

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: P915191

Luminaire Tested: DFN2DIP-TR2F0-020D060US927-RLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P915191  
REPORT IS A COMBINATION OF REPORTS P901782 AND P897145  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR2F0-020D060US927-RLLONL  
Description: 2 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

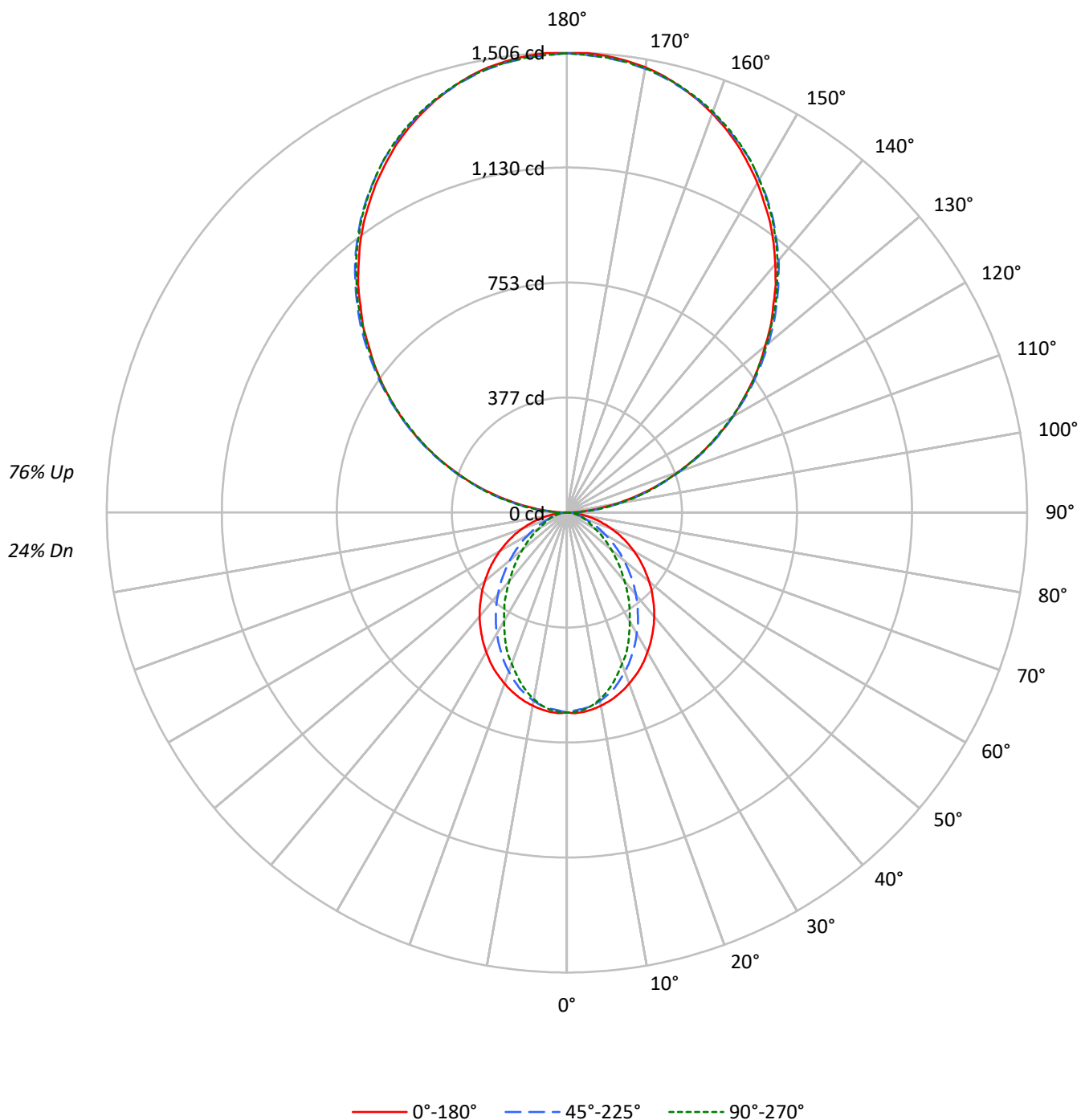
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5553.2 lumens  
Efficiency: N/A  
Efficacy: 87.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 63.6  
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   | 101 | 101 | 101 | 101 |  | 90 | 90 | 90 | 90 |  | 69 | 69 | 69 |  | 50 | 50 | 50 |  | 33 | 33 | 33 |
| 1   | 92  | 88  | 85  | 81  |  | 82 | 79 | 76 | 73 |  | 61 | 59 | 57 |  | 44 | 43 | 42 |  | 29 | 28 | 28 |
| 2   | 84  | 77  | 71  | 67  |  | 75 | 69 | 64 | 60 |  | 53 | 50 | 47 |  | 39 | 37 | 35 |  | 26 | 25 | 24 |
| 3   | 77  | 68  | 61  | 56  |  | 68 | 61 | 55 | 50 |  | 47 | 43 | 40 |  | 35 | 32 | 30 |  | 23 | 22 | 20 |
| 4   | 70  | 60  | 53  | 47  |  | 62 | 54 | 48 | 43 |  | 42 | 38 | 34 |  | 31 | 28 | 26 |  | 21 | 19 | 18 |
| 5   | 64  | 54  | 46  | 40  |  | 57 | 48 | 42 | 37 |  | 38 | 33 | 29 |  | 28 | 25 | 22 |  | 19 | 17 | 16 |
| 6   | 59  | 48  | 40  | 35  |  | 53 | 43 | 37 | 32 |  | 34 | 29 | 26 |  | 25 | 22 | 20 |  | 17 | 15 | 14 |
| 7   | 55  | 43  | 36  | 30  |  | 49 | 39 | 32 | 28 |  | 31 | 26 | 23 |  | 23 | 20 | 17 |  | 16 | 14 | 12 |
| 8   | 51  | 39  | 32  | 27  |  | 45 | 35 | 29 | 24 |  | 28 | 23 | 20 |  | 21 | 18 | 16 |  | 14 | 12 | 11 |
| 9   | 47  | 36  | 29  | 24  |  | 42 | 32 | 26 | 22 |  | 25 | 21 | 18 |  | 19 | 16 | 14 |  | 13 | 11 | 10 |
| 10  | 44  | 33  | 26  | 21  |  | 39 | 29 | 23 | 19 |  | 23 | 19 | 16 |  | 18 | 15 | 13 |  | 12 | 10 | 9  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1460 | 1460 | 1460 |
| 5°  | 1461 | 1434 | 1444 |
| 10° | 1444 | 1403 | 1395 |
| 15° | 1422 | 1353 | 1320 |
| 20° | 1393 | 1286 | 1229 |
| 25° | 1365 | 1212 | 1141 |
| 30° | 1326 | 1136 | 1030 |
| 35° | 1288 | 1055 | 933  |
| 40° | 1250 | 971  | 822  |
| 45° | 1205 | 878  | 722  |
| 50° | 1159 | 785  | 624  |
| 55° | 1110 | 686  | 530  |
| 60° | 1054 | 583  | 434  |
| 65° | 989  | 478  | 388  |
| 70° | 910  | 381  | 347  |
| 75° | 811  | 329  | 311  |
| 80° | 669  | 267  | 262  |
| 85° | 438  | 165  | 184  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1961 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 61.4   | 1.1       |
| 10°-20°   | 168.5  | 3.0       |
| 20°-30°   | 236.5  | 4.3       |
| 30°-40°   | 257.8  | 4.6       |
| 40°-50°   | 237.0  | 4.3       |
| 50°-60°   | 186.1  | 3.4       |
| 60°-70°   | 121.2  | 2.2       |
| 70°-80°   | 62.3   | 1.1       |
| 80°-90°   | 20.2   | 0.4       |
| 90°-100°  | 93.0   | 1.7       |
| 100°-110° | 295.6  | 5.3       |
| 110°-120° | 505.8  | 9.1       |
| 120°-130° | 665.2  | 12.0      |
| 130°-140° | 746.6  | 13.4      |
| 140°-150° | 732.2  | 13.2      |
| 150°-160° | 614.2  | 11.1      |
| 160°-170° | 407.3  | 7.3       |
| 170°-180° | 142.4  | 2.6       |
| 0°-30°    | 466.4  | 8.4       |
| 0°-40°    | 724.2  | 13.0      |
| 0°-60°    | 1147.3 | 20.7      |
| 0°-90°    | 1351.0 | 24.3      |
| 90°-120°  | 894.4  | 16.1      |
| 90°-150°  | 3038.4 | 54.7      |
| 90°-180°  | 4202.0 | 75.7      |
| 0°-180°   | 5553.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 655  | 655   | 655  | 655   | 655  |      |
| 5°   | 655  | 652   | 644  | 650   | 648  | 62   |
| 15°  | 623  | 616   | 596  | 585   | 579  | 176  |
| 25°  | 565  | 546   | 507  | 483   | 474  | 260  |
| 35°  | 487  | 457   | 405  | 367   | 354  | 305  |
| 45°  | 398  | 358   | 296  | 254   | 240  | 308  |
| 55°  | 303  | 257   | 193  | 157   | 146  | 271  |
| 65°  | 204  | 156   | 103  | 83    | 81   | 203  |
| 75°  | 109  | 68    | 47   | 43    | 43   | 115  |
| 85°  | 25   | 13    | 11   | 11    | 11   | 29   |
| 90°  | 1    | 16    | 44   | 42    | 43   | 6    |
| 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°     | 654.8 | 654.8 | 654.8 | 654.8 | 654.8 |
| 2.5°   | 657.7 | 654.8 | 648.2 | 654.3 | 653.1 |
| 5°     | 654.8 | 651.9 | 644.1 | 649.5 | 647.7 |
| 7.5°   | 649.5 | 645.9 | 637.6 | 640.0 | 637.0 |
| 10°    | 642.4 | 638.2 | 626.4 | 624.6 | 621.1 |
| 12.5°  | 633.5 | 628.1 | 612.1 | 608.6 | 602.1 |
| 15°    | 622.8 | 616.2 | 596.1 | 584.9 | 579.0 |
| 17.5°  | 610.4 | 600.9 | 576.0 | 562.9 | 553.5 |
| 20°    | 596.1 | 584.2 | 554.7 | 539.9 | 526.8 |
| 22.5°  | 580.7 | 567.1 | 532.7 | 512.6 | 503.7 |
| 25°    | 565.4 | 546.4 | 507.2 | 483.0 | 474.0 |
| 27.5°  | 547.0 | 526.8 | 483.5 | 455.7 | 442.0 |
| 30°    | 527.4 | 504.9 | 457.5 | 427.3 | 411.2 |
| 32.5°  | 508.4 | 481.2 | 432.6 | 397.0 | 382.2 |
| 35°    | 487.1 | 456.9 | 404.8 | 367.4 | 354.3 |
| 37.5°  | 466.4 | 433.7 | 378.7 | 337.8 | 323.0 |
| 40°    | 444.4 | 408.9 | 351.4 | 309.3 | 293.9 |
| 42.5°  | 421.9 | 384.0 | 324.2 | 280.3 | 265.5 |
| 45°    | 398.2 | 358.5 | 296.4 | 254.2 | 240.0 |
| 47.5°  | 375.7 | 333.7 | 269.7 | 227.5 | 214.5 |
| 50°    | 350.9 | 308.8 | 243.6 | 202.6 | 190.3 |
| 52.5°  | 326.5 | 282.0 | 218.6 | 179.6 | 168.3 |
| 55°    | 302.8 | 256.6 | 192.6 | 157.1 | 145.8 |
| 57.5°  | 278.5 | 231.1 | 169.5 | 136.3 | 126.8 |
| 60°    | 253.7 | 206.2 | 145.2 | 115.0 | 105.5 |
| 62.5°  | 229.3 | 182.0 | 124.5 | 96.0  | 91.3  |
| 65°    | 204.5 | 156.5 | 103.1 | 83.0  | 81.2  |
| 67.5°  | 180.8 | 132.7 | 83.0  | 72.9  | 71.1  |
| 70°    | 155.8 | 109.6 | 68.7  | 62.8  | 60.4  |
| 72.5°  | 132.1 | 88.2  | 57.4  | 52.8  | 51.6  |
| 75°    | 109.0 | 67.5  | 47.4  | 43.3  | 42.7  |
| 77.5°  | 86.0  | 48.0  | 37.3  | 34.9  | 33.7  |
| 80°    | 64.6  | 34.4  | 28.4  | 26.1  | 26.1  |
| 82.5°  | 45.0  | 23.1  | 19.6  | 18.4  | 18.4  |
| 85°    | 25.4  | 13.0  | 11.2  | 11.2  | 11.2  |
| 87.5°  | 9.5   | 4.8   | 4.8   | 4.1   | 4.1   |
| 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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CATALOG NUMBER: DFN2DIP-TR2F0-020D060US927-RLONL

**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 | 5.25             | 5.91 | 6.40 | 7.05 | 8.64  | 1.23           | 1.89 | 2.39 | 3.03 | 4.62 |
|                 | 3H   | 6.89             | 7.48 | 8.05 | 8.62 | 10.24 | 2.39           | 2.98 | 3.55 | 4.13 | 5.74 |
|                 | 4H   | 7.47             | 8.03 | 8.64 | 9.18 | 10.80 | 2.82           | 3.38 | 3.99 | 4.53 | 6.15 |
|                 | 6H   | 7.87             | 8.38 | 9.05 | 9.53 | 11.16 | 3.12           | 3.63 | 4.30 | 4.78 | 6.41 |
|                 | 8H   | 7.98             | 8.47 | 9.16 | 9.63 | 11.25 | 3.20           | 3.69 | 4.38 | 4.85 | 6.47 |
|                 | 12H  | 8.02             | 8.49 | 9.21 | 9.65 | 11.29 | 3.23           | 3.69 | 4.41 | 4.85 | 6.49 |
| 4H              | 2H   | 5.24             | 5.80 | 6.42 | 6.95 | 8.56  | 1.79           | 2.35 | 2.97 | 3.50 | 5.11 |
|                 | 3H   | 7.03             | 7.49 | 8.21 | 8.67 | 10.29 | 3.11           | 3.57 | 4.29 | 4.74 | 6.37 |
|                 | 4H   | 7.69             | 8.12 | 8.88 | 9.28 | 10.93 | 3.64           | 4.06 | 4.82 | 5.22 | 6.87 |
|                 | 6H   | 8.18             | 8.54 | 9.37 | 9.73 | 11.36 | 4.03           | 4.39 | 5.22 | 5.58 | 7.21 |
|                 | 8H   | 8.34             | 8.68 | 9.52 | 9.85 | 11.51 | 4.14           | 4.49 | 5.33 | 5.66 | 7.31 |
|                 | 12H  | 8.41             | 8.72 | 9.61 | 9.91 | 11.56 | 4.19           | 4.50 | 5.39 | 5.69 | 7.35 |
| 8H              | 4H   | 7.65             | 7.99 | 8.83 | 9.16 | 10.82 | 3.89           | 4.23 | 5.08 | 5.40 | 7.06 |
|                 | 6H   | 8.18             | 8.46 | 9.39 | 9.68 | 11.33 | 4.38           | 4.66 | 5.58 | 5.88 | 7.53 |
|                 | 8H   | 8.38             | 8.63 | 9.59 | 9.82 | 11.49 | 4.56           | 4.80 | 5.77 | 6.00 | 7.67 |
|                 | 12H  | 8.49             | 8.71 | 9.71 | 9.90 | 11.60 | 4.65           | 4.87 | 5.87 | 6.06 | 7.76 |
| 12H             | 4H   | 7.59             | 7.90 | 8.79 | 9.08 | 10.74 | 3.88           | 4.19 | 5.08 | 5.38 | 7.04 |
|                 | 6H   | 8.15             | 8.40 | 9.36 | 9.59 | 11.26 | 4.42           | 4.67 | 5.63 | 5.86 | 7.53 |
|                 | 8H   | 8.35             | 8.56 | 9.56 | 9.76 | 11.46 | 4.61           | 4.82 | 5.82 | 6.02 | 7.72 |

END OF REPORT