

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: P906934

Luminaire Tested: DFN2DIP-SQ4F0-140D100US835-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P906934  
REPORT IS A COMBINATION OF REPORTS P900146 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-140D100US835-RLLFLL  
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

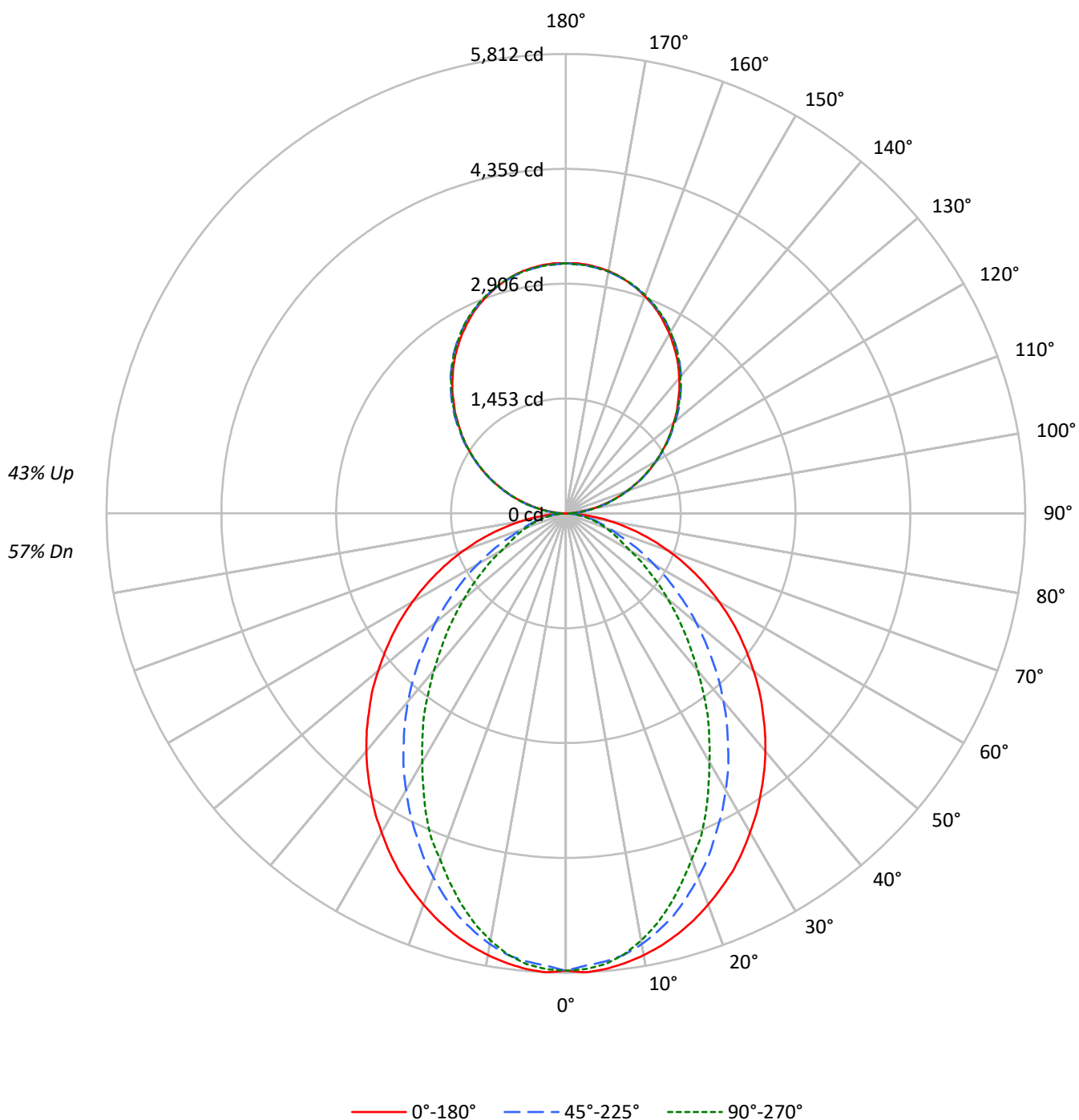
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 20750.0 lumens  
Efficiency: N/A  
Efficacy: 95.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 218.5  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P906934

CATALOG NUMBER: DFN2DIP-SQ4F0-140D100US835-RLLFLL

### Luminous Intensity Polar Plot



TEST NUMBER: P906934

CATALOG NUMBER: DFN2DIP-SQ4F0-140D100US835-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   | 109 | 109 | 109 | 109 | 101 | 101 | 101 | 101 | 87 | 87 | 87 | 75 | 75 | 75 | 63 | 63 | 63 |
| 1   | 100 | 96  | 92  | 89  | 93  | 89  | 86  | 83  | 78 | 75 | 73 | 67 | 65 | 63 | 56 | 55 | 54 |
| 2   | 92  | 84  | 78  | 73  | 85  | 79  | 74  | 69  | 69 | 65 | 61 | 59 | 56 | 54 | 50 | 48 | 47 |
| 3   | 84  | 75  | 68  | 62  | 78  | 70  | 64  | 59  | 61 | 56 | 52 | 53 | 49 | 46 | 45 | 42 | 40 |
| 4   | 77  | 66  | 59  | 53  | 72  | 62  | 56  | 50  | 55 | 49 | 45 | 47 | 43 | 40 | 41 | 38 | 35 |
| 5   | 71  | 60  | 52  | 46  | 66  | 56  | 49  | 44  | 49 | 44 | 39 | 43 | 39 | 35 | 37 | 34 | 31 |
| 6   | 66  | 54  | 46  | 40  | 61  | 51  | 43  | 38  | 45 | 39 | 35 | 39 | 34 | 31 | 34 | 30 | 28 |
| 7   | 61  | 49  | 41  | 35  | 57  | 46  | 39  | 34  | 41 | 35 | 31 | 36 | 31 | 28 | 31 | 27 | 25 |
| 8   | 57  | 44  | 37  | 32  | 53  | 42  | 35  | 30  | 37 | 32 | 28 | 33 | 28 | 25 | 29 | 25 | 22 |
| 9   | 53  | 41  | 33  | 28  | 49  | 38  | 32  | 27  | 34 | 29 | 25 | 30 | 26 | 23 | 26 | 23 | 20 |
| 10  | 49  | 37  | 30  | 26  | 46  | 35  | 29  | 25  | 32 | 26 | 23 | 28 | 24 | 21 | 25 | 21 | 19 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4060 | 4060 | 4060 |
| 5°  | 4066 | 3996 | 4022 |
| 10° | 4026 | 3919 | 3893 |
| 15° | 3971 | 3790 | 3691 |
| 20° | 3897 | 3612 | 3444 |
| 25° | 3822 | 3413 | 3205 |
| 30° | 3721 | 3208 | 2902 |
| 35° | 3622 | 2988 | 2635 |
| 40° | 3522 | 2760 | 2329 |
| 45° | 3405 | 2508 | 2052 |
| 50° | 3284 | 2252 | 1781 |
| 55° | 3158 | 1980 | 1521 |
| 60° | 3012 | 1694 | 1253 |
| 65° | 2844 | 1404 | 1129 |
| 70° | 2640 | 1133 | 1024 |
| 75° | 2384 | 1001 | 934  |
| 80° | 2014 | 842  | 814  |
| 85° | 1402 | 566  | 619  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3405 cd/sqm

TEST NUMBER: P906934

CATALOG NUMBER: DFN2DIP-SQ4F0-140D100US835-RLFL

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 542.3   | 2.6       |
| 10°-20°   | 1488.7  | 7.2       |
| 20°-30°   | 2090.1  | 10.1      |
| 30°-40°   | 2278.3  | 11.0      |
| 40°-50°   | 2094.0  | 10.1      |
| 50°-60°   | 1644.5  | 7.9       |
| 60°-70°   | 1070.4  | 5.2       |
| 70°-80°   | 551.0   | 2.7       |
| 80°-90°   | 149.7   | 0.7       |
| 90°-100°  | 195.7   | 0.9       |
| 100°-110° | 621.8   | 3.0       |
| 110°-120° | 1064.1  | 5.1       |
| 120°-130° | 1399.5  | 6.7       |
| 130°-140° | 1570.9  | 7.6       |
| 140°-150° | 1540.4  | 7.4       |
| 150°-160° | 1292.2  | 6.2       |
| 160°-170° | 856.9   | 4.1       |
| 170°-180° | 299.5   | 1.4       |
| 0°-30°    | 4121.0  | 19.9      |
| 0°-40°    | 6399.4  | 30.8      |
| 0°-60°    | 10137.9 | 48.9      |
| 0°-90°    | 11909.0 | 57.4      |
| 90°-120°  | 1881.6  | 9.1       |
| 90°-150°  | 6392.4  | 30.8      |
| 90°-180°  | 8841.0  | 42.6      |
| 0°-180°   | 20750.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 5786 | 5786  | 5786 | 5786  | 5786 |      |
| 5°   | 5786 | 5760  | 5692 | 5739  | 5723 | 549  |
| 15°  | 5503 | 5446  | 5268 | 5168  | 5116 | 1551 |
| 25°  | 4996 | 4828  | 4482 | 4268  | 4189 | 2297 |
| 35°  | 4304 | 4037  | 3577 | 3247  | 3131 | 2694 |
| 45°  | 3519 | 3168  | 2618 | 2246  | 2121 | 2718 |
| 55°  | 2676 | 2267  | 1702 | 1388  | 1288 | 2391 |
| 65°  | 1807 | 1382  | 911  | 733   | 717  | 1791 |
| 75°  | 963  | 597   | 419  | 382   | 377  | 1019 |
| 85°  | 225  | 115   | 99   | 99    | 99   | 258  |
| 90°  | 3    | 34    | 93   | 88    | 91   | 20   |
| 95°  | 139  | 166   | 171  | 171   | 166  | 155  |
| 105° | 574  | 582   | 587  | 592   | 592  | 606  |
| 115° | 1068 | 1083  | 1078 | 1076  | 1068 | 1056 |
| 125° | 1553 | 1577  | 1569 | 1561  | 1558 | 1388 |
| 135° | 2009 | 2038  | 2044 | 2041  | 2034 | 1553 |
| 145° | 2439 | 2458  | 2473 | 2476  | 2466 | 1524 |
| 155° | 2789 | 2796  | 2805 | 2818  | 2810 | 1284 |
| 165° | 3034 | 3031  | 3031 | 3050  | 3037 | 856  |
| 175° | 3157 | 3149  | 3144 | 3163  | 3146 | 300  |
| 180° | 3163 | 3163  | 3163 | 3163  | 3163 |      |

TEST NUMBER: P906934

CATALOG NUMBER: DFN2DIP-SQ4F0-140D100US835-RLFL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 5786.2 | 5786.2 | 5786.2 | 5786.2 | 5786.2 |
| 2.5°   | 5812.3 | 5786.2 | 5728.4 | 5781.2 | 5770.6 |
| 5°     | 5786.2 | 5760.1 | 5691.7 | 5739.0 | 5723.4 |
| 7.5°   | 5739.0 | 5707.8 | 5634.5 | 5655.1 | 5629.0 |
| 10°    | 5676.2 | 5639.5 | 5535.1 | 5518.9 | 5487.8 |
| 12.5°  | 5597.8 | 5550.6 | 5408.9 | 5377.8 | 5320.1 |
| 15°    | 5503.4 | 5445.6 | 5267.8 | 5168.4 | 5116.2 |
| 17.5°  | 5393.4 | 5309.5 | 5089.5 | 4974.5 | 4890.6 |
| 20°    | 5267.8 | 5162.8 | 4901.2 | 4770.6 | 4655.1 |
| 22.5°  | 5131.7 | 5011.2 | 4707.3 | 4529.5 | 4451.2 |
| 25°    | 4995.6 | 4827.8 | 4482.3 | 4267.8 | 4188.9 |
| 27.5°  | 4833.4 | 4655.1 | 4272.8 | 4026.7 | 3906.2 |
| 30°    | 4660.6 | 4461.2 | 4042.3 | 3775.6 | 3633.9 |
| 32.5°  | 4492.8 | 4251.7 | 3822.8 | 3508.4 | 3377.3 |
| 35°    | 4304.5 | 4037.3 | 3576.7 | 3246.7 | 3131.1 |
| 37.5°  | 4121.2 | 3832.8 | 3346.1 | 2984.5 | 2853.9 |
| 40°    | 3927.3 | 3613.4 | 3105.0 | 2733.4 | 2597.3 |
| 42.5°  | 3728.4 | 3393.4 | 2864.5 | 2476.7 | 2346.1 |
| 45°    | 3518.9 | 3167.8 | 2618.4 | 2246.1 | 2120.6 |
| 47.5°  | 3320.0 | 2948.4 | 2382.8 | 2010.6 | 1895.6 |
| 50°    | 3100.0 | 2728.4 | 2152.2 | 1790.6 | 1681.1 |
| 52.5°  | 2885.0 | 2492.2 | 1932.2 | 1586.7 | 1487.2 |
| 55°    | 2675.6 | 2267.2 | 1701.7 | 1387.8 | 1288.3 |
| 57.5°  | 2461.1 | 2042.2 | 1497.8 | 1204.5 | 1120.6 |
| 60°    | 2241.1 | 1822.2 | 1282.8 | 1016.1 | 932.2  |
| 62.5°  | 2026.7 | 1607.8 | 1099.5 | 848.3  | 806.7  |
| 65°    | 1806.7 | 1382.2 | 911.1  | 733.3  | 717.2  |
| 67.5°  | 1597.2 | 1172.8 | 733.3  | 643.9  | 628.3  |
| 70°    | 1377.2 | 968.9  | 607.2  | 555.0  | 533.9  |
| 72.5°  | 1167.8 | 780.0  | 507.8  | 466.1  | 455.6  |
| 75°    | 963.3  | 596.7  | 418.9  | 382.2  | 377.2  |
| 77.5°  | 759.5  | 423.9  | 330.0  | 308.9  | 298.3  |
| 80°    | 570.6  | 303.9  | 251.1  | 230.6  | 230.6  |
| 82.5°  | 397.8  | 204.4  | 172.8  | 162.2  | 162.2  |
| 85°    | 225.0  | 115.0  | 99.4   | 99.4   | 99.4   |
| 87.5°  | 83.9   | 41.7   | 41.7   | 36.7   | 36.7   |
| 90°    | 2.9    | 34.3   | 93.4   | 87.7   | 90.6   |
| 92.5°  | 59.1   | 80.1   | 83.0   | 85.8   | 85.8   |
| 95°    | 139.2  | 165.9  | 170.7  | 170.7  | 165.9  |
| 97.5°  | 231.7  | 256.5  | 267.0  | 267.0  | 267.0  |
| 100°   | 338.5  | 360.4  | 368.0  | 368.0  | 365.2  |
| 102.5° | 451.0  | 467.2  | 477.7  | 480.5  | 477.7  |
| 105°   | 574.0  | 581.6  | 587.3  | 592.1  | 592.1  |
| 107.5° | 696.0  | 707.5  | 707.5  | 709.4  | 696.0  |
| 110°   | 814.3  | 829.5  | 829.5  | 829.5  | 821.9  |

TEST NUMBER: P906934

CATALOG NUMBER: DFN2DIP-SQ4F0-140D100US835-RLFL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 942.0  | 958.2  | 955.4  | 947.7  | 942.0  |
| 115°   | 1067.9 | 1083.1 | 1078.4 | 1075.5 | 1067.9 |
| 117.5° | 1192.8 | 1213.8 | 1200.4 | 1192.8 | 1185.1 |
| 120°   | 1318.6 | 1339.6 | 1318.6 | 1318.6 | 1310.1 |
| 122.5° | 1433.0 | 1459.7 | 1446.4 | 1438.8 | 1433.0 |
| 125°   | 1553.2 | 1577.0 | 1569.4 | 1560.8 | 1558.0 |
| 127.5° | 1670.5 | 1700.0 | 1689.5 | 1678.1 | 1670.5 |
| 130°   | 1780.1 | 1814.4 | 1809.7 | 1803.9 | 1793.5 |
| 132.5° | 1903.1 | 1929.8 | 1931.7 | 1918.4 | 1910.7 |
| 135°   | 2008.9 | 2038.5 | 2044.2 | 2041.4 | 2033.7 |
| 137.5° | 2127.2 | 2151.0 | 2155.8 | 2153.9 | 2142.4 |
| 140°   | 2231.1 | 2254.9 | 2268.3 | 2268.3 | 2257.8 |
| 142.5° | 2337.9 | 2361.7 | 2369.3 | 2372.2 | 2361.7 |
| 145°   | 2438.9 | 2458.0 | 2473.3 | 2476.1 | 2465.6 |
| 147.5° | 2529.5 | 2553.4 | 2564.8 | 2569.6 | 2559.1 |
| 150°   | 2623.0 | 2639.2 | 2649.7 | 2658.2 | 2649.7 |
| 152.5° | 2705.9 | 2722.1 | 2735.5 | 2746.0 | 2735.5 |
| 155°   | 2788.9 | 2796.5 | 2805.1 | 2818.4 | 2809.8 |
| 157.5° | 2860.4 | 2866.1 | 2870.9 | 2889.9 | 2876.6 |
| 160°   | 2924.3 | 2930.0 | 2932.8 | 2949.0 | 2937.6 |
| 162.5° | 2983.4 | 2983.4 | 2986.2 | 3004.3 | 2991.0 |
| 165°   | 3033.9 | 3031.0 | 3031.0 | 3050.1 | 3036.8 |
| 167.5° | 3079.7 | 3071.1 | 3071.1 | 3090.2 | 3076.8 |
| 170°   | 3114.0 | 3106.4 | 3103.5 | 3122.6 | 3106.4 |
| 172.5° | 3137.8 | 3130.2 | 3127.3 | 3146.4 | 3130.2 |
| 175°   | 3156.9 | 3149.3 | 3143.6 | 3162.6 | 3146.4 |
| 177.5° | 3167.4 | 3159.8 | 3154.0 | 3170.2 | 3154.0 |
| 180°   | 3162.6 | 3162.6 | 3162.6 | 3162.6 | 3162.6 |

TEST NUMBER: P906934

CATALOG NUMBER: DFN2DIP-SQ4F0-140D100US835-RLFL

**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 | 12.69            | 13.58 | 13.59 | 14.50 | 15.66 | 8.65           | 9.55  | 9.55  | 10.46 | 11.62 |
|                 | 3H   | 14.38            | 15.18 | 15.29 | 16.10 | 17.29 | 9.85           | 10.65 | 10.76 | 11.57 | 12.76 |
|                 | 4H   | 14.99            | 15.75 | 15.92 | 16.67 | 17.87 | 10.30          | 11.05 | 11.22 | 11.98 | 13.18 |
|                 | 6H   | 15.42            | 16.12 | 16.36 | 17.05 | 18.26 | 10.62          | 11.32 | 11.56 | 12.25 | 13.46 |
|                 | 8H   | 15.55            | 16.21 | 16.49 | 17.16 | 18.37 | 10.72          | 11.38 | 11.66 | 12.33 | 13.54 |
|                 | 12H  | 15.62            | 16.25 | 16.57 | 17.19 | 18.42 | 10.76          | 11.39 | 11.71 | 12.34 | 13.57 |
| 4H              | 2H   | 12.72            | 13.47 | 13.65 | 14.40 | 15.60 | 9.26           | 10.01 | 10.19 | 10.94 | 12.14 |
|                 | 3H   | 14.56            | 15.18 | 15.50 | 16.14 | 17.36 | 10.61          | 11.24 | 11.55 | 12.20 | 13.41 |
|                 | 4H   | 15.25            | 15.83 | 16.20 | 16.78 | 18.02 | 11.17          | 11.74 | 12.12 | 12.69 | 13.93 |
|                 | 6H   | 15.78            | 16.27 | 16.74 | 17.25 | 18.48 | 11.59          | 12.08 | 12.55 | 13.06 | 14.30 |
|                 | 8H   | 15.96            | 16.42 | 16.92 | 17.39 | 18.64 | 11.72          | 12.18 | 12.68 | 13.15 | 14.40 |
|                 | 12H  | 16.06            | 16.47 | 17.04 | 17.46 | 18.72 | 11.79          | 12.20 | 12.77 | 13.19 | 14.45 |
| 8H              | 4H   | 15.23            | 15.69 | 16.19 | 16.66 | 17.91 | 11.45          | 11.91 | 12.42 | 12.88 | 14.13 |
|                 | 6H   | 15.80            | 16.18 | 16.79 | 17.19 | 18.44 | 11.97          | 12.35 | 12.97 | 13.37 | 14.62 |
|                 | 8H   | 16.02            | 16.35 | 17.02 | 17.36 | 18.62 | 12.17          | 12.50 | 13.17 | 13.50 | 14.77 |
|                 | 12H  | 16.16            | 16.46 | 17.17 | 17.45 | 18.77 | 12.29          | 12.58 | 13.29 | 13.58 | 14.89 |
| 12H             | 4H   | 15.18            | 15.60 | 16.17 | 16.58 | 17.84 | 11.46          | 11.87 | 12.44 | 12.86 | 14.12 |
|                 | 6H   | 15.78            | 16.11 | 16.78 | 17.11 | 18.38 | 12.02          | 12.36 | 13.02 | 13.36 | 14.63 |
|                 | 8H   | 16.00            | 16.30 | 17.00 | 17.29 | 18.61 | 12.24          | 12.53 | 13.24 | 13.53 | 14.84 |

END OF REPORT