

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: P915572

Luminaire Tested: DFN2DIP-TR4F0-070D060US927-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P915572  
REPORT IS A COMBINATION OF REPORTS P900412 AND P897293  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-070D060US927-RLLFLL  
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

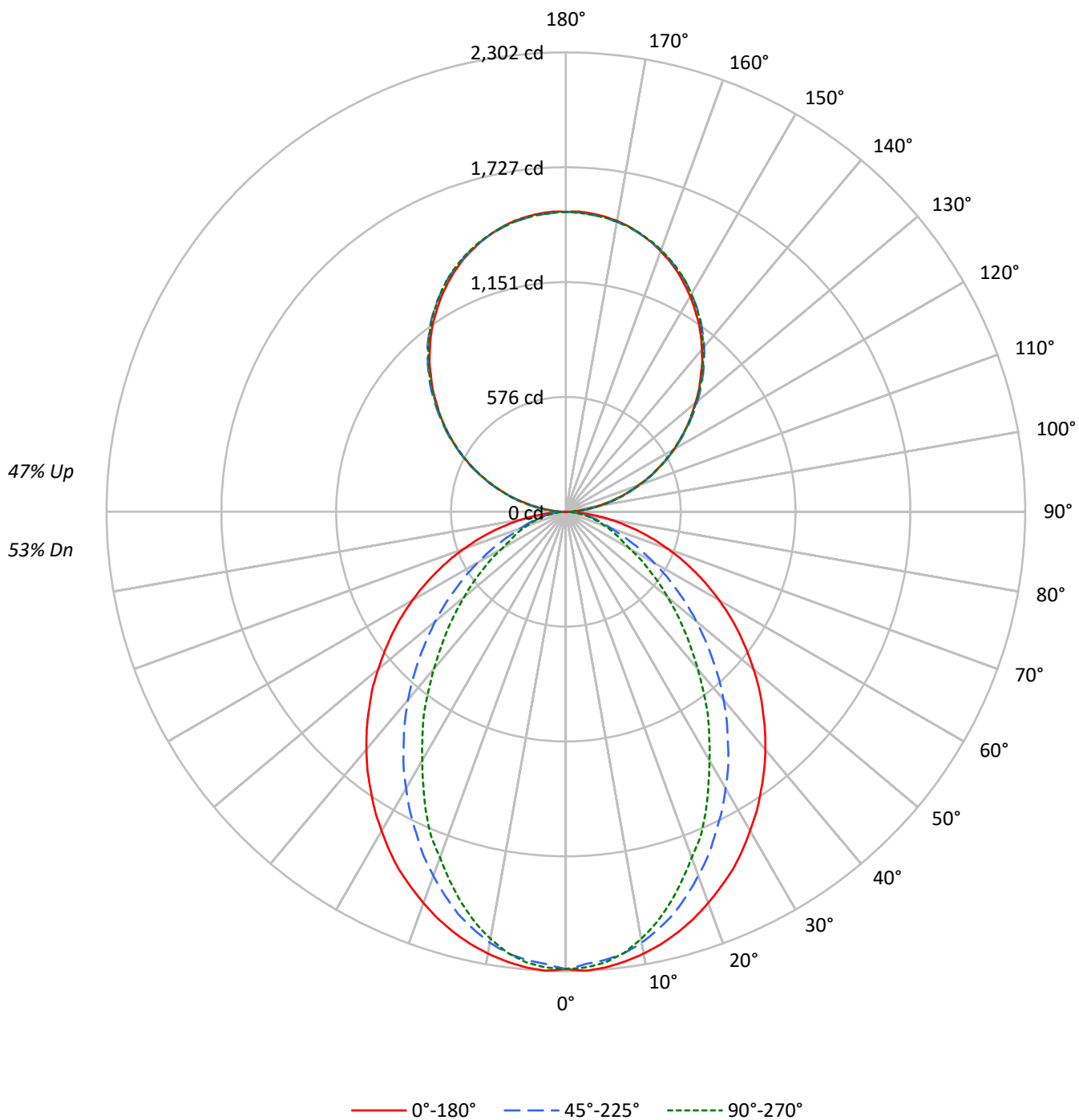
Lumens per Lamp: N/A  
Luminaire Lumens: 8919.9 lumens  
Efficiency: N/A  
Efficacy: 80.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 110.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9977  
Total Harmonic Distortion (THDi): 0.049  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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### Luminous Intensity Polar Plot



TEST NUMBER: P915572

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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   | 108 | 108 | 108 | 108 | 100 | 100 | 100 | 100 | 85 | 85 | 85 | 71 | 71 | 71 | 59 | 59 | 59 |
| 1   | 99  | 95  | 91  | 88  | 92  | 88  | 85  | 82  | 75 | 73 | 71 | 64 | 62 | 60 | 53 | 52 | 51 |
| 2   | 91  | 83  | 77  | 72  | 84  | 78  | 72  | 68  | 67 | 63 | 59 | 56 | 54 | 51 | 47 | 45 | 43 |
| 3   | 83  | 74  | 67  | 61  | 77  | 69  | 62  | 57  | 59 | 54 | 51 | 50 | 47 | 44 | 42 | 40 | 38 |
| 4   | 76  | 66  | 58  | 52  | 70  | 61  | 54  | 49  | 53 | 48 | 44 | 45 | 41 | 38 | 38 | 35 | 33 |
| 5   | 70  | 59  | 51  | 45  | 65  | 55  | 48  | 43  | 48 | 42 | 38 | 41 | 37 | 33 | 34 | 31 | 29 |
| 6   | 65  | 53  | 45  | 39  | 60  | 50  | 42  | 37  | 43 | 38 | 33 | 37 | 33 | 30 | 31 | 28 | 26 |
| 7   | 60  | 48  | 40  | 35  | 56  | 45  | 38  | 33  | 39 | 34 | 30 | 34 | 30 | 26 | 29 | 26 | 23 |
| 8   | 56  | 44  | 36  | 31  | 52  | 41  | 34  | 29  | 36 | 30 | 27 | 31 | 27 | 24 | 27 | 23 | 21 |
| 9   | 52  | 40  | 33  | 28  | 48  | 38  | 31  | 26  | 33 | 28 | 24 | 29 | 24 | 21 | 25 | 21 | 19 |
| 10  | 49  | 37  | 30  | 25  | 45  | 35  | 28  | 24  | 31 | 25 | 22 | 27 | 22 | 19 | 23 | 20 | 17 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1821 | 1821 | 1821 |
| 5°  | 1824 | 1792 | 1803 |
| 10° | 1806 | 1757 | 1745 |
| 15° | 1781 | 1699 | 1654 |
| 20° | 1748 | 1619 | 1542 |
| 25° | 1714 | 1529 | 1435 |
| 30° | 1669 | 1437 | 1299 |
| 35° | 1625 | 1338 | 1179 |
| 40° | 1580 | 1236 | 1041 |
| 45° | 1527 | 1122 | 917  |
| 50° | 1473 | 1007 | 795  |
| 55° | 1417 | 885  | 679  |
| 60° | 1351 | 757  | 558  |
| 65° | 1276 | 627  | 503  |
| 70° | 1185 | 505  | 455  |
| 75° | 1070 | 445  | 414  |
| 80° | 904  | 374  | 358  |
| 85° | 630  | 249  | 269  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1527 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 214.8  | 2.4       |
| 10°-20°   | 589.7  | 6.6       |
| 20°-30°   | 827.9  | 9.3       |
| 30°-40°   | 902.4  | 10.1      |
| 40°-50°   | 829.4  | 9.3       |
| 50°-60°   | 651.4  | 7.3       |
| 60°-70°   | 424.0  | 4.8       |
| 70°-80°   | 218.2  | 2.4       |
| 80°-90°   | 60.0   | 0.7       |
| 90°-100°  | 93.0   | 1.0       |
| 100°-110° | 295.6  | 3.3       |
| 110°-120° | 505.8  | 5.7       |
| 120°-130° | 665.2  | 7.5       |
| 130°-140° | 746.6  | 8.4       |
| 140°-150° | 732.2  | 8.2       |
| 150°-160° | 614.2  | 6.9       |
| 160°-170° | 407.3  | 4.6       |
| 170°-180° | 142.4  | 1.6       |
| 0°-30°    | 1632.3 | 18.3      |
| 0°-40°    | 2534.7 | 28.4      |
| 0°-60°    | 4015.5 | 45.0      |
| 0°-90°    | 4717.7 | 52.9      |
| 90°-120°  | 894.4  | 10.0      |
| 90°-150°  | 3038.4 | 34.1      |
| 90°-180°  | 4202.0 | 47.1      |
| 0°-180°   | 8919.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2292 | 2292  | 2292 | 2292  | 2292 |      |
| 5°   | 2292 | 2282  | 2254 | 2273  | 2267 | 217  |
| 15°  | 2180 | 2157  | 2086 | 2047  | 2026 | 614  |
| 25°  | 1979 | 1912  | 1775 | 1690  | 1659 | 910  |
| 35°  | 1705 | 1599  | 1417 | 1286  | 1240 | 1067 |
| 45°  | 1394 | 1255  | 1037 | 890   | 840  | 1076 |
| 55°  | 1060 | 898   | 674  | 550   | 510  | 947  |
| 65°  | 716  | 548   | 361  | 290   | 284  | 709  |
| 75°  | 382  | 236   | 166  | 151   | 149  | 404  |
| 85°  | 89   | 46    | 39   | 39    | 39   | 102  |
| 90°  | 1    | 16    | 44   | 42    | 43   | 9    |
| 95°  | 66   | 79    | 81   | 81    | 79   | 74   |
| 105° | 273  | 276   | 279  | 282   | 282  | 288  |
| 115° | 508  | 515   | 512  | 511   | 508  | 502  |
| 125° | 738  | 750   | 746  | 742   | 740  | 660  |
| 135° | 955  | 969   | 972  | 970   | 967  | 738  |
| 145° | 1159 | 1168  | 1176 | 1177  | 1172 | 724  |
| 155° | 1326 | 1329  | 1333 | 1340  | 1336 | 610  |
| 165° | 1442 | 1441  | 1441 | 1450  | 1443 | 407  |
| 175° | 1500 | 1497  | 1494 | 1503  | 1496 | 143  |
| 180° | 1503 | 1503  | 1503 | 1503  | 1503 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2291.9 | 2291.9 | 2291.9 | 2291.9 | 2291.9 |
| 2.5°   | 2302.2 | 2291.9 | 2269.0 | 2289.9 | 2285.7 |
| 5°     | 2291.9 | 2281.5 | 2254.5 | 2273.2 | 2267.0 |
| 7.5°   | 2273.2 | 2260.8 | 2231.8 | 2239.9 | 2229.6 |
| 10°    | 2248.3 | 2233.8 | 2192.4 | 2186.0 | 2173.7 |
| 12.5°  | 2217.2 | 2198.5 | 2142.5 | 2130.1 | 2107.2 |
| 15°    | 2179.8 | 2157.0 | 2086.5 | 2047.2 | 2026.5 |
| 17.5°  | 2136.3 | 2103.1 | 2015.9 | 1970.3 | 1937.1 |
| 20°    | 2086.5 | 2044.9 | 1941.3 | 1889.6 | 1843.8 |
| 22.5°  | 2032.7 | 1984.9 | 1864.5 | 1794.1 | 1763.1 |
| 25°    | 1978.7 | 1912.2 | 1775.4 | 1690.4 | 1659.2 |
| 27.5°  | 1914.5 | 1843.8 | 1692.4 | 1595.0 | 1547.2 |
| 30°    | 1846.0 | 1767.0 | 1601.1 | 1495.5 | 1439.4 |
| 32.5°  | 1779.6 | 1684.1 | 1514.2 | 1389.6 | 1337.7 |
| 35°    | 1704.9 | 1599.1 | 1416.7 | 1286.0 | 1240.2 |
| 37.5°  | 1632.4 | 1518.1 | 1325.4 | 1182.1 | 1130.4 |
| 40°    | 1555.5 | 1431.2 | 1229.9 | 1082.7 | 1028.7 |
| 42.5°  | 1476.8 | 1344.1 | 1134.6 | 981.0  | 929.3  |
| 45°    | 1393.8 | 1254.7 | 1037.1 | 889.7  | 839.9  |
| 47.5°  | 1315.0 | 1167.8 | 943.8  | 796.4  | 750.8  |
| 50°    | 1227.9 | 1080.7 | 852.5  | 709.2  | 665.9  |
| 52.5°  | 1142.7 | 987.1  | 765.3  | 628.4  | 589.1  |
| 55°    | 1059.8 | 898.0  | 674.0  | 549.7  | 510.3  |
| 57.5°  | 974.9  | 808.9  | 593.3  | 477.1  | 443.9  |
| 60°    | 887.7  | 721.8  | 508.1  | 402.5  | 369.2  |
| 62.5°  | 802.7  | 636.8  | 435.5  | 336.0  | 319.5  |
| 65°    | 715.6  | 547.5  | 360.9  | 290.5  | 284.1  |
| 67.5°  | 632.6  | 464.5  | 290.5  | 255.0  | 248.9  |
| 70°    | 545.5  | 383.7  | 240.5  | 219.8  | 211.4  |
| 72.5°  | 462.6  | 309.0  | 201.1  | 184.7  | 180.5  |
| 75°    | 381.6  | 236.3  | 165.9  | 151.4  | 149.4  |
| 77.5°  | 300.8  | 167.9  | 130.7  | 122.3  | 118.2  |
| 80°    | 226.0  | 120.3  | 99.5   | 91.3   | 91.3   |
| 82.5°  | 157.6  | 81.0   | 68.4   | 64.2   | 64.2   |
| 85°    | 89.1   | 45.6   | 39.4   | 39.4   | 39.4   |
| 87.5°  | 33.2   | 16.5   | 16.5   | 14.5   | 14.5   |
| 90°    | 1.3    | 16.3   | 44.4   | 41.7   | 43.0   |
| 92.5°  | 28.1   | 38.1   | 39.5   | 40.8   | 40.8   |
| 95°    | 66.1   | 78.8   | 81.1   | 81.1   | 78.8   |
| 97.5°  | 110.1  | 121.9  | 126.9  | 126.9  | 126.9  |
| 100°   | 160.9  | 171.3  | 174.9  | 174.9  | 173.6  |
| 102.5° | 214.4  | 222.0  | 227.0  | 228.4  | 227.0  |
| 105°   | 272.8  | 276.5  | 279.2  | 281.5  | 281.5  |
| 107.5° | 330.8  | 336.3  | 336.3  | 337.2  | 330.8  |
| 110°   | 387.1  | 394.3  | 394.3  | 394.3  | 390.6  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 447.7  | 455.4  | 454.1  | 450.4  | 447.7  |
| 115°   | 507.6  | 514.8  | 512.5  | 511.2  | 507.6  |
| 117.5° | 567.0  | 576.9  | 570.5  | 567.0  | 563.3  |
| 120°   | 626.8  | 636.8  | 626.8  | 626.8  | 622.7  |
| 122.5° | 681.1  | 693.8  | 687.5  | 683.9  | 681.1  |
| 125°   | 738.2  | 749.6  | 745.9  | 741.9  | 740.5  |
| 127.5° | 794.0  | 808.0  | 803.0  | 797.6  | 794.0  |
| 130°   | 846.1  | 862.4  | 860.2  | 857.5  | 852.5  |
| 132.5° | 904.6  | 917.3  | 918.1  | 911.8  | 908.2  |
| 135°   | 954.9  | 968.9  | 971.6  | 970.3  | 966.6  |
| 137.5° | 1011.1 | 1022.4 | 1024.7 | 1023.7 | 1018.3 |
| 140°   | 1060.5 | 1071.8 | 1078.2 | 1078.2 | 1073.2 |
| 142.5° | 1111.2 | 1122.5 | 1126.2 | 1127.5 | 1122.5 |
| 145°   | 1159.3 | 1168.3 | 1175.6 | 1176.9 | 1172.0 |
| 147.5° | 1202.3 | 1213.6 | 1219.1 | 1221.3 | 1216.3 |
| 150°   | 1246.7 | 1254.4 | 1259.4 | 1263.4 | 1259.4 |
| 152.5° | 1286.1 | 1293.9 | 1300.2 | 1305.2 | 1300.2 |
| 155°   | 1325.6 | 1329.2 | 1333.2 | 1339.7 | 1335.5 |
| 157.5° | 1359.5 | 1362.3 | 1364.5 | 1373.6 | 1367.3 |
| 160°   | 1390.0 | 1392.7 | 1394.0 | 1401.7 | 1396.3 |
| 162.5° | 1418.0 | 1418.0 | 1419.4 | 1428.0 | 1421.6 |
| 165°   | 1442.0 | 1440.7 | 1440.7 | 1449.8 | 1443.4 |
| 167.5° | 1463.8 | 1459.8 | 1459.8 | 1468.8 | 1462.4 |
| 170°   | 1480.1 | 1476.5 | 1475.1 | 1484.2 | 1476.5 |
| 172.5° | 1491.4 | 1487.8 | 1486.4 | 1495.5 | 1487.8 |
| 175°   | 1500.5 | 1496.9 | 1494.1 | 1503.2 | 1495.5 |
| 177.5° | 1505.5 | 1501.9 | 1499.1 | 1506.8 | 1499.1 |
| 180°   | 1503.2 | 1503.2 | 1503.2 | 1503.2 | 1503.2 |

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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 | 9.49             | 10.34 | 10.43 | 11.29 | 12.53 | 5.46           | 6.32 | 6.40  | 7.27  | 8.50  |
|                 | 3H   | 11.17            | 11.93 | 12.12 | 12.89 | 14.15 | 6.65           | 7.42 | 7.60  | 8.38  | 9.63  |
|                 | 4H   | 11.78            | 12.50 | 12.74 | 13.46 | 14.73 | 7.11           | 7.83 | 8.07  | 8.79  | 10.06 |
|                 | 6H   | 12.20            | 12.86 | 13.18 | 13.83 | 15.11 | 7.43           | 8.09 | 8.40  | 9.06  | 10.34 |
|                 | 8H   | 12.33            | 12.96 | 13.31 | 13.95 | 15.22 | 7.52           | 8.15 | 8.50  | 9.14  | 10.41 |
|                 | 12H  | 12.39            | 12.99 | 13.38 | 13.97 | 15.27 | 7.57           | 8.17 | 8.55  | 9.15  | 10.45 |
| 4H              | 2H   | 9.51             | 10.23 | 10.48 | 11.20 | 12.46 | 6.06           | 6.78 | 7.03  | 7.75  | 9.01  |
|                 | 3H   | 11.34            | 11.94 | 12.32 | 12.94 | 14.21 | 7.41           | 8.01 | 8.39  | 9.01  | 10.29 |
|                 | 4H   | 12.03            | 12.58 | 13.02 | 13.57 | 14.87 | 7.96           | 8.51 | 8.95  | 9.50  | 10.80 |
|                 | 6H   | 12.55            | 13.02 | 13.55 | 14.03 | 15.33 | 8.38           | 8.86 | 9.39  | 9.87  | 11.17 |
|                 | 8H   | 12.73            | 13.17 | 13.73 | 14.17 | 15.48 | 8.51           | 8.95 | 9.52  | 9.96  | 11.27 |
|                 | 12H  | 12.82            | 13.22 | 13.84 | 14.24 | 15.56 | 8.58           | 8.98 | 9.60  | 10.00 | 11.32 |
| 8H              | 4H   | 12.00            | 12.44 | 13.01 | 13.45 | 14.76 | 8.25           | 8.68 | 9.25  | 9.69  | 11.00 |
|                 | 6H   | 12.57            | 12.93 | 13.60 | 13.98 | 15.29 | 8.77           | 9.13 | 9.79  | 10.17 | 11.49 |
|                 | 8H   | 12.79            | 13.11 | 13.82 | 14.14 | 15.47 | 8.96           | 9.28 | 9.99  | 10.31 | 11.64 |
|                 | 12H  | 12.93            | 13.21 | 13.96 | 14.24 | 15.61 | 9.08           | 9.36 | 10.11 | 10.39 | 11.76 |
| 12H             | 4H   | 11.96            | 12.35 | 12.98 | 13.37 | 14.69 | 8.25           | 8.65 | 9.27  | 9.67  | 10.99 |
|                 | 6H   | 12.55            | 12.87 | 13.58 | 13.90 | 15.23 | 8.81           | 9.13 | 9.85  | 10.17 | 11.50 |
|                 | 8H   | 12.77            | 13.05 | 13.80 | 14.08 | 15.45 | 9.03           | 9.31 | 10.06 | 10.34 | 11.71 |

END OF REPORT