

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: P907106

Luminaire Tested: DFN2DIP-TR3F0-030D070US835-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P907106  
REPORT IS A COMBINATION OF REPORTS P900328 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-030D070US835-RLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

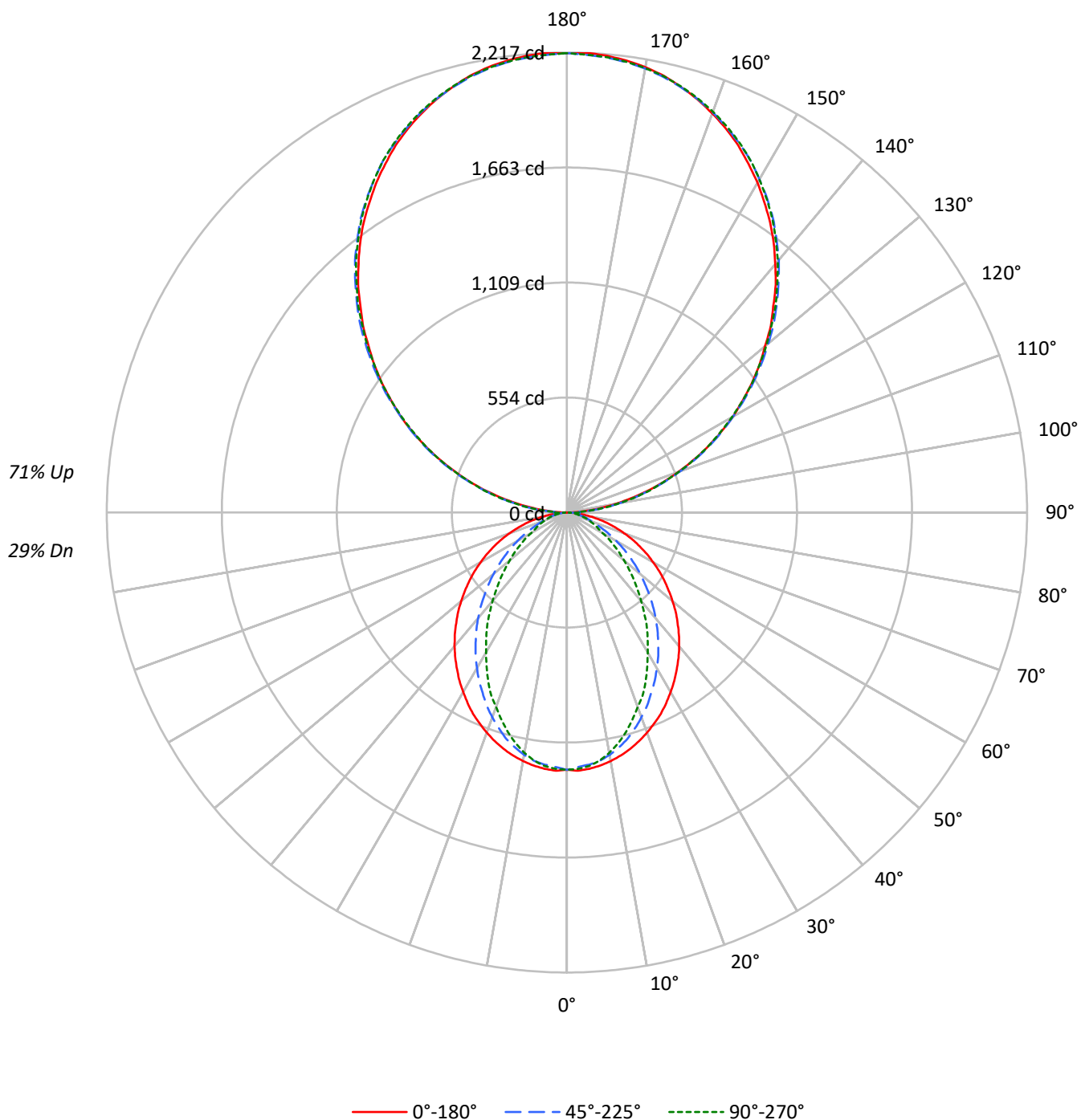
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8745.0 lumens  
Efficiency: N/A  
Efficacy: 113.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 77.2  
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

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### Luminous Intensity Polar Plot



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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   | 102 | 102 | 102 | 102 |  | 92 | 92 | 92 | 92 |  | 72 | 72 | 72 |  | 54 | 54 | 54 |  | 37 | 37 | 37 |
| 1   | 93  | 89  | 86  | 82  |  | 84 | 80 | 77 | 74 |  | 63 | 61 | 59 |  | 48 | 46 | 45 |  | 33 | 32 | 32 |
| 2   | 85  | 78  | 72  | 68  |  | 76 | 70 | 66 | 61 |  | 56 | 52 | 49 |  | 42 | 40 | 38 |  | 29 | 28 | 27 |
| 3   | 78  | 69  | 62  | 57  |  | 70 | 62 | 56 | 52 |  | 49 | 45 | 42 |  | 37 | 35 | 32 |  | 26 | 25 | 23 |
| 4   | 71  | 61  | 54  | 48  |  | 64 | 55 | 49 | 44 |  | 44 | 39 | 36 |  | 33 | 30 | 28 |  | 24 | 22 | 20 |
| 5   | 65  | 54  | 47  | 41  |  | 59 | 49 | 43 | 38 |  | 39 | 35 | 31 |  | 30 | 27 | 24 |  | 21 | 19 | 18 |
| 6   | 60  | 49  | 41  | 36  |  | 54 | 44 | 38 | 33 |  | 35 | 31 | 27 |  | 27 | 24 | 21 |  | 20 | 17 | 16 |
| 7   | 56  | 44  | 36  | 31  |  | 50 | 40 | 33 | 29 |  | 32 | 27 | 24 |  | 25 | 21 | 19 |  | 18 | 16 | 14 |
| 8   | 52  | 40  | 33  | 27  |  | 46 | 36 | 30 | 25 |  | 29 | 24 | 21 |  | 23 | 19 | 17 |  | 16 | 14 | 13 |
| 9   | 48  | 36  | 29  | 24  |  | 43 | 33 | 27 | 23 |  | 27 | 22 | 19 |  | 21 | 18 | 15 |  | 15 | 13 | 12 |
| 10  | 45  | 33  | 26  | 22  |  | 40 | 30 | 24 | 20 |  | 25 | 20 | 17 |  | 19 | 16 | 14 |  | 14 | 12 | 11 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1545 | 1545 | 1545 |
| 5°  | 1547 | 1519 | 1529 |
| 10° | 1530 | 1488 | 1478 |
| 15° | 1509 | 1438 | 1401 |
| 20° | 1480 | 1369 | 1305 |
| 25° | 1450 | 1292 | 1213 |
| 30° | 1411 | 1213 | 1097 |
| 35° | 1373 | 1128 | 995  |
| 40° | 1334 | 1040 | 878  |
| 45° | 1288 | 943  | 773  |
| 50° | 1241 | 845  | 669  |
| 55° | 1192 | 741  | 570  |
| 60° | 1135 | 632  | 468  |
| 65° | 1069 | 522  | 420  |
| 70° | 989  | 419  | 379  |
| 75° | 889  | 366  | 342  |
| 80° | 744  | 303  | 294  |
| 85° | 506  | 196  | 215  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2161 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 116.2  | 1.3       |
| 10°-20°   | 319.0  | 3.6       |
| 20°-30°   | 447.9  | 5.1       |
| 30°-40°   | 488.2  | 5.6       |
| 40°-50°   | 448.7  | 5.1       |
| 50°-60°   | 352.4  | 4.0       |
| 60°-70°   | 229.4  | 2.6       |
| 70°-80°   | 118.1  | 1.4       |
| 80°-90°   | 36.4   | 0.4       |
| 90°-100°  | 137.0  | 1.6       |
| 100°-110° | 435.3  | 5.0       |
| 110°-120° | 744.9  | 8.5       |
| 120°-130° | 979.6  | 11.2      |
| 130°-140° | 1099.6 | 12.6      |
| 140°-150° | 1078.3 | 12.3      |
| 150°-160° | 904.5  | 10.3      |
| 160°-170° | 599.9  | 6.9       |
| 170°-180° | 209.7  | 2.4       |
| 0°-30°    | 883.1  | 10.1      |
| 0°-40°    | 1371.3 | 15.7      |
| 0°-60°    | 2172.4 | 24.8      |
| 0°-90°    | 2556.3 | 29.2      |
| 90°-120°  | 1317.2 | 15.1      |
| 90°-150°  | 4474.7 | 51.2      |
| 90°-180°  | 6189.0 | 70.8      |
| 0°-180°   | 8745.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1240 | 1240  | 1240 | 1240  | 1240 |      |
| 5°   | 1240 | 1234  | 1220 | 1230  | 1226 | 118  |
| 15°  | 1179 | 1167  | 1129 | 1108  | 1096 | 332  |
| 25°  | 1070 | 1034  | 960  | 914   | 898  | 492  |
| 35°  | 922  | 865   | 766  | 696   | 671  | 577  |
| 45°  | 754  | 679   | 561  | 481   | 454  | 582  |
| 55°  | 573  | 486   | 365  | 297   | 276  | 512  |
| 65°  | 387  | 296   | 195  | 157   | 154  | 384  |
| 75°  | 206  | 128   | 90   | 82    | 81   | 218  |
| 85°  | 48   | 25    | 21   | 21    | 21   | 55   |
| 90°  | 2    | 24    | 65   | 61    | 63   | 9    |
| 95°  | 97   | 116   | 120  | 120   | 116  | 108  |
| 105° | 402  | 407   | 411  | 414   | 414  | 424  |
| 115° | 748  | 758   | 755  | 753   | 748  | 739  |
| 125° | 1087 | 1104  | 1099 | 1093  | 1091 | 972  |
| 135° | 1406 | 1427  | 1431 | 1429  | 1424 | 1087 |
| 145° | 1707 | 1721  | 1731 | 1733  | 1726 | 1067 |
| 155° | 1952 | 1958  | 1964 | 1973  | 1967 | 899  |
| 165° | 2124 | 2122  | 2122 | 2135  | 2126 | 599  |
| 175° | 2210 | 2204  | 2200 | 2214  | 2202 | 210  |
| 180° | 2214 | 2214  | 2214 | 2214  | 2214 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1239.9 | 1239.9 | 1239.9 | 1239.9 | 1239.9 |
| 2.5°   | 1245.5 | 1239.9 | 1227.5 | 1238.8 | 1236.6 |
| 5°     | 1239.9 | 1234.3 | 1219.7 | 1229.8 | 1226.4 |
| 7.5°   | 1229.8 | 1223.1 | 1207.4 | 1211.8 | 1206.2 |
| 10°    | 1216.3 | 1208.5 | 1186.1 | 1182.6 | 1176.0 |
| 12.5°  | 1199.5 | 1189.4 | 1159.1 | 1152.4 | 1140.0 |
| 15°    | 1179.3 | 1166.9 | 1128.8 | 1107.5 | 1096.3 |
| 17.5°  | 1155.7 | 1137.8 | 1090.6 | 1066.0 | 1048.0 |
| 20°    | 1128.8 | 1106.3 | 1050.2 | 1022.3 | 997.5  |
| 22.5°  | 1099.7 | 1073.8 | 1008.7 | 970.6  | 953.8  |
| 25°    | 1070.5 | 1034.5 | 960.5  | 914.5  | 897.6  |
| 27.5°  | 1035.7 | 997.5  | 915.6  | 862.9  | 837.0  |
| 30°    | 998.7  | 956.0  | 866.2  | 809.1  | 778.7  |
| 32.5°  | 962.7  | 911.1  | 819.2  | 751.8  | 723.7  |
| 35°    | 922.4  | 865.1  | 766.4  | 695.7  | 671.0  |
| 37.5°  | 883.1  | 821.3  | 717.0  | 639.5  | 611.6  |
| 40°    | 841.6  | 774.3  | 665.4  | 585.7  | 556.6  |
| 42.5°  | 798.9  | 727.2  | 613.8  | 530.7  | 502.7  |
| 45°    | 754.1  | 678.8  | 561.1  | 481.3  | 454.4  |
| 47.5°  | 711.4  | 631.8  | 510.6  | 430.8  | 406.2  |
| 50°    | 664.3  | 584.6  | 461.2  | 383.7  | 360.2  |
| 52.5°  | 618.2  | 534.1  | 414.1  | 340.0  | 318.7  |
| 55°    | 573.3  | 485.8  | 364.6  | 297.4  | 276.1  |
| 57.5°  | 527.4  | 437.6  | 321.0  | 258.1  | 240.1  |
| 60°    | 480.2  | 390.5  | 274.9  | 217.7  | 199.8  |
| 62.5°  | 434.3  | 344.5  | 235.6  | 181.8  | 172.9  |
| 65°    | 387.1  | 296.2  | 195.2  | 157.1  | 153.7  |
| 67.5°  | 342.3  | 251.3  | 157.1  | 138.0  | 134.6  |
| 70°    | 295.1  | 207.6  | 130.1  | 118.9  | 114.4  |
| 72.5°  | 250.2  | 167.1  | 108.8  | 99.9   | 97.6   |
| 75°    | 206.4  | 127.9  | 89.8   | 81.9   | 80.8   |
| 77.5°  | 162.7  | 90.8   | 70.7   | 66.2   | 63.9   |
| 80°    | 122.3  | 65.1   | 53.8   | 49.4   | 49.4   |
| 82.5°  | 85.2   | 43.8   | 37.0   | 34.8   | 34.8   |
| 85°    | 48.2   | 24.6   | 21.3   | 21.3   | 21.3   |
| 87.5°  | 18.0   | 8.9    | 8.9    | 7.9    | 7.9    |
| 90°    | 2.0    | 24.0   | 65.4   | 61.4   | 63.4   |
| 92.5°  | 41.4   | 56.1   | 58.1   | 60.1   | 60.1   |
| 95°    | 97.4   | 116.1  | 119.5  | 119.5  | 116.1  |
| 97.5°  | 162.2  | 179.5  | 186.9  | 186.9  | 186.9  |
| 100°   | 236.9  | 252.3  | 257.6  | 257.6  | 255.6  |
| 102.5° | 315.7  | 327.0  | 334.4  | 336.4  | 334.4  |
| 105°   | 401.8  | 407.1  | 411.1  | 414.5  | 414.5  |
| 107.5° | 487.2  | 495.2  | 495.2  | 496.6  | 487.2  |
| 110°   | 570.0  | 580.7  | 580.7  | 580.7  | 575.3  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 659.4  | 670.8  | 668.8  | 663.4  | 659.4  |
| 115°   | 747.5  | 758.2  | 754.9  | 752.9  | 747.5  |
| 117.5° | 834.9  | 849.6  | 840.3  | 834.9  | 829.6  |
| 120°   | 923.0  | 937.7  | 923.0  | 923.0  | 917.0  |
| 122.5° | 1003.1 | 1021.8 | 1012.5 | 1007.1 | 1003.1 |
| 125°   | 1087.2 | 1103.9 | 1098.6 | 1092.6 | 1090.6 |
| 127.5° | 1169.3 | 1190.0 | 1182.7 | 1174.7 | 1169.3 |
| 130°   | 1246.1 | 1270.1 | 1266.8 | 1262.8 | 1255.4 |
| 132.5° | 1332.2 | 1350.9 | 1352.2 | 1342.9 | 1337.5 |
| 135°   | 1406.3 | 1426.9 | 1431.0 | 1428.9 | 1423.6 |
| 137.5° | 1489.0 | 1505.7 | 1509.0 | 1507.7 | 1499.7 |
| 140°   | 1561.8 | 1578.5 | 1587.8 | 1587.8 | 1580.5 |
| 142.5° | 1636.5 | 1653.2 | 1658.5 | 1660.5 | 1653.2 |
| 145°   | 1707.3 | 1720.6 | 1731.3 | 1733.3 | 1726.0 |
| 147.5° | 1770.7 | 1787.4 | 1795.4 | 1798.7 | 1791.4 |
| 150°   | 1836.1 | 1847.4 | 1854.8 | 1860.8 | 1854.8 |
| 152.5° | 1894.1 | 1905.5 | 1914.8 | 1922.2 | 1914.8 |
| 155°   | 1952.2 | 1957.5 | 1963.6 | 1972.9 | 1966.9 |
| 157.5° | 2002.3 | 2006.3 | 2009.6 | 2023.0 | 2013.6 |
| 160°   | 2047.0 | 2051.0 | 2053.0 | 2064.3 | 2056.3 |
| 162.5° | 2088.4 | 2088.4 | 2090.4 | 2103.0 | 2093.7 |
| 165°   | 2123.7 | 2121.7 | 2121.7 | 2135.1 | 2125.7 |
| 167.5° | 2155.8 | 2149.8 | 2149.8 | 2163.1 | 2153.8 |
| 170°   | 2179.8 | 2174.5 | 2172.5 | 2185.8 | 2174.5 |
| 172.5° | 2196.5 | 2191.1 | 2189.1 | 2202.5 | 2191.1 |
| 175°   | 2209.8 | 2204.5 | 2200.5 | 2213.8 | 2202.5 |
| 177.5° | 2217.2 | 2211.8 | 2207.8 | 2219.2 | 2207.8 |
| 180°   | 2213.8 | 2213.8 | 2213.8 | 2213.8 | 2213.8 |

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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 | 6.26             | 6.95 | 7.39  | 8.06  | 9.60  | 2.24           | 2.93 | 3.36 | 4.04 | 5.58 |
|                 | 3H   | 7.92             | 8.53 | 9.05  | 9.65  | 11.21 | 3.41           | 4.03 | 4.54 | 5.15 | 6.70 |
|                 | 4H   | 8.52             | 9.10 | 9.66  | 10.22 | 11.78 | 3.85           | 4.43 | 4.99 | 5.56 | 7.12 |
|                 | 6H   | 8.92             | 9.46 | 10.07 | 10.58 | 12.16 | 4.16           | 4.70 | 5.31 | 5.82 | 7.39 |
|                 | 8H   | 9.04             | 9.55 | 10.19 | 10.69 | 12.26 | 4.25           | 4.75 | 5.40 | 5.89 | 7.46 |
|                 | 12H  | 9.09             | 9.58 | 10.25 | 10.71 | 12.30 | 4.28           | 4.76 | 5.44 | 5.90 | 7.49 |
| 4H              | 2H   | 6.26             | 6.84 | 7.41  | 7.97  | 9.53  | 2.81           | 3.39 | 3.96 | 4.52 | 6.08 |
|                 | 3H   | 8.07             | 8.55 | 9.22  | 9.70  | 11.27 | 4.14           | 4.63 | 5.30 | 5.77 | 7.35 |
|                 | 4H   | 8.75             | 9.19 | 9.90  | 10.33 | 11.92 | 4.68           | 5.13 | 5.84 | 6.26 | 7.86 |
|                 | 6H   | 9.25             | 9.63 | 10.41 | 10.79 | 12.37 | 5.09           | 5.47 | 6.25 | 6.63 | 8.21 |
|                 | 8H   | 9.41             | 9.77 | 10.57 | 10.92 | 12.52 | 5.21           | 5.56 | 6.37 | 6.71 | 8.32 |
|                 | 12H  | 9.50             | 9.82 | 10.67 | 10.98 | 12.59 | 5.26           | 5.59 | 6.44 | 6.75 | 8.35 |
| 8H              | 4H   | 8.70             | 9.06 | 9.86  | 10.21 | 11.81 | 4.94           | 5.30 | 6.10 | 6.45 | 8.05 |
|                 | 6H   | 9.25             | 9.55 | 10.43 | 10.74 | 12.34 | 5.45           | 5.74 | 6.63 | 6.94 | 8.53 |
|                 | 8H   | 9.46             | 9.72 | 10.65 | 10.89 | 12.51 | 5.64           | 5.89 | 6.82 | 7.06 | 8.68 |
|                 | 12H  | 9.59             | 9.81 | 10.78 | 10.98 | 12.63 | 5.74           | 5.97 | 6.93 | 7.14 | 8.79 |
| 12H             | 4H   | 8.65             | 8.97 | 9.82  | 10.13 | 11.74 | 4.94           | 5.26 | 6.12 | 6.42 | 8.03 |
|                 | 6H   | 9.23             | 9.48 | 10.41 | 10.65 | 12.27 | 5.50           | 5.75 | 6.68 | 6.92 | 8.54 |
|                 | 8H   | 9.44             | 9.66 | 10.62 | 10.83 | 12.48 | 5.69           | 5.92 | 6.88 | 7.09 | 8.74 |

END OF REPORT