

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: P926440

Luminaire Tested: DFN2DIP-TR4F0-060D040US950-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P926440  
REPORT IS A COMBINATION OF REPORTS P900374 AND P897293  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-060D040US950-RLLFLL  
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

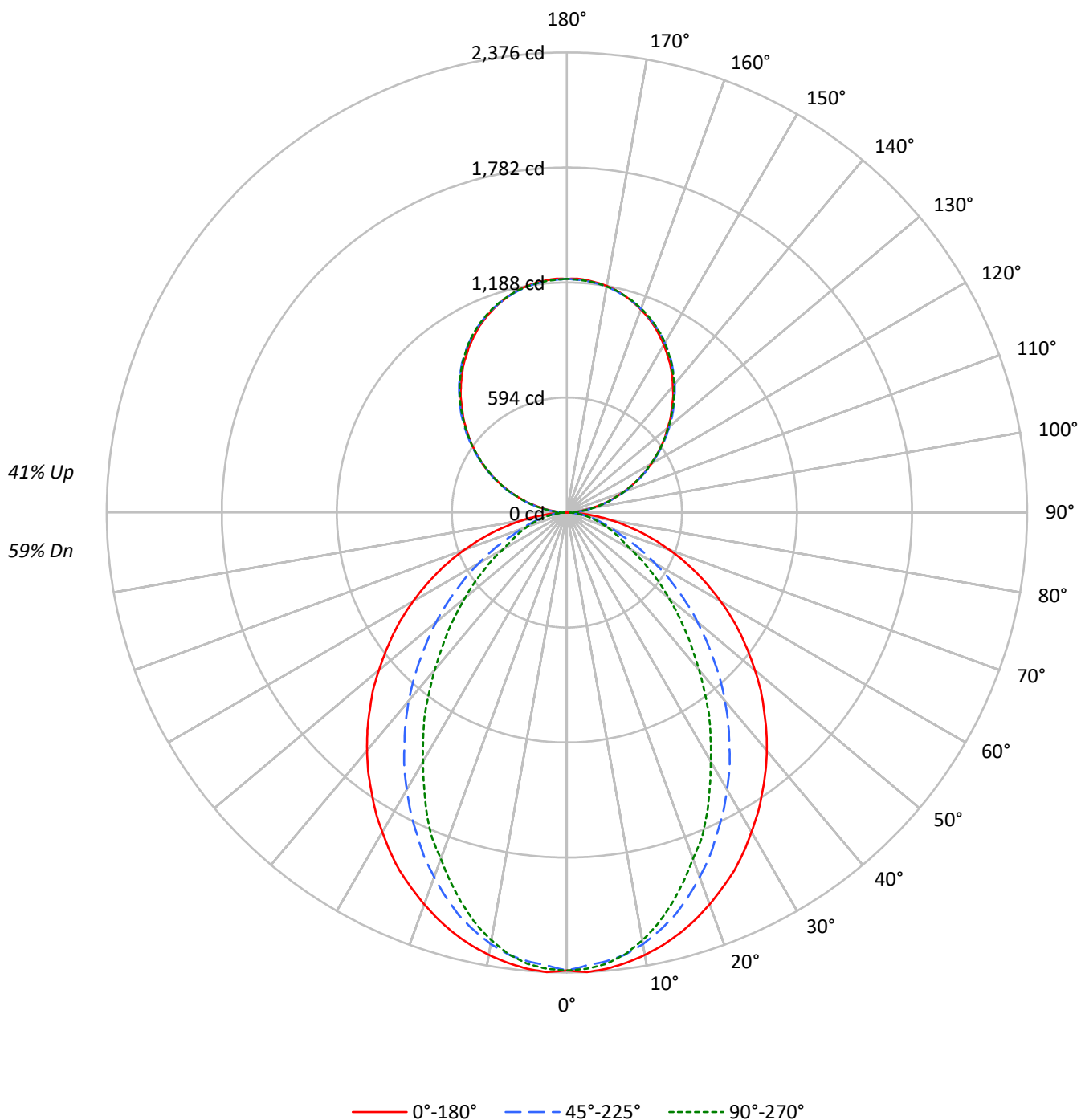
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8242.5 lumens  
Efficiency: N/A  
Efficacy: 98.5 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: General Diffuse  
  
Input Watts (W): 83.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9781  
Total Harmonic Distortion (THDi): 0.075  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P926440

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### Luminous Intensity Polar Plot



TEST NUMBER: P926440

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**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 | 102 | 102 | 102 | 102 | 88 | 88 | 88 | 76 | 76 | 76 | 64 | 64 | 64 |
| 1   | 100 | 96  | 92  | 89  | 94  | 90  | 87  | 84  | 78 | 76 | 74 | 68 | 66 | 64 | 58 | 57 | 56 |
| 2   | 92  | 85  | 79  | 74  | 86  | 79  | 74  | 70  | 69 | 65 | 62 | 60 | 57 | 55 | 52 | 50 | 48 |
| 3   | 84  | 75  | 68  | 62  | 78  | 70  | 64  | 59  | 62 | 57 | 53 | 54 | 50 | 47 | 46 | 44 | 41 |
| 4   | 77  | 67  | 59  | 53  | 72  | 63  | 56  | 51  | 55 | 50 | 46 | 48 | 44 | 41 | 42 | 39 | 36 |
| 5   | 71  | 60  | 52  | 46  | 66  | 56  | 49  | 44  | 50 | 44 | 40 | 44 | 39 | 36 | 38 | 34 | 32 |
| 6   | 66  | 54  | 46  | 40  | 61  | 51  | 44  | 39  | 45 | 39 | 35 | 40 | 35 | 32 | 35 | 31 | 28 |
| 7   | 61  | 49  | 41  | 36  | 57  | 46  | 39  | 34  | 41 | 35 | 31 | 36 | 32 | 28 | 32 | 28 | 25 |
| 8   | 57  | 45  | 37  | 32  | 53  | 42  | 35  | 30  | 38 | 32 | 28 | 33 | 29 | 25 | 29 | 26 | 23 |
| 9   | 53  | 41  | 34  | 29  | 50  | 39  | 32  | 27  | 35 | 29 | 25 | 31 | 26 | 23 | 27 | 24 | 21 |
| 10  | 50  | 38  | 31  | 26  | 47  | 36  | 29  | 25  | 32 | 27 | 23 | 29 | 24 | 21 | 25 | 22 | 19 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1879 | 1879 | 1879 |
| 5°  | 1882 | 1850 | 1861 |
| 10° | 1864 | 1813 | 1801 |
| 15° | 1838 | 1753 | 1707 |
| 20° | 1804 | 1671 | 1592 |
| 25° | 1770 | 1578 | 1481 |
| 30° | 1723 | 1483 | 1340 |
| 35° | 1677 | 1381 | 1217 |
| 40° | 1631 | 1275 | 1075 |
| 45° | 1577 | 1158 | 946  |
| 50° | 1521 | 1040 | 821  |
| 55° | 1462 | 913  | 700  |
| 60° | 1395 | 781  | 576  |
| 65° | 1317 | 647  | 519  |
| 70° | 1223 | 521  | 469  |
| 75° | 1105 | 459  | 427  |
| 80° | 933  | 386  | 370  |
| 85° | 651  | 257  | 277  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1577 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 221.7  | 2.7       |
| 10°-20°   | 608.7  | 7.4       |
| 20°-30°   | 854.5  | 10.4      |
| 30°-40°   | 931.5  | 11.3      |
| 40°-50°   | 856.2  | 10.4      |
| 50°-60°   | 672.4  | 8.2       |
| 60°-70°   | 437.7  | 5.3       |
| 70°-80°   | 225.3  | 2.7       |
| 80°-90°   | 60.9   | 0.7       |
| 90°-100°  | 74.7   | 0.9       |
| 100°-110° | 237.3  | 2.9       |
| 110°-120° | 406.1  | 4.9       |
| 120°-130° | 534.0  | 6.5       |
| 130°-140° | 599.4  | 7.3       |
| 140°-150° | 587.8  | 7.1       |
| 150°-160° | 493.1  | 6.0       |
| 160°-170° | 327.0  | 4.0       |
| 170°-180° | 114.3  | 1.4       |
| 0°-30°    | 1684.9 | 20.4      |
| 0°-40°    | 2616.4 | 31.7      |
| 0°-60°    | 4144.9 | 50.3      |
| 0°-90°    | 4868.8 | 59.1      |
| 90°-120°  | 718.0  | 8.7       |
| 90°-150°  | 2439.3 | 29.6      |
| 90°-180°  | 3374.0 | 40.9      |
| 0°-180°   | 8242.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2366 | 2366  | 2366 | 2366  | 2366 |      |
| 5°   | 2366 | 2355  | 2327 | 2346  | 2340 | 224  |
| 15°  | 2250 | 2226  | 2154 | 2113  | 2092 | 634  |
| 25°  | 2042 | 1974  | 1833 | 1745  | 1713 | 939  |
| 35°  | 1760 | 1651  | 1462 | 1327  | 1280 | 1102 |
| 45°  | 1439 | 1295  | 1071 | 918   | 867  | 1111 |
| 55°  | 1094 | 927   | 696  | 567   | 527  | 978  |
| 65°  | 739  | 565   | 372  | 300   | 293  | 732  |
| 75°  | 394  | 244   | 171  | 156   | 154  | 417  |
| 85°  | 92   | 47    | 41   | 41    | 41   | 106  |
| 90°  | 1    | 13    | 36   | 34    | 34   | 8    |
| 95°  | 53   | 63    | 65   | 65    | 63   | 59   |
| 105° | 219  | 222   | 224  | 226   | 226  | 231  |
| 115° | 408  | 413   | 412  | 410   | 408  | 403  |
| 125° | 593  | 602   | 599  | 596   | 594  | 530  |
| 135° | 767  | 778   | 780  | 779   | 776  | 593  |
| 145° | 931  | 938   | 944  | 945   | 941  | 582  |
| 155° | 1064 | 1067  | 1070 | 1076  | 1072 | 490  |
| 165° | 1158 | 1157  | 1157 | 1164  | 1159 | 327  |
| 175° | 1205 | 1202  | 1200 | 1207  | 1201 | 114  |
| 180° | 1207 | 1207  | 1207 | 1207  | 1207 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2365.7 | 2365.7 | 2365.7 | 2365.7 | 2365.7 |
| 2.5°   | 2376.4 | 2365.7 | 2342.1 | 2363.6 | 2359.3 |
| 5°     | 2365.7 | 2355.0 | 2327.1 | 2346.5 | 2340.1 |
| 7.5°   | 2346.5 | 2333.7 | 2303.7 | 2312.1 | 2301.4 |
| 10°    | 2320.7 | 2305.7 | 2263.1 | 2256.5 | 2243.7 |
| 12.5°  | 2288.7 | 2269.4 | 2211.5 | 2198.8 | 2175.1 |
| 15°    | 2250.1 | 2226.4 | 2153.8 | 2113.1 | 2091.7 |
| 17.5°  | 2205.2 | 2170.8 | 2080.9 | 2033.8 | 1999.6 |
| 20°    | 2153.8 | 2110.8 | 2003.9 | 1950.5 | 1903.2 |
| 22.5°  | 2098.1 | 2048.8 | 1924.6 | 1851.9 | 1819.9 |
| 25°    | 2042.5 | 1973.9 | 1832.6 | 1745.0 | 1712.7 |
| 27.5°  | 1976.2 | 1903.2 | 1747.0 | 1646.3 | 1597.1 |
| 30°    | 1905.5 | 1824.0 | 1652.7 | 1543.7 | 1485.8 |
| 32.5°  | 1836.9 | 1738.4 | 1563.0 | 1434.4 | 1380.8 |
| 35°    | 1759.9 | 1650.7 | 1462.4 | 1327.4 | 1280.2 |
| 37.5°  | 1685.0 | 1567.0 | 1368.1 | 1220.3 | 1166.8 |
| 40°    | 1605.7 | 1477.4 | 1269.5 | 1117.5 | 1061.9 |
| 42.5°  | 1524.4 | 1387.4 | 1171.1 | 1012.6 | 959.2  |
| 45°    | 1438.7 | 1295.2 | 1070.6 | 918.3  | 867.0  |
| 47.5°  | 1357.4 | 1205.5 | 974.2  | 822.1  | 775.0  |
| 50°    | 1267.5 | 1115.5 | 880.0  | 732.1  | 687.4  |
| 52.5°  | 1179.5 | 1019.0 | 790.0  | 648.7  | 608.1  |
| 55°    | 1094.0 | 927.0  | 695.8  | 567.4  | 526.7  |
| 57.5°  | 1006.3 | 834.9  | 612.4  | 492.5  | 458.1  |
| 60°    | 916.3  | 745.1  | 524.5  | 415.5  | 381.1  |
| 62.5°  | 828.6  | 657.4  | 449.5  | 346.9  | 329.8  |
| 65°    | 738.7  | 565.1  | 372.5  | 299.8  | 293.3  |
| 67.5°  | 653.0  | 479.5  | 299.8  | 263.3  | 256.9  |
| 70°    | 563.1  | 396.1  | 248.2  | 227.0  | 218.3  |
| 72.5°  | 477.5  | 318.9  | 207.6  | 190.6  | 186.2  |
| 75°    | 393.9  | 243.9  | 171.2  | 156.3  | 154.3  |
| 77.5°  | 310.5  | 173.3  | 134.9  | 126.3  | 122.0  |
| 80°    | 233.3  | 124.2  | 102.7  | 94.3   | 94.3   |
| 82.5°  | 162.7  | 83.6   | 70.6   | 66.3   | 66.3   |
| 85°    | 92.0   | 47.0   | 40.6   | 40.6   | 40.6   |
| 87.5°  | 34.3   | 17.1   | 17.1   | 15.0   | 15.0   |
| 90°    | 1.0    | 13.1   | 35.7   | 33.5   | 34.5   |
| 92.5°  | 22.5   | 30.5   | 31.7   | 32.7   | 32.7   |
| 95°    | 53.1   | 63.3   | 65.2   | 65.2   | 63.3   |
| 97.5°  | 88.4   | 97.9   | 101.9  | 101.9  | 101.9  |
| 100°   | 129.2  | 137.6  | 140.4  | 140.4  | 139.4  |
| 102.5° | 172.1  | 178.3  | 182.3  | 183.4  | 182.3  |
| 105°   | 219.0  | 221.9  | 224.1  | 225.9  | 225.9  |
| 107.5° | 265.6  | 270.0  | 270.0  | 270.6  | 265.6  |
| 110°   | 310.7  | 316.5  | 316.5  | 316.5  | 313.7  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 359.5  | 365.7  | 364.5  | 361.7  | 359.5  |
| 115°   | 407.5  | 413.4  | 411.5  | 410.4  | 407.5  |
| 117.5° | 455.2  | 463.2  | 458.1  | 455.2  | 452.3  |
| 120°   | 503.2  | 511.2  | 503.2  | 503.2  | 499.9  |
| 122.5° | 546.8  | 557.0  | 552.0  | 549.0  | 546.8  |
| 125°   | 592.7  | 601.8  | 598.9  | 595.6  | 594.5  |
| 127.5° | 637.5  | 648.7  | 644.7  | 640.3  | 637.5  |
| 130°   | 679.2  | 692.4  | 690.6  | 688.4  | 684.4  |
| 132.5° | 726.2  | 736.4  | 737.2  | 732.0  | 729.1  |
| 135°   | 766.6  | 777.9  | 780.1  | 778.9  | 776.1  |
| 137.5° | 811.8  | 820.8  | 822.6  | 821.9  | 817.6  |
| 140°   | 851.3  | 860.5  | 865.6  | 865.6  | 861.6  |
| 142.5° | 892.2  | 901.2  | 904.1  | 905.3  | 901.2  |
| 145°   | 930.7  | 938.0  | 943.8  | 944.9  | 940.9  |
| 147.5° | 965.3  | 974.3  | 978.7  | 980.5  | 976.5  |
| 150°   | 1000.9 | 1007.1 | 1011.1 | 1014.4 | 1011.1 |
| 152.5° | 1032.6 | 1038.7 | 1043.9 | 1047.9 | 1043.9 |
| 155°   | 1064.2 | 1067.1 | 1070.4 | 1075.5 | 1072.2 |
| 157.5° | 1091.6 | 1093.7 | 1095.5 | 1102.8 | 1097.7 |
| 160°   | 1115.9 | 1118.1 | 1119.1 | 1125.3 | 1121.0 |
| 162.5° | 1138.4 | 1138.4 | 1139.6 | 1146.4 | 1141.4 |
| 165°   | 1157.8 | 1156.6 | 1156.6 | 1163.9 | 1158.8 |
| 167.5° | 1175.2 | 1171.9 | 1171.9 | 1179.2 | 1174.1 |
| 170°   | 1188.3 | 1185.3 | 1184.3 | 1191.5 | 1185.3 |
| 172.5° | 1197.4 | 1194.5 | 1193.4 | 1200.7 | 1194.5 |
| 175°   | 1204.7 | 1201.8 | 1199.6 | 1206.8 | 1200.7 |
| 177.5° | 1208.7 | 1205.8 | 1203.6 | 1209.8 | 1203.6 |
| 180°   | 1206.8 | 1206.8 | 1206.8 | 1206.8 | 1206.8 |



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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 | 10.14            | 11.05 | 11.02 | 11.95 | 13.09 | 6.11           | 7.02  | 7.00  | 7.92  | 9.06  |
|                 | 3H   | 11.82            | 12.64 | 12.72 | 13.54 | 14.71 | 7.31           | 8.12  | 8.20  | 9.03  | 10.20 |
|                 | 4H   | 12.44            | 13.20 | 13.35 | 14.12 | 15.29 | 7.76           | 8.53  | 8.68  | 9.45  | 10.62 |
|                 | 6H   | 12.86            | 13.57 | 13.78 | 14.49 | 15.67 | 8.09           | 8.80  | 9.01  | 9.72  | 10.90 |
|                 | 8H   | 12.99            | 13.66 | 13.92 | 14.60 | 15.78 | 8.18           | 8.86  | 9.11  | 9.79  | 10.98 |
|                 | 12H  | 13.05            | 13.69 | 13.99 | 14.62 | 15.83 | 8.23           | 8.87  | 9.16  | 9.80  | 11.01 |
| 4H              | 2H   | 10.17            | 10.94 | 11.08 | 11.85 | 13.02 | 6.72           | 7.49  | 7.63  | 8.40  | 9.57  |
|                 | 3H   | 12.00            | 12.64 | 12.93 | 13.59 | 14.78 | 8.08           | 8.72  | 9.00  | 9.66  | 10.85 |
|                 | 4H   | 12.70            | 13.28 | 13.64 | 14.22 | 15.43 | 8.63           | 9.21  | 9.57  | 10.15 | 11.36 |
|                 | 6H   | 13.22            | 13.72 | 14.17 | 14.68 | 15.90 | 9.05           | 9.55  | 10.00 | 10.52 | 11.73 |
|                 | 8H   | 13.40            | 13.86 | 14.35 | 14.82 | 16.05 | 9.19           | 9.65  | 10.14 | 10.61 | 11.84 |
|                 | 12H  | 13.49            | 13.91 | 14.46 | 14.89 | 16.12 | 9.25           | 9.68  | 10.22 | 10.65 | 11.88 |
| 8H              | 4H   | 12.67            | 13.14 | 13.62 | 14.10 | 15.33 | 8.92           | 9.38  | 9.87  | 10.34 | 11.57 |
|                 | 6H   | 13.24            | 13.63 | 14.22 | 14.63 | 15.85 | 9.44           | 9.82  | 10.41 | 10.82 | 12.05 |
|                 | 8H   | 13.46            | 13.80 | 14.45 | 14.79 | 16.03 | 9.63           | 9.97  | 10.62 | 10.96 | 12.20 |
|                 | 12H  | 13.60            | 13.90 | 14.59 | 14.88 | 16.17 | 9.75           | 10.05 | 10.74 | 11.03 | 12.33 |
| 12H             | 4H   | 12.63            | 13.05 | 13.60 | 14.02 | 15.26 | 8.92           | 9.34  | 9.89  | 10.32 | 11.55 |
|                 | 6H   | 13.22            | 13.56 | 14.20 | 14.55 | 15.79 | 9.49           | 9.83  | 10.47 | 10.82 | 12.06 |
|                 | 8H   | 13.44            | 13.74 | 14.43 | 14.72 | 16.02 | 9.70           | 10.00 | 10.69 | 10.98 | 12.28 |

END OF REPORT