

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: P905586

Luminaire Tested: DFN2DIP-PN2F0-020D040US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905586
REPORT IS A COMBINATION OF REPORTS P899482 AND P896349
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN2F0-020D040US835-RLLFLL
Description: 2 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

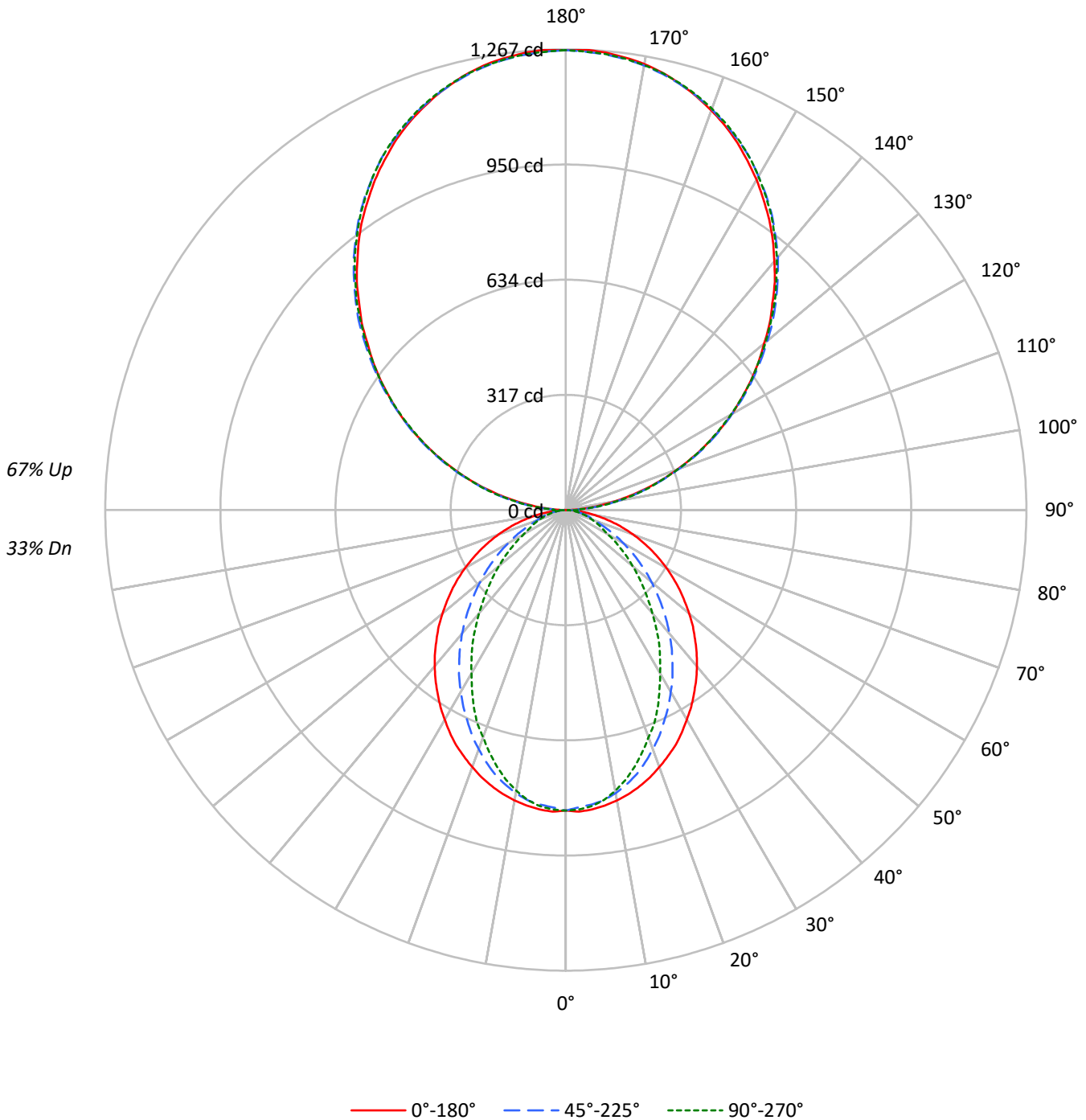
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5240.0 lumens
Efficiency: N/A
Efficacy: 110.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.17' x L: 2.29' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 47.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P905586
CATALOG NUMBER: DFN2DIP-PN2F0-020D040US835-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P905586

CATALOG NUMBER: DFN2DIP-PN2F0-020D040US835-RLLFLL

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 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | | | | |
| RCR | 0 | 103 | 103 | 103 | 103 | 93 | 93 | 93 | 93 | 74 | 74 | 74 | 56 | 56 | 56 | 40 | 40 | 40 | 33 | 33 | 33 | 33 | 24 | 24 | 24 | 18 | 18 | 18 | 11 | 11 | 11 | 9 | 9 |
| | 1 | 94 | 90 | 86 | 83 | 85 | 81 | 78 | 75 | 65 | 63 | 61 | 50 | 48 | 47 | 36 | 35 | 34 | 28 | 28 | 28 | 28 | 21 | 21 | 21 | 16 | 16 | 16 | 11 | 11 | 11 | 9 | 9 |
| | 2 | 86 | 79 | 73 | 68 | 77 | 71 | 67 | 62 | 57 | 54 | 51 | 44 | 42 | 40 | 32 | 31 | 29 | 24 | 24 | 24 | 24 | 18 | 18 | 18 | 14 | 14 | 14 | 11 | 11 | 11 | 9 | 9 |
| | 3 | 79 | 70 | 63 | 57 | 71 | 63 | 57 | 52 | 51 | 46 | 43 | 39 | 36 | 34 | 29 | 27 | 25 | 21 | 21 | 21 | 21 | 16 | 16 | 16 | 12 | 12 | 12 | 9 | 9 | 9 | 7 | 7 |
| | 4 | 72 | 62 | 54 | 49 | 65 | 56 | 50 | 45 | 45 | 41 | 37 | 35 | 32 | 29 | 26 | 24 | 22 | 18 | 18 | 18 | 18 | 14 | 14 | 14 | 11 | 11 | 11 | 9 | 9 | 9 | 7 | 7 |
| | 5 | 66 | 55 | 47 | 42 | 59 | 50 | 43 | 38 | 40 | 36 | 32 | 32 | 28 | 26 | 23 | 21 | 19 | 16 | 16 | 16 | 16 | 12 | 12 | 12 | 9 | 9 | 9 | 7 | 7 | 7 | 5 | 5 |
| | 6 | 61 | 49 | 42 | 36 | 55 | 45 | 38 | 33 | 36 | 32 | 28 | 29 | 25 | 23 | 21 | 19 | 17 | 14 | 14 | 14 | 14 | 11 | 11 | 11 | 8 | 8 | 8 | 6 | 6 | 6 | 4 | 4 |
| | 7 | 56 | 45 | 37 | 32 | 51 | 41 | 34 | 29 | 33 | 28 | 25 | 26 | 23 | 20 | 19 | 17 | 15 | 13 | 13 | 13 | 13 | 10 | 10 | 10 | 7 | 7 | 7 | 5 | 5 | 5 | 4 | 4 |
| | 8 | 52 | 40 | 33 | 28 | 47 | 37 | 30 | 26 | 30 | 25 | 22 | 24 | 20 | 18 | 18 | 16 | 14 | 11 | 11 | 11 | 11 | 8 | 8 | 8 | 6 | 6 | 6 | 4 | 4 | 4 | 3 | 3 |
| | 9 | 49 | 37 | 30 | 25 | 44 | 34 | 27 | 23 | 28 | 23 | 20 | 22 | 19 | 16 | 17 | 14 | 13 | 10 | 10 | 10 | 10 | 7 | 7 | 7 | 5 | 5 | 5 | 4 | 4 | 4 | 3 | 3 |
| | 10 | 45 | 34 | 27 | 22 | 41 | 31 | 25 | 21 | 25 | 21 | 18 | 20 | 17 | 15 | 15 | 13 | 11 | 9 | 9 | 9 | 9 | 6 | 6 | 6 | 4 | 4 | 4 | 3 | 3 | 3 | 2 | 2 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 1790 | 1790 | 1790 |
| 5° | 1790 | 1758 | 1770 |
| 10° | 1770 | 1720 | 1710 |
| 15° | 1742 | 1659 | 1619 |
| 20° | 1707 | 1577 | 1508 |
| 25° | 1671 | 1486 | 1400 |
| 30° | 1624 | 1393 | 1265 |
| 35° | 1577 | 1294 | 1146 |
| 40° | 1530 | 1191 | 1010 |
| 45° | 1475 | 1077 | 887 |
| 50° | 1418 | 963 | 767 |
| 55° | 1358 | 842 | 652 |
| 60° | 1289 | 715 | 534 |
| 65° | 1209 | 587 | 478 |
| 70° | 1112 | 468 | 429 |
| 75° | 990 | 405 | 385 |
| 80° | 814 | 329 | 325 |
| 85° | 532 | 205 | 231 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1705 cd/sqm



TEST NUMBER: P905586

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 77.5 | 1.5 |
| 10°-20° | 212.7 | 4.1 |
| 20°-30° | 298.6 | 5.7 |
| 30°-40° | 325.5 | 6.2 |
| 40°-50° | 299.1 | 5.7 |
| 50°-60° | 234.9 | 4.5 |
| 60°-70° | 152.9 | 2.9 |
| 70°-80° | 78.7 | 1.5 |
| 80°-90° | 23.7 | 0.5 |
| 90°-100° | 78.3 | 1.5 |
| 100°-110° | 248.7 | 4.7 |
| 110°-120° | 425.6 | 8.1 |
| 120°-130° | 559.8 | 10.7 |
| 130°-140° | 628.3 | 12.0 |
| 140°-150° | 616.2 | 11.8 |
| 150°-160° | 516.9 | 9.9 |
| 160°-170° | 342.8 | 6.5 |
| 170°-180° | 119.8 | 2.3 |
| 0°-30° | 588.7 | 11.2 |
| 0°-40° | 914.2 | 17.4 |
| 0°-60° | 1448.3 | 27.6 |
| 0°-90° | 1703.6 | 32.5 |
| 90°-120° | 752.7 | 14.4 |
| 90°-150° | 2556.9 | 48.8 |
| 90°-180° | 3536.0 | 67.5 |
| 0°-180° | 5240.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 827 | 827 | 827 | 827 | 827 | |
| 5° | 827 | 823 | 813 | 820 | 818 | 78 |
| 15° | 786 | 778 | 752 | 738 | 731 | 222 |
| 25° | 714 | 690 | 640 | 610 | 598 | 328 |
| 35° | 615 | 577 | 511 | 464 | 447 | 385 |
| 45° | 503 | 452 | 374 | 321 | 303 | 388 |
| 55° | 382 | 324 | 243 | 198 | 184 | 342 |
| 65° | 258 | 198 | 130 | 105 | 102 | 256 |
| 75° | 138 | 85 | 60 | 55 | 54 | 146 |
| 85° | 32 | 16 | 14 | 14 | 14 | 37 |
| 90° | 1 | 14 | 37 | 35 | 36 | 5 |
| 95° | 56 | 66 | 68 | 68 | 66 | 62 |
| 105° | 230 | 233 | 235 | 237 | 237 | 242 |
| 115° | 427 | 433 | 431 | 430 | 427 | 422 |
| 125° | 621 | 631 | 628 | 624 | 623 | 555 |
| 135° | 804 | 815 | 818 | 816 | 814 | 621 |
| 145° | 976 | 983 | 989 | 990 | 986 | 610 |
| 155° | 1116 | 1119 | 1122 | 1127 | 1124 | 513 |
| 165° | 1214 | 1212 | 1212 | 1220 | 1215 | 342 |
| 175° | 1263 | 1260 | 1257 | 1265 | 1259 | 120 |
| 180° | 1265 | 1265 | 1265 | 1265 | 1265 | |



TEST NUMBER: P905586

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 0° | 826.6 | 826.6 | 826.6 | 826.6 | 826.6 |
| 2.5° | 830.3 | 826.6 | 818.3 | 825.9 | 824.4 |
| 5° | 826.6 | 822.9 | 813.1 | 819.9 | 817.6 |
| 7.5° | 819.9 | 815.4 | 804.9 | 807.9 | 804.1 |
| 10° | 810.9 | 805.6 | 790.7 | 788.4 | 784.0 |
| 12.5° | 799.7 | 792.9 | 772.7 | 768.3 | 760.0 |
| 15° | 786.2 | 777.9 | 752.5 | 738.3 | 730.9 |
| 17.5° | 770.5 | 758.5 | 727.1 | 710.6 | 698.7 |
| 20° | 752.5 | 737.5 | 700.2 | 681.5 | 665.0 |
| 22.5° | 733.1 | 715.9 | 672.5 | 647.1 | 635.9 |
| 25° | 713.7 | 689.7 | 640.3 | 609.7 | 598.4 |
| 27.5° | 690.5 | 665.0 | 610.4 | 575.2 | 558.0 |
| 30° | 665.8 | 637.3 | 577.5 | 539.4 | 519.1 |
| 32.5° | 641.8 | 607.4 | 546.1 | 501.2 | 482.5 |
| 35° | 614.9 | 576.8 | 511.0 | 463.8 | 447.3 |
| 37.5° | 588.7 | 547.5 | 478.0 | 426.4 | 407.7 |
| 40° | 561.0 | 516.2 | 443.6 | 390.5 | 371.0 |
| 42.5° | 532.6 | 484.8 | 409.2 | 353.8 | 335.2 |
| 45° | 502.7 | 452.5 | 374.1 | 320.9 | 302.9 |
| 47.5° | 474.3 | 421.2 | 340.4 | 287.2 | 270.8 |
| 50° | 442.9 | 389.8 | 307.5 | 255.8 | 240.2 |
| 52.5° | 412.1 | 356.0 | 276.0 | 226.7 | 212.5 |
| 55° | 382.2 | 323.9 | 243.1 | 198.3 | 184.0 |
| 57.5° | 351.6 | 291.7 | 214.0 | 172.1 | 160.1 |
| 60° | 320.2 | 260.3 | 183.3 | 145.2 | 133.2 |
| 62.5° | 289.5 | 229.7 | 157.1 | 121.2 | 115.2 |
| 65° | 258.1 | 197.5 | 130.2 | 104.8 | 102.5 |
| 67.5° | 228.2 | 167.5 | 104.8 | 92.0 | 89.8 |
| 70° | 196.7 | 138.4 | 86.7 | 79.3 | 76.3 |
| 72.5° | 166.8 | 111.4 | 72.5 | 66.6 | 65.1 |
| 75° | 137.6 | 85.2 | 59.8 | 54.6 | 53.9 |
| 77.5° | 108.5 | 60.6 | 47.1 | 44.1 | 42.6 |
| 80° | 81.5 | 43.4 | 35.9 | 32.9 | 32.9 |
| 82.5° | 56.8 | 29.2 | 24.7 | 23.2 | 23.2 |
| 85° | 32.1 | 16.4 | 14.2 | 14.2 | 14.2 |
| 87.5° | 12.0 | 6.0 | 6.0 | 5.2 | 5.2 |
| 90° | 1.1 | 13.7 | 37.4 | 35.1 | 36.2 |
| 92.5° | 23.6 | 32.0 | 33.2 | 34.3 | 34.3 |
| 95° | 55.7 | 66.4 | 68.3 | 68.3 | 66.4 |
| 97.5° | 92.7 | 102.6 | 106.8 | 106.8 | 106.8 |
| 100° | 135.4 | 144.2 | 147.2 | 147.2 | 146.1 |
| 102.5° | 180.4 | 186.9 | 191.1 | 192.2 | 191.1 |
| 105° | 229.6 | 232.6 | 234.9 | 236.8 | 236.8 |
| 107.5° | 278.4 | 283.0 | 283.0 | 283.7 | 278.4 |
| 110° | 325.7 | 331.8 | 331.8 | 331.8 | 328.8 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 376.8 | 383.3 | 382.1 | 379.1 | 376.8 |
| 115° | 427.1 | 433.3 | 431.3 | 430.2 | 427.1 |
| 117.5° | 477.1 | 485.5 | 480.2 | 477.1 | 474.1 |
| 120° | 527.5 | 535.8 | 527.5 | 527.5 | 524.0 |
| 122.5° | 573.2 | 583.9 | 578.6 | 575.5 | 573.2 |
| 125° | 621.3 | 630.8 | 627.8 | 624.3 | 623.2 |
| 127.5° | 668.2 | 680.0 | 675.8 | 671.2 | 668.2 |
| 130° | 712.0 | 725.8 | 723.9 | 721.6 | 717.4 |
| 132.5° | 761.2 | 771.9 | 772.7 | 767.3 | 764.3 |
| 135° | 803.6 | 815.4 | 817.7 | 816.5 | 813.5 |
| 137.5° | 850.9 | 860.4 | 862.3 | 861.5 | 857.0 |
| 140° | 892.4 | 902.0 | 907.3 | 907.3 | 903.1 |
| 142.5° | 935.2 | 944.7 | 947.7 | 948.9 | 944.7 |
| 145° | 975.6 | 983.2 | 989.3 | 990.5 | 986.3 |
| 147.5° | 1011.8 | 1021.3 | 1025.9 | 1027.8 | 1023.6 |
| 150° | 1049.2 | 1055.7 | 1059.9 | 1063.3 | 1059.9 |
| 152.5° | 1082.4 | 1088.8 | 1094.2 | 1098.4 | 1094.2 |
| 155° | 1115.5 | 1118.6 | 1122.0 | 1127.4 | 1123.9 |
| 157.5° | 1144.2 | 1146.4 | 1148.3 | 1156.0 | 1150.6 |
| 160° | 1169.7 | 1172.0 | 1173.1 | 1179.6 | 1175.0 |
| 162.5° | 1193.3 | 1193.3 | 1194.5 | 1201.7 | 1196.4 |
| 165° | 1213.6 | 1212.4 | 1212.4 | 1220.0 | 1214.7 |
| 167.5° | 1231.9 | 1228.4 | 1228.4 | 1236.1 | 1230.7 |
| 170° | 1245.6 | 1242.5 | 1241.4 | 1249.0 | 1242.5 |
| 172.5° | 1255.1 | 1252.1 | 1250.9 | 1258.6 | 1252.1 |
| 175° | 1262.8 | 1259.7 | 1257.4 | 1265.0 | 1258.6 |
| 177.5° | 1267.0 | 1263.9 | 1261.6 | 1268.1 | 1261.6 |
| 180° | 1265.0 | 1265.0 | 1265.0 | 1265.0 | 1265.0 |



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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 | 7.15 | 7.86 | 8.25 | 8.95 | 10.45 | 3.12 | 3.83 | 4.22 | 4.92 | 6.42 |
| | 3H | 8.80 | 9.43 | 9.91 | 10.53 | 12.05 | 4.28 | 4.91 | 5.39 | 6.02 | 7.54 |
| | 4H | 9.39 | 9.99 | 10.51 | 11.09 | 12.61 | 4.72 | 5.31 | 5.83 | 6.42 | 7.94 |
| | 6H | 9.79 | 10.34 | 10.91 | 11.44 | 12.98 | 5.02 | 5.57 | 6.14 | 6.67 | 8.21 |
| | 8H | 9.90 | 10.42 | 11.03 | 11.54 | 13.07 | 5.09 | 5.62 | 6.22 | 6.74 | 8.27 |
| | 12H | 9.95 | 10.45 | 11.08 | 11.56 | 13.11 | 5.13 | 5.62 | 6.26 | 6.74 | 8.29 |
| 4H | 2H | 7.15 | 7.75 | 8.28 | 8.85 | 10.38 | 3.69 | 4.29 | 4.82 | 5.39 | 6.92 |
| | 3H | 8.94 | 9.44 | 10.08 | 10.57 | 12.11 | 5.01 | 5.51 | 6.14 | 6.64 | 8.17 |
| | 4H | 9.62 | 10.07 | 10.75 | 11.19 | 12.75 | 5.54 | 6.00 | 6.67 | 7.11 | 8.67 |
| | 6H | 10.10 | 10.50 | 11.25 | 11.64 | 13.19 | 5.93 | 6.32 | 7.07 | 7.46 | 9.01 |
| | 8H | 10.27 | 10.63 | 11.41 | 11.76 | 13.33 | 6.05 | 6.41 | 7.19 | 7.55 | 9.11 |
| | 12H | 10.34 | 10.67 | 11.50 | 11.82 | 13.39 | 6.10 | 6.43 | 7.25 | 7.57 | 9.14 |
| 8H | 4H | 9.57 | 9.94 | 10.71 | 11.07 | 12.63 | 5.80 | 6.16 | 6.94 | 7.29 | 8.86 |
| | 6H | 10.11 | 10.41 | 11.27 | 11.59 | 13.15 | 6.29 | 6.59 | 7.45 | 7.76 | 9.32 |
| | 8H | 10.31 | 10.57 | 11.48 | 11.73 | 13.31 | 6.46 | 6.73 | 7.63 | 7.88 | 9.46 |
| | 12H | 10.43 | 10.66 | 11.60 | 11.81 | 13.43 | 6.56 | 6.79 | 7.73 | 7.95 | 9.56 |
| 12H | 4H | 9.52 | 9.85 | 10.67 | 10.99 | 12.56 | 5.79 | 6.12 | 6.95 | 7.27 | 8.84 |
| | 6H | 10.08 | 10.35 | 11.25 | 11.50 | 13.08 | 6.33 | 6.59 | 7.50 | 7.75 | 9.33 |
| | 8H | 10.28 | 10.51 | 11.45 | 11.67 | 13.28 | 6.52 | 6.75 | 7.69 | 7.90 | 9.52 |