

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: P925262

Luminaire Tested: DFN2DIP-PN4F0-120D050US950-RLLFLL

Issue Date: 11/21/2024

**Test Information**

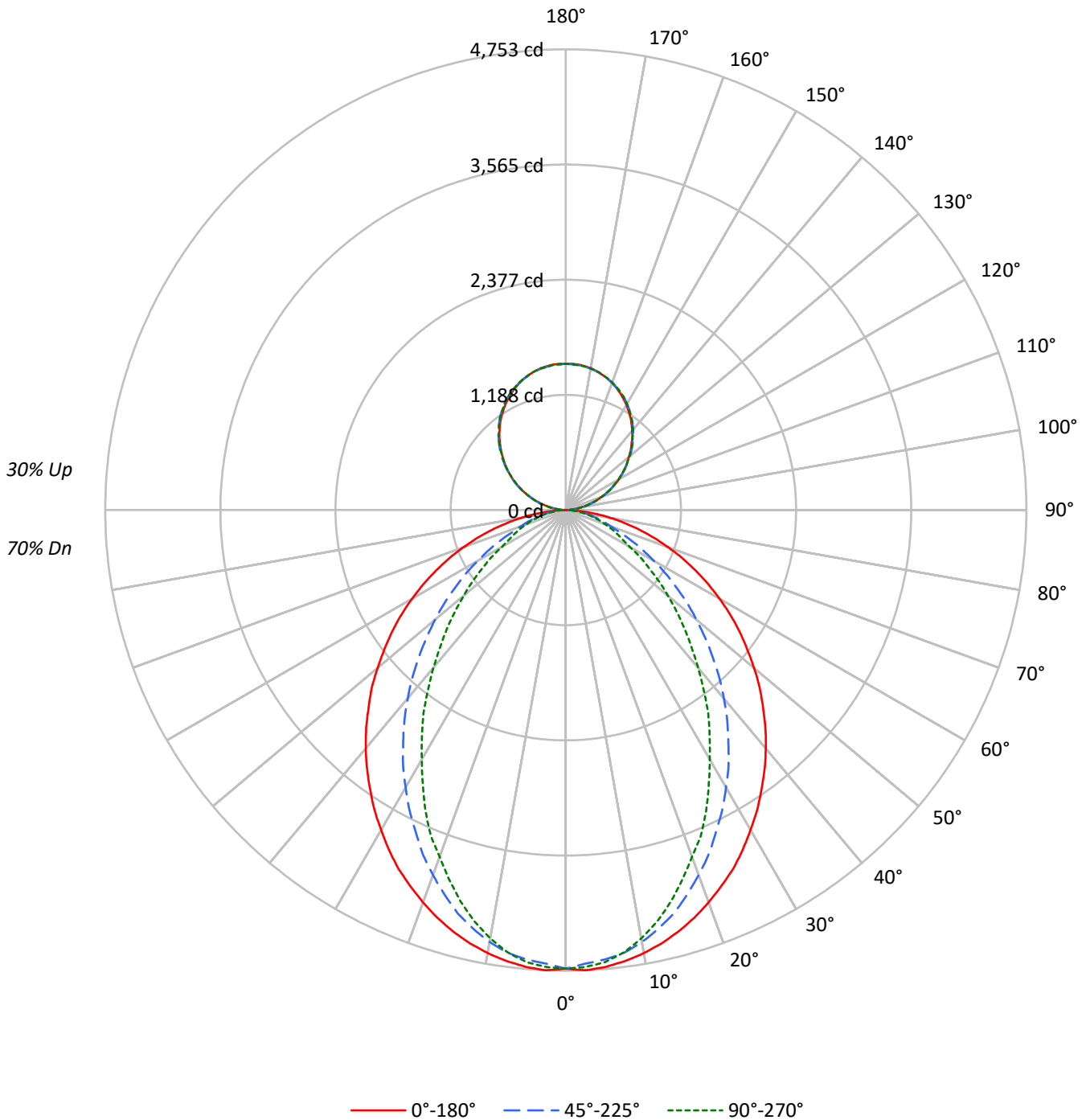
Test Method: LM-79-2019  
Report Number: P925262  
REPORT IS A COMBINATION OF REPORTS P899644 AND P896497  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN4F0-120D050US950-RLLFLL  
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13952.3 lumens  
Efficiency: N/A  
Efficacy: 85.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 163.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9781  
Total Harmonic Distortion (THDi): 0.075  
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: P925262  
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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| RF  | 20  |     |     |     | 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   | 112 | 112 | 112 | 112 | 106 | 106 | 106 | 106 | 94 | 94 | 94 | 84 | 84 | 84 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| 1   | 103 | 99  | 95  | 92  | 97  | 94  | 90  | 87  | 84 | 81 | 79 | 75 | 73 | 71 | 67 | 65 | 64 | 64 | 64 | 64 | 60 |
| 2   | 94  | 87  | 81  | 76  | 89  | 83  | 77  | 73  | 74 | 70 | 67 | 67 | 63 | 61 | 60 | 57 | 55 | 55 | 55 | 55 | 51 |
| 3   | 86  | 77  | 70  | 64  | 82  | 73  | 67  | 62  | 66 | 61 | 57 | 60 | 56 | 52 | 53 | 50 | 48 | 48 | 48 | 48 | 44 |
| 4   | 80  | 69  | 61  | 55  | 75  | 66  | 58  | 53  | 59 | 54 | 49 | 54 | 49 | 45 | 48 | 45 | 42 | 42 | 42 | 42 | 39 |
| 5   | 73  | 62  | 54  | 48  | 69  | 59  | 52  | 46  | 54 | 48 | 43 | 48 | 44 | 40 | 44 | 40 | 37 | 37 | 37 | 37 | 34 |
| 6   | 68  | 56  | 48  | 42  | 64  | 53  | 46  | 41  | 49 | 42 | 38 | 44 | 39 | 35 | 40 | 36 | 33 | 33 | 33 | 33 | 30 |
| 7   | 63  | 51  | 43  | 37  | 60  | 49  | 41  | 36  | 44 | 38 | 34 | 40 | 35 | 32 | 37 | 33 | 29 | 29 | 29 | 29 | 27 |
| 8   | 59  | 46  | 39  | 33  | 56  | 44  | 37  | 32  | 41 | 35 | 30 | 37 | 32 | 28 | 34 | 30 | 27 | 27 | 27 | 27 | 24 |
| 9   | 55  | 43  | 35  | 30  | 52  | 41  | 34  | 29  | 38 | 32 | 27 | 34 | 29 | 26 | 31 | 27 | 24 | 24 | 24 | 24 | 22 |
| 10  | 51  | 39  | 32  | 27  | 49  | 38  | 31  | 26  | 35 | 29 | 25 | 32 | 27 | 24 | 29 | 25 | 22 | 22 | 22 | 22 | 20 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3454 | 3454 | 3454 |
| 5°  | 3459 | 3399 | 3421 |
| 10° | 3425 | 3333 | 3311 |
| 15° | 3378 | 3223 | 3139 |
| 20° | 3316 | 3072 | 2928 |
| 25° | 3252 | 2902 | 2725 |
| 30° | 3166 | 2728 | 2467 |
| 35° | 3082 | 2541 | 2240 |
| 40° | 2996 | 2347 | 1979 |
| 45° | 2897 | 2132 | 1743 |
| 50° | 2794 | 1915 | 1513 |
| 55° | 2687 | 1682 | 1291 |
| 60° | 2563 | 1439 | 1064 |
| 65° | 2420 | 1193 | 958  |
| 70° | 2247 | 962  | 868  |
| 75° | 2029 | 849  | 791  |
| 80° | 1714 | 714  | 688  |
| 85° | 1194 | 479  | 522  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2897 cd/sqm



TEST NUMBER: P925262

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 443.4   | 3.2       |
| 10°-20°   | 1217.3  | 8.7       |
| 20°-30°   | 1709.1  | 12.2      |
| 30°-40°   | 1863.0  | 13.4      |
| 40°-50°   | 1712.3  | 12.3      |
| 50°-60°   | 1344.7  | 9.6       |
| 60°-70°   | 875.3   | 6.3       |
| 70°-80°   | 450.6   | 3.2       |
| 80°-90°   | 119.3   | 0.9       |
| 90°-100°  | 93.4    | 0.7       |
| 100°-110° | 296.6   | 2.1       |
| 110°-120° | 507.6   | 3.6       |
| 120°-130° | 667.5   | 4.8       |
| 130°-140° | 749.3   | 5.4       |
| 140°-150° | 734.8   | 5.3       |
| 150°-160° | 616.4   | 4.4       |
| 160°-170° | 408.8   | 2.9       |
| 170°-180° | 142.9   | 1.0       |
| 0°-30°    | 3369.8  | 24.2      |
| 0°-40°    | 5232.8  | 37.5      |
| 0°-60°    | 8289.9  | 59.4      |
| 0°-90°    | 9735.1  | 69.8      |
| 90°-120°  | 897.5   | 6.4       |
| 90°-150°  | 3049.2  | 21.9      |
| 90°-180°  | 4217.0  | 30.2      |
| 0°-180°   | 13952.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 4732 | 4732  | 4732 | 4732  | 4732 |      |
| 5°   | 4732 | 4710  | 4654 | 4693  | 4680 | 449  |
| 15°  | 4500 | 4453  | 4308 | 4226  | 4184 | 1268 |
| 25°  | 4085 | 3948  | 3665 | 3490  | 3425 | 1879 |
| 35°  | 3520 | 3301  | 2925 | 2655  | 2560 | 2203 |
| 45°  | 2878 | 2590  | 2141 | 1837  | 1734 | 2222 |
| 55°  | 2188 | 1854  | 1392 | 1135  | 1054 | 1955 |
| 65°  | 1477 | 1130  | 745  | 600   | 586  | 1465 |
| 75°  | 788  | 488   | 343  | 312   | 308  | 833  |
| 85°  | 184  | 94    | 81   | 81    | 81   | 211  |
| 90°  | 1    | 16    | 45   | 42    | 43   | 14   |
| 95°  | 66   | 79    | 81   | 81    | 79   | 74   |
| 105° | 274  | 277   | 280  | 282   | 282  | 289  |
| 115° | 509  | 517   | 514  | 513   | 509  | 504  |
| 125° | 741  | 752   | 749  | 744   | 743  | 662  |
| 135° | 958  | 972   | 975  | 974   | 970  | 741  |
| 145° | 1163 | 1172  | 1180 | 1181  | 1176 | 727  |
| 155° | 1330 | 1334  | 1338 | 1344  | 1340 | 612  |
| 165° | 1447 | 1446  | 1446 | 1455  | 1449 | 408  |
| 175° | 1506 | 1502  | 1500 | 1509  | 1501 | 143  |
| 180° | 1509 | 1509  | 1509 | 1509  | 1509 |      |



TEST NUMBER: P925262

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US950-RLFL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 4731.5 | 4731.5 | 4731.5 | 4731.5 | 4731.5 |
| 2.5°   | 4752.8 | 4731.5 | 4684.2 | 4727.4 | 4718.7 |
| 5°     | 4731.5 | 4710.1 | 4654.2 | 4692.8 | 4680.1 |
| 7.5°   | 4692.8 | 4667.3 | 4607.4 | 4624.2 | 4602.9 |
| 10°    | 4641.5 | 4611.5 | 4526.1 | 4512.9 | 4487.5 |
| 12.5°  | 4577.4 | 4538.8 | 4422.9 | 4397.6 | 4350.3 |
| 15°    | 4500.2 | 4453.0 | 4307.6 | 4226.2 | 4183.6 |
| 17.5°  | 4410.2 | 4341.7 | 4161.7 | 4067.8 | 3999.2 |
| 20°    | 4307.6 | 4221.7 | 4007.8 | 3901.0 | 3806.5 |
| 22.5°  | 4196.3 | 4097.7 | 3849.2 | 3703.8 | 3639.8 |
| 25°    | 4085.0 | 3947.7 | 3665.2 | 3489.8 | 3425.3 |
| 27.5°  | 3952.3 | 3806.5 | 3493.9 | 3292.7 | 3194.1 |
| 30°    | 3811.0 | 3648.0 | 3305.4 | 3087.3 | 2971.5 |
| 32.5°  | 3673.9 | 3476.7 | 3126.0 | 2868.9 | 2761.6 |
| 35°    | 3519.9 | 3301.3 | 2924.7 | 2654.9 | 2560.3 |
| 37.5°  | 3369.9 | 3134.2 | 2736.2 | 2440.4 | 2333.7 |
| 40°    | 3211.4 | 2954.7 | 2539.1 | 2235.1 | 2123.8 |
| 42.5°  | 3048.7 | 2774.8 | 2342.4 | 2025.2 | 1918.5 |
| 45°    | 2877.5 | 2590.4 | 2141.1 | 1836.7 | 1734.0 |
| 47.5°  | 2714.8 | 2410.9 | 1948.4 | 1644.1 | 1550.1 |
| 50°    | 2535.0 | 2231.0 | 1759.9 | 1464.2 | 1374.7 |
| 52.5°  | 2359.1 | 2037.9 | 1580.0 | 1297.4 | 1216.2 |
| 55°    | 2187.9 | 1854.0 | 1391.5 | 1134.8 | 1053.5 |
| 57.5°  | 2012.5 | 1670.0 | 1224.7 | 984.9  | 916.3  |
| 60°    | 1832.6 | 1490.1 | 1048.9 | 830.9  | 762.3  |
| 62.5°  | 1657.3 | 1314.7 | 899.0  | 693.7  | 659.6  |
| 65°    | 1477.4 | 1130.3 | 745.1  | 599.7  | 586.5  |
| 67.5°  | 1306.1 | 959.0  | 599.7  | 526.5  | 513.8  |
| 70°    | 1126.2 | 792.3  | 496.6  | 453.8  | 436.6  |
| 72.5°  | 955.0  | 637.8  | 415.2  | 381.1  | 372.5  |
| 75°    | 787.7  | 487.9  | 342.6  | 312.5  | 308.4  |
| 77.5°  | 621.1  | 346.6  | 269.9  | 252.6  | 243.9  |
| 80°    | 466.6  | 248.5  | 205.3  | 188.5  | 188.5  |
| 82.5°  | 325.3  | 167.1  | 141.3  | 132.6  | 132.6  |
| 85°    | 184.0  | 94.1   | 81.3   | 81.3   | 81.3   |
| 87.5°  | 68.6   | 34.1   | 34.1   | 30.0   | 30.0   |
| 90°    | 1.3    | 16.4   | 44.6   | 41.9   | 43.2   |
| 92.5°  | 28.2   | 38.2   | 39.6   | 40.9   | 40.9   |
| 95°    | 66.4   | 79.2   | 81.4   | 81.4   | 79.2   |
| 97.5°  | 110.5  | 122.3  | 127.4  | 127.4  | 127.4  |
| 100°   | 161.4  | 171.9  | 175.5  | 175.5  | 174.2  |
| 102.5° | 215.1  | 222.9  | 227.8  | 229.2  | 227.8  |
| 105°   | 273.8  | 277.4  | 280.2  | 282.4  | 282.4  |
| 107.5° | 332.0  | 337.4  | 337.4  | 338.4  | 332.0  |
| 110°   | 388.4  | 395.7  | 395.7  | 395.7  | 392.0  |



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CATALOG NUMBER: DFN2DIP-PN4F0-120D050US950-RLLFLL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 449.3  | 457.1  | 455.7  | 452.1  | 449.3  |
| 115°   | 509.3  | 516.7  | 514.4  | 513.1  | 509.3  |
| 117.5° | 569.0  | 579.0  | 572.6  | 569.0  | 565.3  |
| 120°   | 629.0  | 639.0  | 629.0  | 629.0  | 624.9  |
| 122.5° | 683.5  | 696.3  | 689.9  | 686.3  | 683.5  |
| 125°   | 740.9  | 752.2  | 748.6  | 744.5  | 743.2  |
| 127.5° | 796.8  | 810.9  | 805.9  | 800.4  | 796.8  |
| 130°   | 849.2  | 865.5  | 863.2  | 860.5  | 855.5  |
| 132.5° | 907.8  | 920.5  | 921.5  | 915.1  | 911.5  |
| 135°   | 958.3  | 972.3  | 975.1  | 973.7  | 970.1  |
| 137.5° | 1014.7 | 1026.0 | 1028.3 | 1027.4 | 1021.9 |
| 140°   | 1064.2 | 1075.6 | 1081.9 | 1081.9 | 1077.0 |
| 142.5° | 1115.1 | 1126.6 | 1130.2 | 1131.5 | 1126.6 |
| 145°   | 1163.4 | 1172.5 | 1179.7 | 1181.1 | 1176.1 |
| 147.5° | 1206.6 | 1218.0 | 1223.4 | 1225.7 | 1220.6 |
| 150°   | 1251.2 | 1258.9 | 1263.9 | 1268.0 | 1263.9 |
| 152.5° | 1290.8 | 1298.5 | 1304.8 | 1309.8 | 1304.8 |
| 155°   | 1330.3 | 1333.9 | 1338.0 | 1344.4 | 1340.3 |
| 157.5° | 1364.4 | 1367.1 | 1369.4 | 1378.5 | 1372.1 |
| 160°   | 1394.8 | 1397.6 | 1398.9 | 1406.7 | 1401.2 |
| 162.5° | 1423.1 | 1423.1 | 1424.4 | 1433.1 | 1426.7 |
| 165°   | 1447.2 | 1445.8 | 1445.8 | 1454.9 | 1448.6 |
| 167.5° | 1469.0 | 1464.9 | 1464.9 | 1474.0 | 1467.6 |
| 170°   | 1485.4 | 1481.8 | 1480.4 | 1489.5 | 1481.8 |
| 172.5° | 1496.7 | 1493.1 | 1491.8 | 1500.8 | 1493.1 |
| 175°   | 1505.9 | 1502.2 | 1499.5 | 1508.6 | 1500.8 |
| 177.5° | 1510.8 | 1507.2 | 1504.5 | 1512.2 | 1504.5 |
| 180°   | 1508.6 | 1508.6 | 1508.6 | 1508.6 | 1508.6 |



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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 | 13.13            | 14.16 | 13.91 | 14.95 | 15.91 | 9.10           | 10.12 | 9.87  | 10.91 | 11.87 |
|                 | 3H   | 14.83            | 15.74 | 15.62 | 16.55 | 17.54 | 10.30          | 11.22 | 11.09 | 12.02 | 13.01 |
|                 | 4H   | 15.45            | 16.31 | 16.25 | 17.12 | 18.12 | 10.76          | 11.63 | 11.57 | 12.43 | 13.44 |
|                 | 6H   | 15.88            | 16.68 | 16.70 | 17.49 | 18.51 | 11.09          | 11.89 | 11.91 | 12.71 | 13.72 |
|                 | 8H   | 16.02            | 16.77 | 16.84 | 17.61 | 18.62 | 11.19          | 11.95 | 12.02 | 12.78 | 13.80 |
|                 | 12H  | 16.09            | 16.81 | 16.92 | 17.63 | 18.68 | 11.24          | 11.96 | 12.07 | 12.79 | 13.83 |
| 4H              | 2H   | 13.18            | 14.04 | 13.99 | 14.85 | 15.85 | 9.72           | 10.58 | 10.53 | 11.39 | 12.39 |
|                 | 3H   | 15.03            | 15.74 | 15.85 | 16.59 | 17.60 | 11.09          | 11.80 | 11.91 | 12.65 | 13.67 |
|                 | 4H   | 15.73            | 16.38 | 16.56 | 17.22 | 18.27 | 11.64          | 12.29 | 12.48 | 13.14 | 14.18 |
|                 | 6H   | 16.26            | 16.82 | 17.11 | 17.68 | 18.73 | 12.07          | 12.64 | 12.93 | 13.50 | 14.55 |
|                 | 8H   | 16.44            | 16.96 | 17.29 | 17.82 | 18.89 | 12.21          | 12.73 | 13.06 | 13.59 | 14.66 |
|                 | 12H  | 16.54            | 17.01 | 17.42 | 17.89 | 18.96 | 12.28          | 12.75 | 13.16 | 13.63 | 14.70 |
| 8H              | 4H   | 15.71            | 16.23 | 16.56 | 17.09 | 18.16 | 11.94          | 12.46 | 12.79 | 13.33 | 14.39 |
|                 | 6H   | 16.29            | 16.72 | 17.17 | 17.62 | 18.69 | 12.47          | 12.90 | 13.35 | 13.80 | 14.87 |
|                 | 8H   | 16.51            | 16.89 | 17.40 | 17.79 | 18.87 | 12.66          | 13.04 | 13.55 | 13.94 | 15.02 |
|                 | 12H  | 16.65            | 16.99 | 17.55 | 17.88 | 19.02 | 12.79          | 13.13 | 13.68 | 14.01 | 15.15 |
| 12H             | 4H   | 15.67            | 16.14 | 16.54 | 17.02 | 18.09 | 11.95          | 12.43 | 12.83 | 13.31 | 14.38 |
|                 | 6H   | 16.26            | 16.65 | 17.15 | 17.54 | 18.62 | 12.52          | 12.90 | 13.41 | 13.80 | 14.88 |
|                 | 8H   | 16.49            | 16.83 | 17.39 | 17.72 | 18.86 | 12.74          | 13.08 | 13.63 | 13.96 | 15.10 |