 155°   | 1314.3 | 1317.9 | 1321.9 | 1328.2 | 1324.2 |
| 157.5° | 1348.0 | 1350.7 | 1352.9 | 1362.0 | 1355.7 |
| 160°   | 1378.1 | 1380.8 | 1382.1 | 1389.8 | 1384.4 |
| 162.5° | 1406.0 | 1406.0 | 1407.3 | 1415.9 | 1409.6 |
| 165°   | 1429.8 | 1428.4 | 1428.4 | 1437.5 | 1431.2 |
| 167.5° | 1451.3 | 1447.3 | 1447.3 | 1456.3 | 1450.0 |
| 170°   | 1467.5 | 1464.0 | 1462.6 | 1471.6 | 1464.0 |
| 172.5° | 1478.8 | 1475.2 | 1473.9 | 1482.8 | 1475.2 |
| 175°   | 1487.8 | 1484.1 | 1481.5 | 1490.4 | 1482.8 |
| 177.5° | 1492.7 | 1489.1 | 1486.4 | 1494.0 | 1486.4 |
| 180°   | 1490.4 | 1490.4 | 1490.4 | 1490.4 | 1490.4 |

TEST NUMBER: P903762

CATALOG NUMBER: DFN2DIP-SQ3F0-080D050US830-RLLFLL

**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 | 12.47            | 13.40 | 13.34 | 14.28 | 15.39 | 8.43           | 9.36  | 9.30  | 10.24 | 11.36 |
|                 | 3H   | 14.15            | 14.98 | 15.03 | 15.87 | 17.01 | 9.62           | 10.45 | 10.50 | 11.34 | 12.48 |
|                 | 4H   | 14.76            | 15.54 | 15.66 | 16.44 | 17.59 | 10.07          | 10.85 | 10.97 | 11.75 | 12.90 |
|                 | 6H   | 15.18            | 15.90 | 16.09 | 16.81 | 17.97 | 10.39          | 11.11 | 11.30 | 12.02 | 13.18 |
|                 | 8H   | 15.31            | 16.00 | 16.23 | 16.92 | 18.08 | 10.48          | 11.17 | 11.40 | 12.09 | 13.25 |
|                 | 12H  | 15.37            | 16.03 | 16.30 | 16.94 | 18.13 | 10.53          | 11.18 | 11.45 | 12.09 | 13.28 |
| 4H              | 2H   | 12.50            | 13.28 | 13.40 | 14.18 | 15.33 | 9.04           | 9.82  | 9.94  | 10.72 | 11.87 |
|                 | 3H   | 14.33            | 14.98 | 15.24 | 15.91 | 17.08 | 10.39          | 11.04 | 11.30 | 11.97 | 13.13 |
|                 | 4H   | 15.02            | 15.62 | 15.95 | 16.54 | 17.73 | 10.94          | 11.53 | 11.86 | 12.45 | 13.64 |
|                 | 6H   | 15.54            | 16.05 | 16.48 | 17.00 | 18.19 | 11.35          | 11.86 | 12.29 | 12.81 | 14.00 |
|                 | 8H   | 15.71            | 16.19 | 16.65 | 17.13 | 18.34 | 11.48          | 11.95 | 12.42 | 12.90 | 14.10 |
|                 | 12H  | 15.81            | 16.24 | 16.77 | 17.20 | 18.41 | 11.54          | 11.97 | 12.50 | 12.93 | 14.14 |
| 8H              | 4H   | 15.00            | 15.47 | 15.94 | 16.42 | 17.62 | 11.22          | 11.69 | 12.16 | 12.64 | 13.84 |
|                 | 6H   | 15.56            | 15.95 | 16.53 | 16.94 | 18.14 | 11.73          | 12.12 | 12.70 | 13.11 | 14.31 |
|                 | 8H   | 15.78            | 16.12 | 16.75 | 17.10 | 18.32 | 11.92          | 12.27 | 12.89 | 13.24 | 14.46 |
|                 | 12H  | 15.91            | 16.22 | 16.89 | 17.19 | 18.46 | 12.04          | 12.34 | 13.01 | 13.31 | 14.58 |
| 12H             | 4H   | 14.95            | 15.38 | 15.91 | 16.34 | 17.55 | 11.23          | 11.66 | 12.18 | 12.62 | 13.83 |
|                 | 6H   | 15.54            | 15.88 | 16.51 | 16.86 | 18.08 | 11.78          | 12.13 | 12.75 | 13.10 | 14.33 |
|                 | 8H   | 15.76            | 16.06 | 16.73 | 17.03 | 18.30 | 11.99          | 12.29 | 12.97 | 13.26 | 14.53 |

END OF REPORT