

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: P925600

Luminaire Tested: DFN2DIP-SQ3F0-080D090US950-FLLFLL

Issue Date: 11/21/2024

**Test Information**

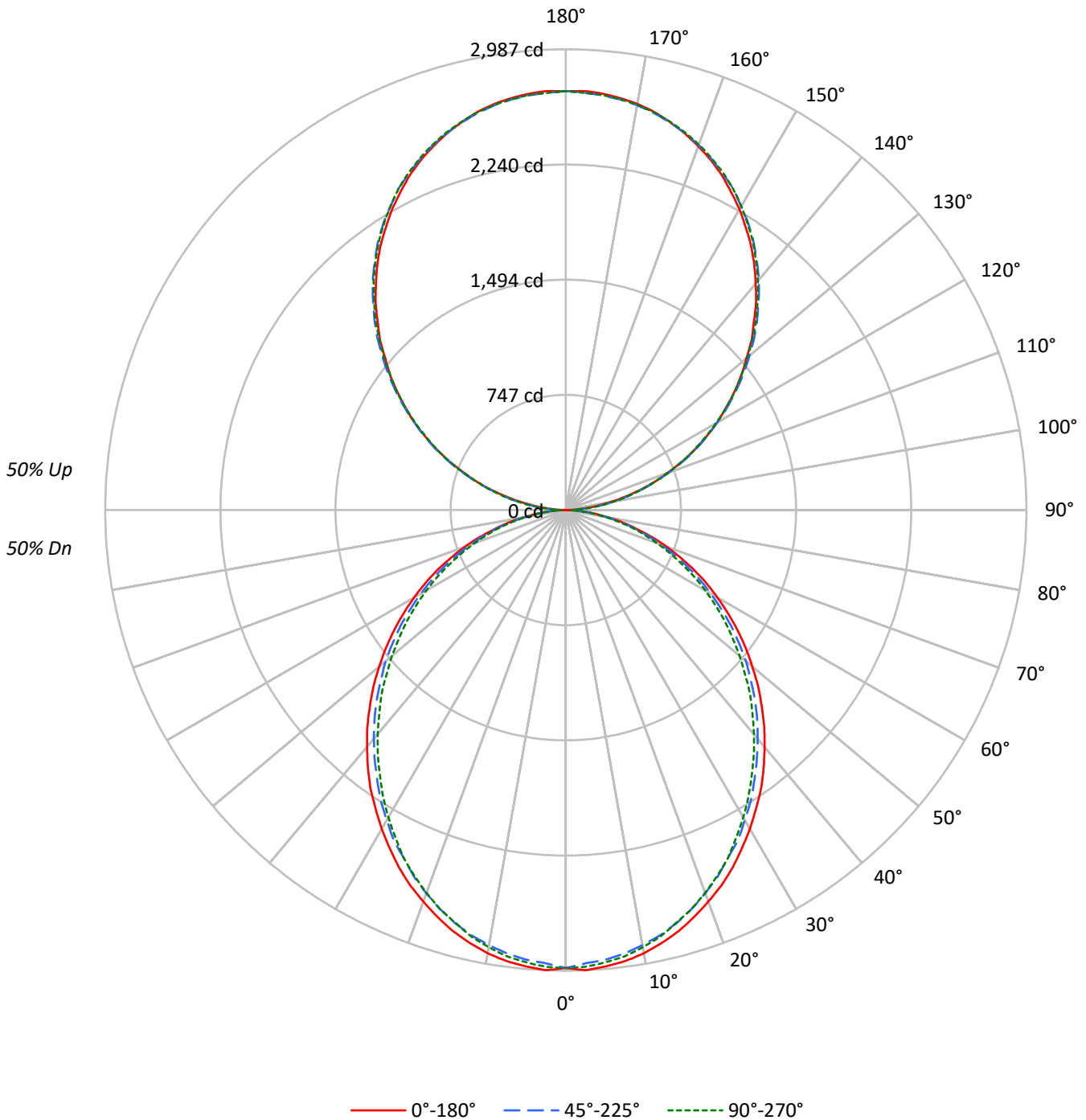
Test Method: LM-79-2019  
Report Number: P925600  
REPORT IS A COMBINATION OF REPORTS P899959 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-080D090US950-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 15154.3 lumens  
Efficiency: N/A  
Efficacy: 104.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 144.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P925600  
CATALOG NUMBER: DFN2DIP-SQ3F0-080D090US950-FLLFL

### Luminous Intensity Polar Plot





TEST NUMBER: P925600

CATALOG NUMBER: DFN2DIP-SQ3F0-080D090US950-FLLFLL

**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   | 107 | 107 | 107 | 107 | 99 | 99 | 99 | 99 | 83 | 83 | 83 | 69 | 69 | 69 | 56 | 56 | 56 | 56 | 56 | 56 | 50 |
| 1   | 98  | 93  | 90  | 86  | 90 | 86 | 83 | 80 | 73 | 71 | 68 | 61 | 59 | 58 | 50 | 48 | 47 | 50 | 48 | 47 | 42 |
| 2   | 89  | 82  | 75  | 70  | 82 | 75 | 70 | 66 | 64 | 60 | 57 | 53 | 51 | 48 | 44 | 42 | 40 | 44 | 42 | 40 | 35 |
| 3   | 81  | 72  | 64  | 59  | 75 | 66 | 60 | 55 | 56 | 52 | 48 | 47 | 44 | 41 | 39 | 36 | 34 | 39 | 36 | 34 | 30 |
| 4   | 74  | 63  | 56  | 50  | 68 | 59 | 52 | 46 | 50 | 45 | 41 | 42 | 38 | 35 | 35 | 32 | 29 | 35 | 32 | 29 | 26 |
| 5   | 68  | 57  | 48  | 42  | 63 | 53 | 45 | 40 | 45 | 39 | 35 | 38 | 34 | 30 | 31 | 28 | 25 | 31 | 28 | 25 | 22 |
| 6   | 63  | 51  | 43  | 37  | 58 | 47 | 40 | 35 | 40 | 35 | 31 | 34 | 30 | 26 | 28 | 25 | 22 | 28 | 25 | 22 | 20 |
| 7   | 58  | 46  | 38  | 32  | 53 | 43 | 36 | 30 | 37 | 31 | 27 | 31 | 27 | 23 | 26 | 22 | 20 | 26 | 22 | 20 | 17 |
| 8   | 54  | 42  | 34  | 29  | 50 | 39 | 32 | 27 | 33 | 28 | 24 | 28 | 24 | 21 | 24 | 20 | 18 | 24 | 20 | 18 | 16 |
| 9   | 50  | 38  | 30  | 25  | 46 | 35 | 29 | 24 | 31 | 25 | 21 | 26 | 22 | 19 | 22 | 19 | 16 | 22 | 19 | 16 | 14 |
| 10  | 47  | 35  | 28  | 23  | 43 | 33 | 26 | 22 | 28 | 23 | 19 | 24 | 20 | 17 | 20 | 17 | 15 | 20 | 17 | 15 | 13 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3403 | 3403 | 3403 |
| 5°  | 3406 | 3353 | 3377 |
| 10° | 3376 | 3306 | 3330 |
| 15° | 3324 | 3249 | 3257 |
| 20° | 3255 | 3171 | 3183 |
| 25° | 3186 | 3078 | 3098 |
| 30° | 3100 | 2992 | 2989 |
| 35° | 3019 | 2890 | 2874 |
| 40° | 2919 | 2788 | 2765 |
| 45° | 2819 | 2685 | 2653 |
| 50° | 2709 | 2576 | 2523 |
| 55° | 2595 | 2451 | 2404 |
| 60° | 2465 | 2303 | 2267 |
| 65° | 2323 | 2149 | 2106 |
| 70° | 2142 | 1961 | 1932 |
| 75° | 1893 | 1736 | 1770 |
| 80° | 1591 | 1448 | 1462 |
| 85° | 1120 | 960  | 958  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2819 cd/sqm



TEST NUMBER: P925600

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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 279.5   | 1.8       |
| 10°-20°   | 786.4   | 5.2       |
| 20°-30°   | 1155.7  | 7.6       |
| 30°-40°   | 1342.3  | 8.9       |
| 40°-50°   | 1340.6  | 8.8       |
| 50°-60°   | 1169.0  | 7.7       |
| 60°-70°   | 864.1   | 5.7       |
| 70°-80°   | 488.9   | 3.2       |
| 80°-90°   | 136.8   | 0.9       |
| 90°-100°  | 168.0   | 1.1       |
| 100°-110° | 533.9   | 3.5       |
| 110°-120° | 913.7   | 6.0       |
| 120°-130° | 1201.6  | 7.9       |
| 130°-140° | 1348.7  | 8.9       |
| 140°-150° | 1322.6  | 8.7       |
| 150°-160° | 1109.5  | 7.3       |
| 160°-170° | 735.8   | 4.9       |
| 170°-180° | 257.2   | 1.7       |
| 0°-30°    | 2221.6  | 14.7      |
| 0°-40°    | 3563.9  | 23.5      |
| 0°-60°    | 6073.6  | 40.1      |
| 0°-90°    | 7563.4  | 49.9      |
| 90°-120°  | 1615.6  | 10.7      |
| 90°-150°  | 5488.5  | 36.2      |
| 90°-180°  | 7591.0  | 50.1      |
| 0°-180°   | 15154.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2970 | 2970  | 2970 | 2970  | 2970 |      |
| 5°   | 2970 | 2958  | 2927 | 2950  | 2944 | 282  |
| 15°  | 2827 | 2810  | 2773 | 2784  | 2770 | 796  |
| 25°  | 2558 | 2536  | 2487 | 2493  | 2487 | 1177 |
| 35°  | 2207 | 2179  | 2133 | 2116  | 2102 | 1378 |
| 45°  | 1796 | 1776  | 1733 | 1702  | 1691 | 1386 |
| 55°  | 1359 | 1342  | 1308 | 1274  | 1259 | 1215 |
| 65°  | 917  | 900   | 871  | 845   | 831  | 906  |
| 75°  | 480  | 474   | 460  | 443   | 448  | 512  |
| 85°  | 117  | 114   | 112  | 103   | 100  | 130  |
| 90°  | 2    | 30    | 80   | 75    | 78   | 15   |
| 95°  | 120  | 142   | 146  | 146   | 142  | 133  |
| 105° | 493  | 499   | 504  | 508   | 508  | 520  |
| 115° | 917  | 930   | 926  | 924   | 917  | 907  |
| 125° | 1334 | 1354  | 1348 | 1340  | 1338 | 1192 |
| 135° | 1725 | 1750  | 1755 | 1753  | 1746 | 1333 |
| 145° | 2094 | 2110  | 2124 | 2126  | 2117 | 1308 |
| 155° | 2394 | 2401  | 2408 | 2420  | 2413 | 1102 |
| 165° | 2605 | 2602  | 2602 | 2619  | 2607 | 735  |
| 175° | 2710 | 2704  | 2699 | 2716  | 2702 | 258  |
| 180° | 2716 | 2716  | 2716 | 2716  | 2716 |      |



TEST NUMBER: P925600

CATALOG NUMBER: DFN2DIP-SQ3F0-080D090US950-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2969.6 | 2969.6 | 2969.6 | 2969.6 | 2969.6 |
| 2.5°   | 2986.9 | 2972.7 | 2941.2 | 2969.6 | 2964.2 |
| 5°     | 2969.6 | 2958.4 | 2927.0 | 2949.7 | 2944.2 |
| 7.5°   | 2949.7 | 2932.7 | 2901.2 | 2924.2 | 2918.5 |
| 10°    | 2918.5 | 2898.4 | 2864.2 | 2886.9 | 2878.5 |
| 12.5°  | 2875.5 | 2858.5 | 2824.2 | 2838.4 | 2832.7 |
| 15°    | 2827.0 | 2810.0 | 2772.7 | 2784.2 | 2770.0 |
| 17.5°  | 2767.0 | 2750.0 | 2712.7 | 2727.0 | 2712.7 |
| 20°    | 2701.3 | 2684.3 | 2644.3 | 2652.8 | 2641.5 |
| 22.5°  | 2635.8 | 2610.0 | 2572.7 | 2572.7 | 2567.0 |
| 25°    | 2558.5 | 2535.8 | 2487.4 | 2492.8 | 2487.4 |
| 27.5°  | 2472.8 | 2452.8 | 2415.8 | 2407.3 | 2393.1 |
| 30°    | 2387.4 | 2364.3 | 2321.7 | 2313.2 | 2301.6 |
| 32.5°  | 2295.9 | 2278.9 | 2233.1 | 2215.9 | 2204.4 |
| 35°    | 2207.4 | 2178.9 | 2133.1 | 2115.9 | 2101.7 |
| 37.5°  | 2107.4 | 2081.6 | 2035.9 | 2015.9 | 2001.7 |
| 40°    | 2004.7 | 1981.6 | 1936.0 | 1910.5 | 1898.9 |
| 42.5°  | 1904.8 | 1881.7 | 1836.3 | 1807.4 | 1790.6 |
| 45°    | 1796.3 | 1776.3 | 1733.2 | 1702.0 | 1690.6 |
| 47.5°  | 1690.6 | 1670.5 | 1624.8 | 1593.3 | 1576.3 |
| 50°    | 1579.1 | 1564.8 | 1524.8 | 1484.8 | 1470.6 |
| 52.5°  | 1470.6 | 1450.6 | 1413.6 | 1382.2 | 1362.1 |
| 55°    | 1359.4 | 1342.1 | 1307.9 | 1273.7 | 1259.4 |
| 57.5°  | 1247.9 | 1233.7 | 1196.4 | 1162.2 | 1150.6 |
| 60°    | 1136.4 | 1125.2 | 1085.2 | 1053.7 | 1045.2 |
| 62.5°  | 1027.9 | 1008.0 | 979.5  | 951.0  | 939.5  |
| 65°    | 916.8  | 899.5  | 871.0  | 845.2  | 831.0  |
| 67.5°  | 802.5  | 788.0  | 762.5  | 742.6  | 731.1  |
| 70°    | 696.8  | 685.3  | 659.6  | 639.6  | 628.3  |
| 72.5°  | 588.3  | 576.9  | 562.6  | 542.6  | 534.1  |
| 75°    | 479.6  | 474.1  | 459.6  | 442.7  | 448.4  |
| 77.5°  | 382.6  | 371.1  | 365.4  | 356.9  | 348.4  |
| 80°    | 285.7  | 282.7  | 276.9  | 268.5  | 262.6  |
| 82.5°  | 194.2  | 194.2  | 191.5  | 179.9  | 179.9  |
| 85°    | 117.0  | 114.2  | 111.5  | 102.7  | 100.0  |
| 87.5°  | 51.5   | 45.8   | 40.0   | 31.5   | 28.5   |
| 90°    | 2.5    | 29.5   | 80.2   | 75.3   | 77.8   |
| 92.5°  | 50.8   | 68.8   | 71.3   | 73.6   | 73.6   |
| 95°    | 119.5  | 142.4  | 146.5  | 146.5  | 142.4  |
| 97.5°  | 198.9  | 220.2  | 229.2  | 229.2  | 229.2  |
| 100°   | 290.6  | 309.5  | 316.0  | 316.0  | 313.6  |
| 102.5° | 387.2  | 401.2  | 410.1  | 412.6  | 410.1  |
| 105°   | 492.8  | 499.3  | 504.3  | 508.4  | 508.4  |
| 107.5° | 597.6  | 607.4  | 607.4  | 609.0  | 597.6  |
| 110°   | 699.1  | 712.3  | 712.3  | 712.3  | 705.7  |



TEST NUMBER: P925600

CATALOG NUMBER: DFN2DIP-SQ3F0-080D090US950-FLLFLL

**CANDELA DISTRIBUTION (continued):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 808.8  | 822.7  | 820.2  | 813.8  | 808.8  |
| 115°   | 916.9  | 930.0  | 925.9  | 923.5  | 916.9  |
| 117.5° | 1024.1 | 1042.1 | 1030.7 | 1024.1 | 1017.5 |
| 120°   | 1132.2 | 1150.1 | 1132.2 | 1132.2 | 1124.8 |
| 122.5° | 1230.4 | 1253.4 | 1241.9 | 1235.3 | 1230.4 |
| 125°   | 1333.6 | 1354.0 | 1347.5 | 1340.1 | 1337.7 |
| 127.5° | 1434.2 | 1459.6 | 1450.7 | 1440.8 | 1434.2 |
| 130°   | 1528.4 | 1557.9 | 1553.8 | 1548.8 | 1539.9 |
| 132.5° | 1634.0 | 1656.9 | 1658.5 | 1647.1 | 1640.6 |
| 135°   | 1724.8 | 1750.2 | 1755.2 | 1752.7 | 1746.2 |
| 137.5° | 1826.3 | 1846.8 | 1851.0 | 1849.3 | 1839.5 |
| 140°   | 1915.6 | 1936.0 | 1947.5 | 1947.5 | 1938.5 |
| 142.5° | 2007.3 | 2027.7 | 2034.3 | 2036.8 | 2027.7 |
| 145°   | 2094.1 | 2110.4 | 2123.5 | 2126.0 | 2117.0 |
| 147.5° | 2171.9 | 2192.3 | 2202.1 | 2206.2 | 2197.3 |
| 150°   | 2252.1 | 2266.0 | 2275.0 | 2282.3 | 2275.0 |
| 152.5° | 2323.3 | 2337.2 | 2348.7 | 2357.7 | 2348.7 |
| 155°   | 2394.5 | 2401.0 | 2408.5 | 2419.9 | 2412.6 |
| 157.5° | 2455.9 | 2460.8 | 2464.9 | 2481.3 | 2469.8 |
| 160°   | 2510.7 | 2515.7 | 2518.2 | 2532.0 | 2522.2 |
| 162.5° | 2561.5 | 2561.5 | 2564.0 | 2579.5 | 2568.1 |
| 165°   | 2604.9 | 2602.4 | 2602.4 | 2618.8 | 2607.4 |
| 167.5° | 2644.2 | 2636.9 | 2636.9 | 2653.2 | 2641.7 |
| 170°   | 2673.7 | 2667.1 | 2664.7 | 2681.0 | 2667.1 |
| 172.5° | 2694.1 | 2687.6 | 2685.1 | 2701.5 | 2687.6 |
| 175°   | 2710.5 | 2703.9 | 2699.1 | 2715.5 | 2701.5 |
| 177.5° | 2719.5 | 2713.0 | 2708.0 | 2722.0 | 2708.0 |
| 180°   | 2715.5 | 2715.5 | 2715.5 | 2715.5 | 2715.5 |



TEST NUMBER: P925600  
 CATALOG NUMBER: DFN2DIP-SQ3F0-080D090US950-FLLFLL

**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 | 11.48            | 12.34 | 12.44 | 13.32 | 14.59 | 11.04          | 11.90 | 12.00 | 12.87 | 14.14 |
|                 | 3H   | 13.14            | 13.91 | 14.11 | 14.89 | 16.19 | 12.65          | 13.42 | 13.62 | 14.40 | 15.70 |
|                 | 4H   | 13.72            | 14.45 | 14.71 | 15.44 | 16.74 | 13.23          | 13.96 | 14.21 | 14.95 | 16.25 |
|                 | 6H   | 14.12            | 14.79 | 15.11 | 15.78 | 17.10 | 13.62          | 14.29 | 14.61 | 15.28 | 16.60 |
|                 | 8H   | 14.22            | 14.86 | 15.22 | 15.87 | 17.18 | 13.72          | 14.36 | 14.72 | 15.37 | 16.68 |
|                 | 12H  | 14.27            | 14.88 | 15.27 | 15.88 | 17.22 | 13.76          | 14.37 | 14.76 | 15.37 | 16.71 |
| 4H              | 2H   | 11.94            | 12.67 | 12.93 | 13.66 | 14.96 | 11.58          | 12.32 | 12.57 | 13.30 | 14.60 |
|                 | 3H   | 13.80            | 14.41 | 14.80 | 15.43 | 16.74 | 13.39          | 14.00 | 14.39 | 15.02 | 16.33 |
|                 | 4H   | 14.51            | 15.07 | 15.52 | 16.08 | 17.42 | 14.09          | 14.64 | 15.09 | 15.65 | 16.99 |
|                 | 6H   | 15.02            | 15.50 | 16.04 | 16.53 | 17.87 | 14.59          | 15.07 | 15.61 | 16.10 | 17.44 |
|                 | 8H   | 15.17            | 15.62 | 16.19 | 16.64 | 17.99 | 14.73          | 15.18 | 15.75 | 16.20 | 17.56 |
|                 | 12H  | 15.24            | 15.64 | 16.28 | 16.68 | 18.04 | 14.79          | 15.20 | 15.83 | 16.24 | 17.59 |
| 8H              | 4H   | 14.70            | 15.15 | 15.72 | 16.18 | 17.53 | 14.33          | 14.77 | 15.34 | 15.80 | 17.15 |
|                 | 6H   | 15.33            | 15.70 | 16.37 | 16.77 | 18.12 | 14.94          | 15.32 | 15.99 | 16.38 | 17.73 |
|                 | 8H   | 15.55            | 15.87 | 16.60 | 16.92 | 18.29 | 15.15          | 15.48 | 16.20 | 16.53 | 17.90 |
|                 | 12H  | 15.67            | 15.96 | 16.73 | 17.01 | 18.42 | 15.26          | 15.55 | 16.32 | 16.60 | 18.01 |
| 12H             | 4H   | 14.69            | 15.09 | 15.72 | 16.13 | 17.49 | 14.32          | 14.72 | 15.36 | 15.76 | 17.12 |
|                 | 6H   | 15.36            | 15.68 | 16.41 | 16.74 | 18.10 | 14.98          | 15.31 | 16.03 | 16.36 | 17.73 |
|                 | 8H   | 15.59            | 15.88 | 16.65 | 16.93 | 18.34 | 15.21          | 15.50 | 16.27 | 16.55 | 17.96 |