

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: P906670

Luminaire Tested: DFN2DIP-SQ4F0-060D070US835-RLLFLL

Issue Date: 11/21/2024

**Test Information**

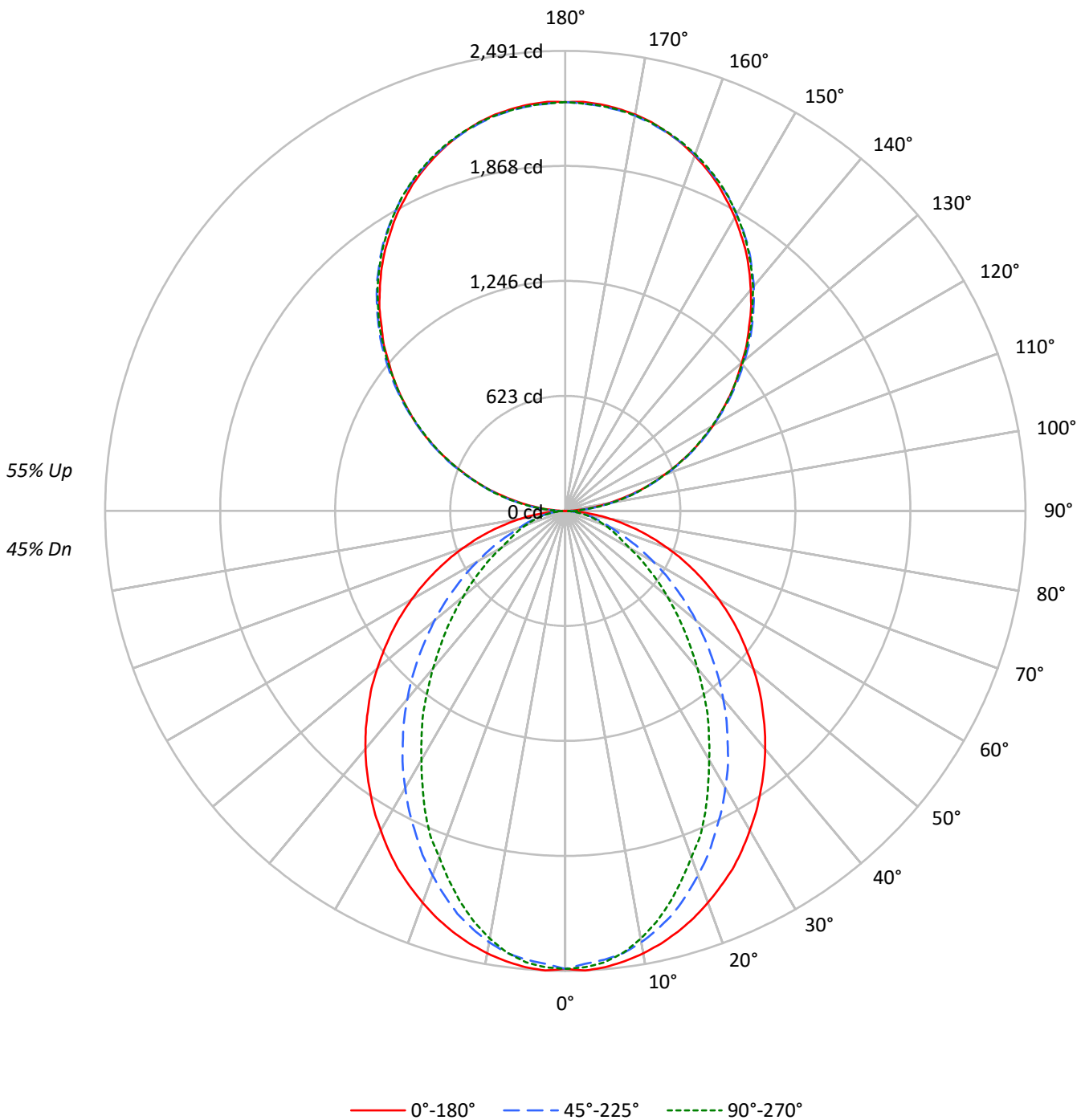
Test Method: LM-79-2019  
Report Number: P906670  
REPORT IS A COMBINATION OF REPORTS P900078 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-060D070US835-RLLFLL  
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11295.0 lumens  
Efficiency: N/A  
Efficacy: 110.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 102.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.946  
Total Harmonic Distortion (THDi): 0.132  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P906670  
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### Luminous Intensity Polar Plot





TEST NUMBER: P906670  
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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| RF  | 20  |     |     |     | 20 |    |    |    | 20 |    |    |    | 20 |    |    |    | 20 |    |    |    |    |
| RC  | 80  |     |     |     | 70 |    |    |    | 50 |    |    |    | 30 |    |    |    | 10 |    |    | 0  |    |
| RW  | 70  | 50  | 30  | 10  | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0  |
| RCR |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 0   | 106 | 106 | 106 | 106 | 97 | 97 | 97 | 97 | 81 | 81 | 81 | 66 | 66 | 66 | 52 | 52 | 52 | 45 | 45 | 45 | 45 |
| 1   | 97  | 93  | 89  | 86  | 89 | 85 | 82 | 79 | 71 | 69 | 67 | 58 | 57 | 55 | 46 | 45 | 44 | 39 | 39 | 39 | 39 |
| 2   | 89  | 82  | 76  | 71  | 81 | 75 | 70 | 66 | 63 | 59 | 56 | 52 | 49 | 47 | 41 | 40 | 38 | 33 | 33 | 33 | 33 |
| 3   | 81  | 72  | 65  | 60  | 74 | 67 | 60 | 56 | 56 | 51 | 48 | 46 | 43 | 40 | 37 | 35 | 33 | 29 | 29 | 29 | 29 |
| 4   | 75  | 64  | 57  | 51  | 68 | 59 | 53 | 47 | 50 | 45 | 41 | 41 | 38 | 35 | 33 | 31 | 29 | 25 | 25 | 25 | 25 |
| 5   | 69  | 57  | 50  | 44  | 63 | 53 | 46 | 41 | 45 | 40 | 36 | 37 | 33 | 30 | 30 | 28 | 25 | 22 | 22 | 22 | 22 |
| 6   | 63  | 52  | 44  | 38  | 58 | 48 | 41 | 36 | 41 | 35 | 31 | 34 | 30 | 27 | 28 | 25 | 23 | 20 | 20 | 20 | 20 |
| 7   | 59  | 47  | 39  | 34  | 54 | 43 | 36 | 32 | 37 | 32 | 28 | 31 | 27 | 24 | 25 | 22 | 20 | 18 | 18 | 18 | 18 |
| 8   | 54  | 42  | 35  | 30  | 50 | 39 | 33 | 28 | 34 | 28 | 25 | 28 | 24 | 21 | 23 | 20 | 18 | 16 | 16 | 16 | 16 |
| 9   | 51  | 39  | 32  | 27  | 47 | 36 | 30 | 25 | 31 | 26 | 22 | 26 | 22 | 19 | 22 | 19 | 17 | 14 | 14 | 14 | 14 |
| 10  | 47  | 36  | 29  | 24  | 44 | 33 | 27 | 23 | 29 | 24 | 20 | 24 | 20 | 18 | 20 | 17 | 15 | 13 | 13 | 13 | 13 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1740 | 1740 | 1740 |
| 5°  | 1743 | 1713 | 1724 |
| 10° | 1725 | 1680 | 1668 |
| 15° | 1702 | 1624 | 1582 |
| 20° | 1670 | 1548 | 1476 |
| 25° | 1638 | 1463 | 1374 |
| 30° | 1595 | 1375 | 1244 |
| 35° | 1552 | 1281 | 1129 |
| 40° | 1509 | 1183 | 998  |
| 45° | 1459 | 1075 | 879  |
| 50° | 1407 | 965  | 763  |
| 55° | 1353 | 848  | 652  |
| 60° | 1291 | 726  | 537  |
| 65° | 1219 | 602  | 484  |
| 70° | 1131 | 486  | 439  |
| 75° | 1022 | 429  | 400  |
| 80° | 863  | 361  | 349  |
| 85° | 601  | 243  | 265  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1742 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 232.4   | 2.1       |
| 10°-20°   | 638.0   | 5.6       |
| 20°-30°   | 895.7   | 7.9       |
| 30°-40°   | 976.4   | 8.6       |
| 40°-50°   | 897.4   | 7.9       |
| 50°-60°   | 704.8   | 6.2       |
| 60°-70°   | 458.8   | 4.1       |
| 70°-80°   | 236.1   | 2.1       |
| 80°-90°   | 66.6    | 0.6       |
| 90°-100°  | 137.0   | 1.2       |
| 100°-110° | 435.3   | 3.9       |
| 110°-120° | 744.9   | 6.6       |
| 120°-130° | 979.6   | 8.7       |
| 130°-140° | 1099.6  | 9.7       |
| 140°-150° | 1078.3  | 9.5       |
| 150°-160° | 904.5   | 8.0       |
| 160°-170° | 599.9   | 5.3       |
| 170°-180° | 209.7   | 1.9       |
| 0°-30°    | 1766.2  | 15.6      |
| 0°-40°    | 2742.6  | 24.3      |
| 0°-60°    | 4344.8  | 38.5      |
| 0°-90°    | 5106.3  | 45.2      |
| 90°-120°  | 1317.2  | 11.7      |
| 90°-150°  | 4474.7  | 39.6      |
| 90°-180°  | 6189.0  | 54.8      |
| 0°-180°   | 11295.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2480 | 2480  | 2480 | 2480  | 2480 |      |
| 5°   | 2480 | 2469  | 2439 | 2460  | 2453 | 235  |
| 15°  | 2359 | 2334  | 2258 | 2215  | 2193 | 665  |
| 25°  | 2141 | 2069  | 1921 | 1829  | 1795 | 985  |
| 35°  | 1845 | 1730  | 1533 | 1391  | 1342 | 1155 |
| 45°  | 1508 | 1358  | 1122 | 963   | 909  | 1165 |
| 55°  | 1147 | 972   | 729  | 595   | 552  | 1025 |
| 65°  | 774  | 592   | 390  | 314   | 307  | 768  |
| 75°  | 413  | 256   | 180  | 164   | 162  | 437  |
| 85°  | 96   | 49    | 43   | 43    | 43   | 111  |
| 90°  | 2    | 24    | 65   | 61    | 63   | 11   |
| 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 |      |



TEST NUMBER: P906670

CATALOG NUMBER: DFN2DIP-SQ4F0-060D070US835-RLFL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2479.8 | 2479.8 | 2479.8 | 2479.8 | 2479.8 |
| 2.5°   | 2491.0 | 2479.8 | 2455.0 | 2477.6 | 2473.1 |
| 5°     | 2479.8 | 2468.6 | 2439.3 | 2459.6 | 2452.9 |
| 7.5°   | 2459.6 | 2446.2 | 2414.8 | 2423.6 | 2412.4 |
| 10°    | 2432.6 | 2416.9 | 2372.2 | 2365.3 | 2351.9 |
| 12.5°  | 2399.1 | 2378.8 | 2318.1 | 2304.8 | 2280.0 |
| 15°    | 2358.6 | 2333.8 | 2257.6 | 2215.0 | 2192.6 |
| 17.5°  | 2311.5 | 2275.5 | 2181.2 | 2131.9 | 2096.0 |
| 20°    | 2257.6 | 2212.6 | 2100.5 | 2044.5 | 1995.0 |
| 22.5°  | 2199.3 | 2147.6 | 2017.4 | 1941.2 | 1907.6 |
| 25°    | 2141.0 | 2069.1 | 1921.0 | 1829.1 | 1795.3 |
| 27.5°  | 2071.5 | 1995.0 | 1831.2 | 1725.7 | 1674.1 |
| 30°    | 1997.4 | 1911.9 | 1732.4 | 1618.1 | 1557.4 |
| 32.5°  | 1925.5 | 1822.2 | 1638.4 | 1503.6 | 1447.4 |
| 35°    | 1844.8 | 1730.3 | 1532.9 | 1391.4 | 1341.9 |
| 37.5°  | 1766.2 | 1642.6 | 1434.1 | 1279.1 | 1223.1 |
| 40°    | 1683.1 | 1548.6 | 1330.7 | 1171.4 | 1113.1 |
| 42.5°  | 1597.9 | 1454.3 | 1227.6 | 1061.4 | 1005.5 |
| 45°    | 1508.1 | 1357.6 | 1122.2 | 962.6  | 908.8  |
| 47.5°  | 1422.9 | 1263.6 | 1021.2 | 861.7  | 812.4  |
| 50°    | 1328.6 | 1169.3 | 922.4  | 767.4  | 720.5  |
| 52.5°  | 1236.4 | 1068.1 | 828.1  | 680.0  | 637.4  |
| 55°    | 1146.7 | 971.7  | 729.3  | 594.8  | 552.1  |
| 57.5°  | 1054.8 | 875.2  | 641.9  | 516.2  | 480.2  |
| 60°    | 960.5  | 781.0  | 549.8  | 435.5  | 399.5  |
| 62.5°  | 868.6  | 689.1  | 471.2  | 363.6  | 345.7  |
| 65°    | 774.3  | 592.4  | 390.5  | 314.3  | 307.4  |
| 67.5°  | 684.5  | 502.6  | 314.3  | 276.0  | 269.3  |
| 70°    | 590.2  | 415.2  | 260.2  | 237.9  | 228.8  |
| 72.5°  | 500.5  | 334.3  | 217.6  | 199.8  | 195.2  |
| 75°    | 412.9  | 255.7  | 179.5  | 163.8  | 161.7  |
| 77.5°  | 325.5  | 181.7  | 141.4  | 132.4  | 127.9  |
| 80°    | 244.5  | 130.2  | 107.6  | 98.8   | 98.8   |
| 82.5°  | 170.5  | 87.6   | 74.0   | 69.5   | 69.5   |
| 85°    | 96.4   | 49.3   | 42.6   | 42.6   | 42.6   |
| 87.5°  | 36.0   | 17.9   | 17.9   | 15.7   | 15.7   |
| 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 |



TEST NUMBER: P906670  
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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 | 8.62             | 9.41  | 9.62  | 10.42 | 11.76 | 4.58           | 5.37 | 5.58 | 6.38 | 7.72  |
|                 | 3H   | 10.30            | 11.00 | 11.31 | 12.02 | 13.39 | 5.76           | 6.47 | 6.78 | 7.49 | 8.85  |
|                 | 4H   | 10.91            | 11.58 | 11.93 | 12.60 | 13.97 | 6.21           | 6.88 | 7.24 | 7.91 | 9.28  |
|                 | 6H   | 11.33            | 11.95 | 12.37 | 12.97 | 14.35 | 6.53           | 7.15 | 7.57 | 8.18 | 9.56  |
|                 | 8H   | 11.46            | 12.04 | 12.50 | 13.09 | 14.46 | 6.62           | 7.21 | 7.67 | 8.25 | 9.63  |
|                 | 12H  | 11.52            | 12.08 | 12.57 | 13.11 | 14.51 | 6.67           | 7.22 | 7.71 | 8.26 | 9.66  |
| 4H              | 2H   | 8.63             | 9.30  | 9.66  | 10.32 | 11.69 | 5.17           | 5.84 | 6.20 | 6.86 | 8.23  |
|                 | 3H   | 10.46            | 11.02 | 11.50 | 12.07 | 13.45 | 6.52           | 7.08 | 7.56 | 8.13 | 9.51  |
|                 | 4H   | 11.16            | 11.67 | 12.20 | 12.71 | 14.11 | 7.07           | 7.58 | 8.11 | 8.62 | 10.02 |
|                 | 6H   | 11.67            | 12.11 | 12.73 | 13.18 | 14.58 | 7.48           | 7.92 | 8.54 | 8.99 | 10.39 |
|                 | 8H   | 11.85            | 12.26 | 12.91 | 13.32 | 14.73 | 7.61           | 8.02 | 8.67 | 9.08 | 10.49 |
|                 | 12H  | 11.95            | 12.31 | 13.02 | 13.39 | 14.81 | 7.68           | 8.05 | 8.75 | 9.12 | 10.54 |
| 8H              | 4H   | 11.12            | 11.53 | 12.18 | 12.59 | 14.00 | 7.35           | 7.75 | 8.40 | 8.81 | 10.23 |
|                 | 6H   | 11.69            | 12.03 | 12.77 | 13.13 | 14.54 | 7.86           | 8.20 | 8.95 | 9.30 | 10.71 |
|                 | 8H   | 11.91            | 12.21 | 13.00 | 13.29 | 14.72 | 8.06           | 8.35 | 9.14 | 9.44 | 10.87 |
|                 | 12H  | 12.05            | 12.31 | 13.14 | 13.39 | 14.86 | 8.17           | 8.43 | 9.27 | 9.51 | 10.99 |
| 12H             | 4H   | 11.07            | 11.44 | 12.15 | 12.51 | 13.93 | 7.35           | 7.72 | 8.43 | 8.79 | 10.21 |
|                 | 6H   | 11.67            | 11.96 | 12.75 | 13.04 | 14.48 | 7.91           | 8.21 | 9.00 | 9.29 | 10.73 |
|                 | 8H   | 11.89            | 12.15 | 12.98 | 13.23 | 14.70 | 8.12           | 8.39 | 9.22 | 9.46 | 10.94 |