

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: P920750

Luminaire Tested: DFN2DIP-TR3F0-030D080US935-RLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P920750  
REPORT IS A COMBINATION OF REPORTS P900342 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-030D080US935-RLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

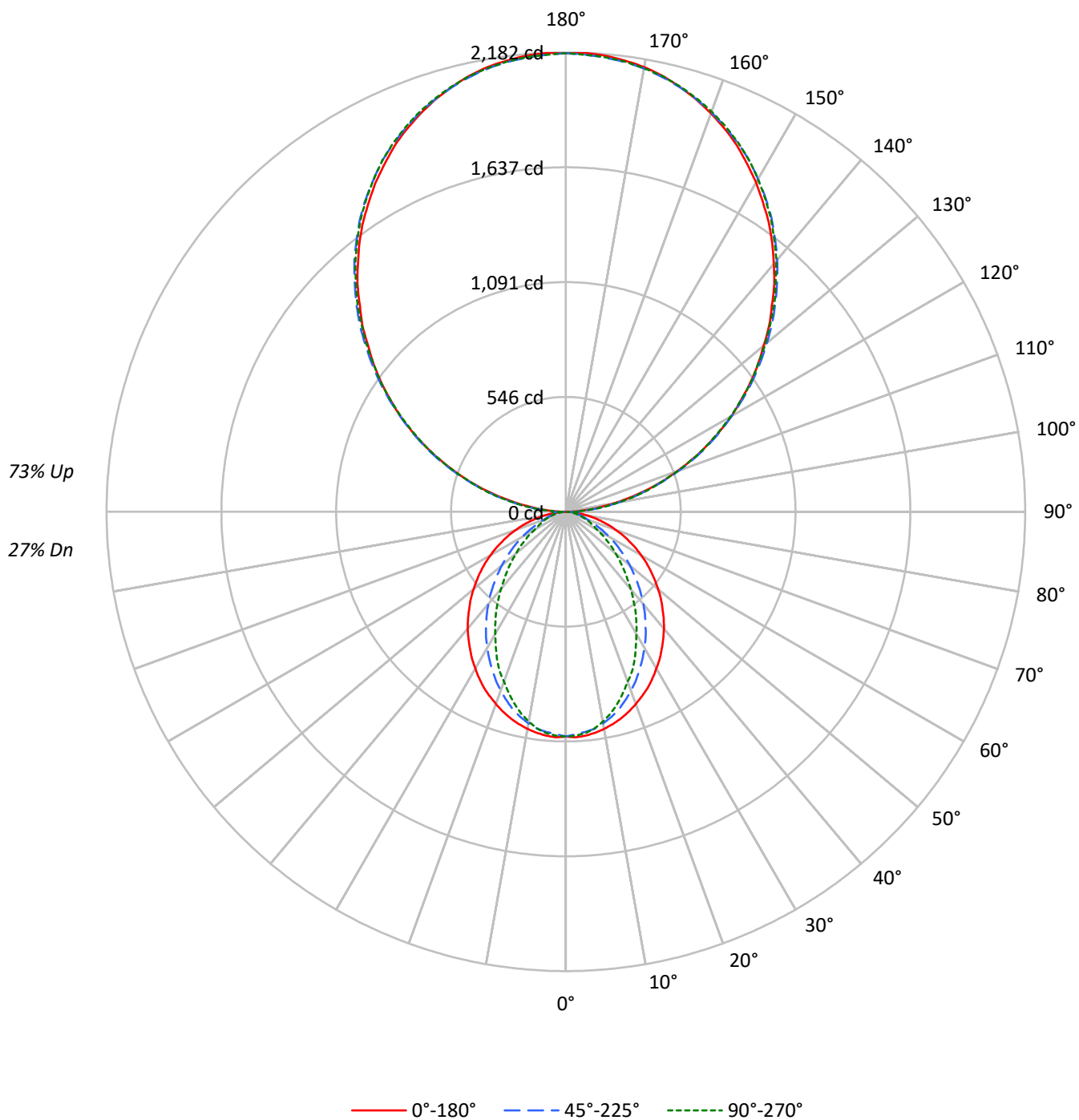
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8291.4 lumens  
Efficiency: N/A  
Efficacy: 97.4 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): 85.1  
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



TEST NUMBER: P920750

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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 | 91 | 91 | 91 | 91 | 70 | 70 | 70 | 52 | 52 | 52 | 35 | 35 | 35 |
| 1   | 93  | 89  | 85  | 82  | 83 | 79 | 76 | 74 | 62 | 60 | 58 | 46 | 44 | 43 | 31 | 30 | 30 |
| 2   | 85  | 78  | 72  | 67  | 75 | 70 | 65 | 61 | 54 | 51 | 48 | 40 | 38 | 37 | 27 | 26 | 25 |
| 3   | 77  | 68  | 62  | 56  | 69 | 61 | 56 | 51 | 48 | 44 | 41 | 36 | 33 | 31 | 25 | 23 | 22 |
| 4   | 71  | 61  | 53  | 48  | 63 | 54 | 48 | 43 | 43 | 38 | 35 | 32 | 29 | 27 | 22 | 20 | 19 |
| 5   | 65  | 54  | 46  | 41  | 58 | 49 | 42 | 37 | 38 | 34 | 30 | 29 | 26 | 23 | 20 | 18 | 17 |
| 6   | 60  | 48  | 41  | 35  | 53 | 44 | 37 | 32 | 35 | 30 | 26 | 26 | 23 | 20 | 18 | 16 | 15 |
| 7   | 55  | 44  | 36  | 31  | 49 | 39 | 33 | 28 | 31 | 27 | 23 | 24 | 21 | 18 | 17 | 15 | 13 |
| 8   | 51  | 39  | 32  | 27  | 46 | 36 | 29 | 25 | 28 | 24 | 20 | 22 | 18 | 16 | 15 | 13 | 12 |
| 9   | 48  | 36  | 29  | 24  | 42 | 33 | 26 | 22 | 26 | 21 | 18 | 20 | 17 | 14 | 14 | 12 | 11 |
| 10  | 44  | 33  | 26  | 21  | 40 | 30 | 24 | 20 | 24 | 19 | 16 | 18 | 15 | 13 | 13 | 11 | 10 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1330 | 1330 | 1330 |
| 5°  | 1332 | 1308 | 1317 |
| 10° | 1318 | 1281 | 1273 |
| 15° | 1299 | 1238 | 1206 |
| 20° | 1274 | 1178 | 1124 |
| 25° | 1249 | 1112 | 1045 |
| 30° | 1215 | 1044 | 945  |
| 35° | 1182 | 971  | 857  |
| 40° | 1148 | 896  | 756  |
| 45° | 1109 | 812  | 665  |
| 50° | 1069 | 728  | 576  |
| 55° | 1026 | 638  | 491  |
| 60° | 977  | 544  | 403  |
| 65° | 920  | 449  | 362  |
| 70° | 852  | 360  | 326  |
| 75° | 765  | 315  | 295  |
| 80° | 641  | 261  | 253  |
| 85° | 436  | 169  | 185  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2127 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 100.1  | 1.2       |
| 10°-20°   | 274.7  | 3.3       |
| 20°-30°   | 385.6  | 4.7       |
| 30°-40°   | 420.3  | 5.1       |
| 40°-50°   | 386.3  | 4.7       |
| 50°-60°   | 303.4  | 3.7       |
| 60°-70°   | 197.5  | 2.4       |
| 70°-80°   | 101.7  | 1.2       |
| 80°-90°   | 32.1   | 0.4       |
| 90°-100°  | 134.8  | 1.6       |
| 100°-110° | 428.3  | 5.2       |
| 110°-120° | 733.0  | 8.8       |
| 120°-130° | 964.0  | 11.6      |
| 130°-140° | 1082.0 | 13.0      |
| 140°-150° | 1061.0 | 12.8      |
| 150°-160° | 890.1  | 10.7      |
| 160°-170° | 590.3  | 7.1       |
| 170°-180° | 206.3  | 2.5       |
| 0°-30°    | 760.3  | 9.2       |
| 0°-40°    | 1180.7 | 14.2      |
| 0°-60°    | 1870.4 | 22.6      |
| 0°-90°    | 2201.7 | 26.6      |
| 90°-120°  | 1296.1 | 15.6      |
| 90°-150°  | 4403.1 | 53.1      |
| 90°-180°  | 6090.0 | 73.4      |
| 0°-180°   | 8291.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1068 | 1068  | 1068 | 1068  | 1068 |      |
| 5°   | 1068 | 1063  | 1050 | 1059  | 1056 | 101  |
| 15°  | 1015 | 1005  | 972  | 954   | 944  | 286  |
| 25°  | 922  | 891   | 827  | 787   | 773  | 424  |
| 35°  | 794  | 745   | 660  | 599   | 578  | 497  |
| 45°  | 649  | 584   | 483  | 414   | 391  | 501  |
| 55°  | 494  | 418   | 314  | 256   | 238  | 441  |
| 65°  | 333  | 255   | 168  | 135   | 132  | 330  |
| 75°  | 178  | 110   | 77   | 70    | 70   | 188  |
| 85°  | 42   | 21    | 18   | 18    | 18   | 48   |
| 90°  | 2    | 24    | 64   | 60    | 62   | 8    |
| 95°  | 96   | 114   | 118  | 118   | 114  | 107  |
| 105° | 395  | 401   | 405  | 408   | 408  | 417  |
| 115° | 736  | 746   | 743  | 741   | 736  | 728  |
| 125° | 1070 | 1086  | 1081 | 1075  | 1073 | 956  |
| 135° | 1384 | 1404  | 1408 | 1406  | 1401 | 1070 |
| 145° | 1680 | 1693  | 1704 | 1706  | 1698 | 1050 |
| 155° | 1921 | 1926  | 1932 | 1941  | 1935 | 884  |
| 165° | 2090 | 2088  | 2088 | 2101  | 2092 | 590  |
| 175° | 2174 | 2169  | 2165 | 2178  | 2167 | 207  |
| 180° | 2178 | 2178  | 2178 | 2178  | 2178 |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 |
| 2.5°   | 1072.4 | 1067.6 | 1056.9 | 1066.6 | 1064.7 |
| 5°     | 1067.6 | 1062.7 | 1050.2 | 1058.9 | 1055.9 |
| 7.5°   | 1058.9 | 1053.1 | 1039.6 | 1043.4 | 1038.5 |
| 10°    | 1047.2 | 1040.5 | 1021.2 | 1018.2 | 1012.5 |
| 12.5°  | 1032.8 | 1024.1 | 998.0  | 992.2  | 981.5  |
| 15°    | 1015.4 | 1004.7 | 971.9  | 953.6  | 943.9  |
| 17.5°  | 995.1  | 979.6  | 939.0  | 917.8  | 902.3  |
| 20°    | 971.9  | 952.5  | 904.2  | 880.2  | 858.8  |
| 22.5°  | 946.8  | 924.5  | 868.5  | 835.7  | 821.2  |
| 25°    | 921.7  | 890.7  | 827.0  | 787.4  | 772.8  |
| 27.5°  | 891.7  | 858.8  | 788.3  | 743.0  | 720.7  |
| 30°    | 859.9  | 823.1  | 745.8  | 696.6  | 670.5  |
| 32.5°  | 828.9  | 784.5  | 705.3  | 647.3  | 623.1  |
| 35°    | 794.2  | 744.8  | 659.9  | 599.0  | 577.7  |
| 37.5°  | 760.3  | 707.1  | 617.3  | 550.6  | 526.6  |
| 40°    | 724.6  | 666.7  | 572.9  | 504.3  | 479.2  |
| 42.5°  | 687.9  | 626.1  | 528.5  | 456.9  | 432.8  |
| 45°    | 649.3  | 584.4  | 483.1  | 414.4  | 391.2  |
| 47.5°  | 612.5  | 544.0  | 439.6  | 370.9  | 349.7  |
| 50°    | 572.0  | 503.3  | 397.1  | 330.4  | 310.1  |
| 52.5°  | 532.3  | 459.9  | 356.5  | 292.7  | 274.4  |
| 55°    | 493.6  | 418.3  | 313.9  | 256.1  | 237.7  |
| 57.5°  | 454.1  | 376.8  | 276.4  | 222.2  | 206.7  |
| 60°    | 413.5  | 336.2  | 236.7  | 187.4  | 172.0  |
| 62.5°  | 373.9  | 296.6  | 202.9  | 156.5  | 148.9  |
| 65°    | 333.3  | 255.0  | 168.1  | 135.3  | 132.3  |
| 67.5°  | 294.7  | 216.4  | 135.3  | 118.8  | 115.9  |
| 70°    | 254.1  | 178.7  | 112.0  | 102.4  | 98.5   |
| 72.5°  | 215.4  | 143.9  | 93.7   | 86.0   | 84.0   |
| 75°    | 177.7  | 110.1  | 77.3   | 70.5   | 69.6   |
| 77.5°  | 140.1  | 78.2   | 60.9   | 57.0   | 55.0   |
| 80°    | 105.3  | 56.1   | 46.3   | 42.5   | 42.5   |
| 82.5°  | 73.4   | 37.7   | 31.9   | 30.0   | 30.0   |
| 85°    | 41.5   | 21.2   | 18.3   | 18.3   | 18.3   |
| 87.5°  | 15.5   | 7.7    | 7.7    | 6.8    | 6.8    |
| 90°    | 2.0    | 23.7   | 64.4   | 60.4   | 62.4   |
| 92.5°  | 40.7   | 55.2   | 57.2   | 59.1   | 59.1   |
| 95°    | 95.9   | 114.3  | 117.5  | 117.5  | 114.3  |
| 97.5°  | 159.6  | 176.7  | 183.9  | 183.9  | 183.9  |
| 100°   | 233.2  | 248.2  | 253.5  | 253.5  | 251.5  |
| 102.5° | 310.6  | 321.8  | 329.0  | 331.0  | 329.0  |
| 105°   | 395.4  | 400.6  | 404.6  | 407.9  | 407.9  |
| 107.5° | 479.4  | 487.3  | 487.3  | 488.6  | 479.4  |
| 110°   | 560.9  | 571.4  | 571.4  | 571.4  | 566.1  |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 648.8  | 660.0  | 658.1  | 652.8  | 648.8  |
| 115°   | 735.6  | 746.1  | 742.8  | 740.8  | 735.6  |
| 117.5° | 821.6  | 836.0  | 826.8  | 821.6  | 816.3  |
| 120°   | 908.3  | 922.7  | 908.3  | 908.3  | 902.3  |
| 122.5° | 987.0  | 1005.5 | 996.3  | 991.0  | 987.0  |
| 125°   | 1069.8 | 1086.2 | 1081.0 | 1075.0 | 1073.1 |
| 127.5° | 1150.6 | 1171.0 | 1163.7 | 1155.9 | 1150.6 |
| 130°   | 1226.1 | 1249.7 | 1246.5 | 1242.6 | 1235.4 |
| 132.5° | 1310.9 | 1329.2 | 1330.6 | 1321.4 | 1316.1 |
| 135°   | 1383.7 | 1404.1 | 1408.1 | 1406.1 | 1400.8 |
| 137.5° | 1465.2 | 1481.6 | 1484.9 | 1483.6 | 1475.7 |
| 140°   | 1536.8 | 1553.2 | 1562.4 | 1562.4 | 1555.1 |
| 142.5° | 1610.3 | 1626.8 | 1632.0 | 1634.0 | 1626.8 |
| 145°   | 1680.0 | 1693.1 | 1703.6 | 1705.6 | 1698.3 |
| 147.5° | 1742.3 | 1758.8 | 1766.6 | 1770.0 | 1762.7 |
| 150°   | 1806.7 | 1817.8 | 1825.1 | 1831.0 | 1825.1 |
| 152.5° | 1863.8 | 1875.0 | 1884.2 | 1891.4 | 1884.2 |
| 155°   | 1921.0 | 1926.2 | 1932.2 | 1941.3 | 1935.4 |
| 157.5° | 1970.2 | 1974.2 | 1977.5 | 1990.5 | 1981.4 |
| 160°   | 2014.2 | 2018.2 | 2020.2 | 2031.3 | 2023.4 |
| 162.5° | 2054.9 | 2054.9 | 2056.9 | 2069.4 | 2060.2 |
| 165°   | 2089.7 | 2087.7 | 2087.7 | 2100.9 | 2091.7 |
| 167.5° | 2121.2 | 2115.4 | 2115.4 | 2128.5 | 2119.3 |
| 170°   | 2144.9 | 2139.7 | 2137.7 | 2150.9 | 2139.7 |
| 172.5° | 2161.4 | 2156.1 | 2154.1 | 2167.2 | 2156.1 |
| 175°   | 2174.5 | 2169.2 | 2165.2 | 2178.4 | 2167.2 |
| 177.5° | 2181.7 | 2176.4 | 2172.5 | 2183.7 | 2172.5 |
| 180°   | 2178.4 | 2178.4 | 2178.4 | 2178.4 | 2178.4 |

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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 | 5.35             | 6.02 | 6.49 | 7.15  | 8.72  | 1.33           | 2.00 | 2.47 | 3.13 | 4.70 |
|                 | 3H   | 7.01             | 7.61 | 8.16 | 8.74  | 10.33 | 2.50           | 3.10 | 3.65 | 4.23 | 5.82 |
|                 | 4H   | 7.60             | 8.17 | 8.76 | 9.31  | 10.90 | 2.94           | 3.51 | 4.10 | 4.64 | 6.24 |
|                 | 6H   | 8.01             | 8.53 | 9.17 | 9.67  | 11.27 | 3.25           | 3.77 | 4.41 | 4.91 | 6.51 |
|                 | 8H   | 8.13             | 8.62 | 9.29 | 9.78  | 11.37 | 3.33           | 3.83 | 4.50 | 4.98 | 6.58 |
|                 | 12H  | 8.18             | 8.65 | 9.35 | 9.80  | 11.42 | 3.37           | 3.84 | 4.54 | 4.98 | 6.60 |
| 4H              | 2H   | 5.35             | 5.92 | 6.51 | 7.05  | 8.65  | 1.90           | 2.47 | 3.06 | 3.60 | 5.20 |
|                 | 3H   | 7.15             | 7.63 | 8.32 | 8.79  | 10.39 | 3.23           | 3.70 | 4.40 | 4.86 | 6.47 |
|                 | 4H   | 7.83             | 8.27 | 9.00 | 9.42  | 11.04 | 3.77           | 4.20 | 4.94 | 5.35 | 6.97 |
|                 | 6H   | 8.33             | 8.70 | 9.51 | 9.87  | 11.49 | 4.17           | 4.54 | 5.34 | 5.71 | 7.33 |
|                 | 8H   | 8.50             | 8.84 | 9.67 | 10.01 | 11.64 | 4.29           | 4.64 | 5.47 | 5.80 | 7.43 |
|                 | 12H  | 8.58             | 8.89 | 9.77 | 10.07 | 11.70 | 4.35           | 4.66 | 5.54 | 5.84 | 7.47 |
| 8H              | 4H   | 7.79             | 8.13 | 8.96 | 9.30  | 10.93 | 4.03           | 4.38 | 5.20 | 5.54 | 7.17 |
|                 | 6H   | 8.34             | 8.62 | 9.53 | 9.83  | 11.46 | 4.53           | 4.82 | 5.73 | 6.02 | 7.65 |
|                 | 8H   | 8.55             | 8.80 | 9.75 | 9.98  | 11.63 | 4.72           | 4.97 | 5.92 | 6.15 | 7.80 |
|                 | 12H  | 8.67             | 8.89 | 9.87 | 10.07 | 11.75 | 4.83           | 5.04 | 6.03 | 6.23 | 7.91 |
| 12H             | 4H   | 7.73             | 8.05 | 8.92 | 9.22  | 10.86 | 4.02           | 4.34 | 5.21 | 5.51 | 7.15 |
|                 | 6H   | 8.31             | 8.56 | 9.51 | 9.74  | 11.39 | 4.58           | 4.83 | 5.78 | 6.01 | 7.66 |
|                 | 8H   | 8.52             | 8.74 | 9.72 | 9.92  | 11.60 | 4.78           | 5.00 | 5.98 | 6.18 | 7.86 |

END OF REPORT