

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: io LED

Report Number: P209263

Luminaire Tested: **LDSQ4B40D010 EU4B30509727 4LBCSSQ1MMS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209263
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35089)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQ4B40D010 EU4B30509727 4LBCSSQ1MMS
Description: PORTFOLIO LD4 SERIES 4" RECESSED FIXTURE WITH A SQUARE SHALLOW CAST METALLIC SILVER TRIM
MEDIUM DISTRIBUTION WITH MATTE METALLIC SILVER TRIM
WATTAGE D010TR-43.02 W DE010-42.54 W D5LT-42.539 W DMX-41.87 W DL2-41.57 W DL3-44.71 W DLE-39.33 W
Light Source: HIGH LUMEN LED 2700 K
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2864.1 lumens
Efficiency: N/A
Efficacy: 66.6 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
Luminous Opening: Point Source (0' x 0' x 0')
CIE Type: Direct

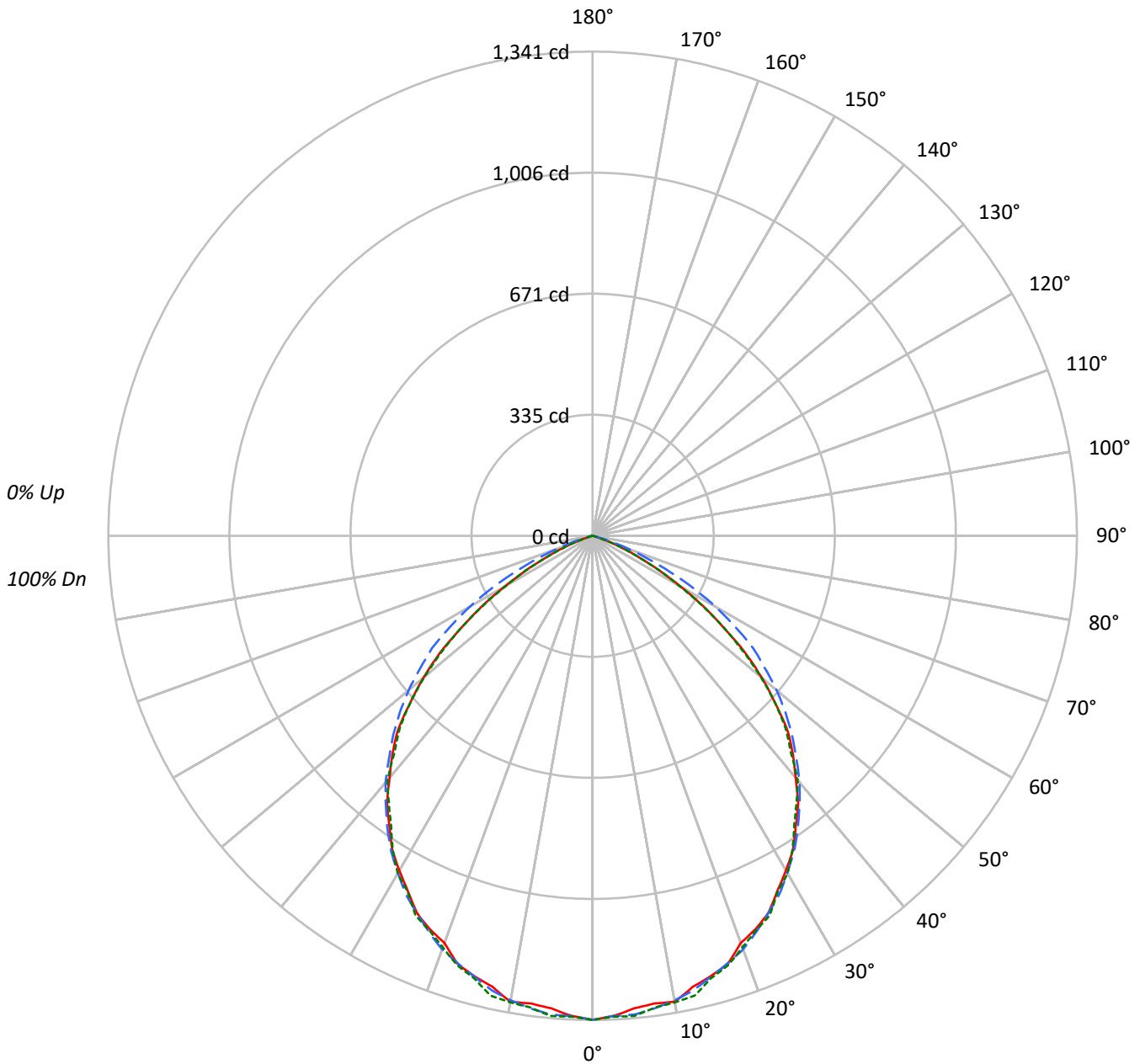
Input Watts (W): 43.02
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P209263

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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|---|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|---|
| RF | 20 | | | | | | | | | 20 | | | | | | | | | 20 | | | | | | | | | 20 | | | | | | | | | |
| RC | 80 | | | | | | | | | 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 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | | | | | | | | | | | | | | | | |
| 1 | 111 | 108 | 104 | 101 | 109 | 105 | 102 | 100 | 101 | 99 | 96 | 97 | 95 | 94 | 94 | 92 | 91 | 89 | | | | | | | | | | | | | | | | | | | |
| 2 | 103 | 96 | 91 | 86 | 100 | 94 | 89 | 85 | 91 | 87 | 83 | 88 | 84 | 81 | 85 | 82 | 79 | 77 | | | | | | | | | | | | | | | | | | | |
| 3 | 95 | 86 | 79 | 74 | 93 | 85 | 78 | 73 | 82 | 76 | 72 | 79 | 74 | 71 | 77 | 73 | 69 | 67 | | | | | | | | | | | | | | | | | | | |
| 4 | 88 | 77 | 70 | 64 | 86 | 76 | 69 | 63 | 74 | 67 | 63 | 71 | 66 | 62 | 69 | 65 | 61 | 59 | | | | | | | | | | | | | | | | | | | |
| 5 | 81 | 70 | 62 | 56 | 79 | 69 | 61 | 56 | 67 | 60 | 55 | 65 | 59 | 54 | 63 | 58 | 54 | 52 | | | | | | | | | | | | | | | | | | | |
| 6 | 75 | 63 | 55 | 49 | 73 | 62 | 55 | 49 | 61 | 54 | 49 | 59 | 53 | 48 | 57 | 52 | 48 | 46 | | | | | | | | | | | | | | | | | | | |
| 7 | 70 | 58 | 50 | 44 | 68 | 57 | 49 | 44 | 55 | 49 | 44 | 54 | 48 | 43 | 53 | 47 | 43 | 41 | | | | | | | | | | | | | | | | | | | |
| 8 | 65 | 53 | 45 | 40 | 64 | 52 | 45 | 39 | 51 | 44 | 39 | 50 | 44 | 39 | 49 | 43 | 39 | 37 | | | | | | | | | | | | | | | | | | | |
| 9 | 61 | 49 | 41 | 36 | 60 | 48 | 41 | 36 | 47 | 40 | 36 | 46 | 40 | 35 | 45 | 39 | 35 | 33 | | | | | | | | | | | | | | | | | | | |
| 10 | 57 | 45 | 38 | 33 | 56 | 44 | 37 | 33 | 44 | 37 | 32 | 43 | 37 | 32 | 42 | 36 | 32 | 31 | | | | | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--|-----|-----|
| 0° | Luminaire represents a point source (luminous area is zero). | | |
| 5° | No luminance values can be calculated. | | |
| 10° | | | |
| 15° | | | |
| 20° | | | |
| 25° | | | |
| 30° | | | |
| 35° | | | |
| 40° | | | |
| 45° | | | |
| 50° | | | |
| 55° | | | |
| 60° | | | |
| 65° | | | |
| 70° | | | |
| 75° | | | |
| 80° | | | |
| 85° | | | |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 126.6 | 4.4 |
| 10°-20° | 358.1 | 12.5 |
| 20°-30° | 531.4 | 18.6 |
| 30°-40° | 615.7 | 21.5 |
| 40°-50° | 590.3 | 20.6 |
| 50°-60° | 434.0 | 15.2 |
| 60°-70° | 187.5 | 6.5 |
| 70°-80° | 20.2 | 0.7 |
| 80°-90° | 0.3 | 0.0 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 1016.0 | 35.5 |
| 0°-40° | 1631.8 | 57.0 |
| 0°-60° | 2656.1 | 92.7 |
| 0°-90° | 2864.1 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2864.1 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1341 | 1341 | 1341 | 1341 | 1341 | |
| 5° | 1314 | 1327 | 1331 | 1333 | 1335 | 125 |
| 15° | 1263 | 1270 | 1265 | 1266 | 1268 | 356 |
| 25° | 1152 | 1150 | 1152 | 1154 | 1160 | 528 |
| 35° | 981 | 986 | 990 | 988 | 973 | 613 |
| 45° | 764 | 766 | 781 | 769 | 756 | 581 |
| 55° | 442 | 488 | 543 | 486 | 444 | 398 |
| 65° | 145 | 181 | 236 | 179 | 141 | 149 |
| 75° | 4 | 6 | 21 | 4 | 4 | 12 |
| 85° | 0 | 0 | 0 | 0 | 0 | 0 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P209263

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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 10° | 15° | 20° | 22.5° | 25° | 30° | 35° | 40° | 45° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 |
| 2.5° | 1331.2 | 1346.5 | 1348.4 | 1338.8 | 1335.0 | 1329.3 | 1342.7 | 1333.1 | 1336.9 | 1333.1 | 1331.2 |
| 5° | 1314.1 | 1331.2 | 1333.1 | 1333.1 | 1329.3 | 1327.4 | 1333.1 | 1331.2 | 1329.3 | 1325.5 | 1331.2 |
| 7.5° | 1306.5 | 1316.0 | 1325.5 | 1314.1 | 1319.8 | 1317.9 | 1331.2 | 1325.5 | 1323.6 | 1323.6 | 1319.8 |
| 10° | 1310.3 | 1308.4 | 1316.0 | 1304.6 | 1308.4 | 1304.6 | 1316.0 | 1316.0 | 1312.2 | 1308.4 | 1306.5 |
| 12.5° | 1279.8 | 1295.0 | 1295.0 | 1293.1 | 1289.3 | 1283.6 | 1295.0 | 1302.7 | 1291.2 | 1291.2 | 1289.3 |
| 15° | 1262.7 | 1266.5 | 1268.4 | 1268.4 | 1266.5 | 1270.3 | 1276.0 | 1268.4 | 1270.3 | 1260.8 | 1264.6 |
| 17.5° | 1243.6 | 1236.0 | 1241.7 | 1237.9 | 1239.8 | 1243.6 | 1251.2 | 1251.2 | 1239.8 | 1237.9 | 1241.7 |
| 20° | 1199.8 | 1222.7 | 1224.6 | 1213.1 | 1215.1 | 1215.1 | 1228.4 | 1217.0 | 1224.6 | 1215.1 | 1218.9 |
| 22.5° | 1178.9 | 1194.1 | 1196.0 | 1180.8 | 1190.3 | 1178.9 | 1192.2 | 1175.1 | 1194.1 | 1180.8 | 1186.5 |
| 25° | 1152.2 | 1150.3 | 1156.0 | 1148.4 | 1150.3 | 1150.3 | 1159.8 | 1152.2 | 1157.9 | 1150.3 | 1152.2 |
| 27.5° | 1108.4 | 1123.6 | 1121.7 | 1114.1 | 1117.9 | 1116.0 | 1135.1 | 1114.1 | 1125.5 | 1116.0 | 1119.8 |
| 30° | 1070.3 | 1083.6 | 1079.8 | 1072.2 | 1072.2 | 1066.5 | 1087.5 | 1081.7 | 1079.8 | 1079.8 | 1077.9 |
| 32.5° | 1032.2 | 1034.1 | 1030.3 | 1032.2 | 1034.1 | 1026.5 | 1043.7 | 1036.0 | 1034.1 | 1036.0 | 1037.9 |
| 35° | 980.8 | 980.8 | 984.6 | 978.9 | 986.5 | 986.5 | 1001.8 | 992.2 | 990.3 | 984.6 | 990.3 |
| 37.5° | 935.1 | 929.4 | 931.3 | 931.3 | 935.1 | 938.9 | 946.5 | 942.7 | 942.7 | 937.0 | 940.8 |
| 40° | 874.2 | 870.3 | 876.1 | 876.1 | 881.8 | 881.8 | 889.4 | 885.6 | 891.3 | 891.3 | 891.3 |
| 42.5° | 820.8 | 820.8 | 817.0 | 822.7 | 824.6 | 822.7 | 836.1 | 834.2 | 836.1 | 832.3 | 834.2 |
| 45° | 763.7 | 763.7 | 759.9 | 758.0 | 767.5 | 765.6 | 780.8 | 775.1 | 782.7 | 778.9 | 780.8 |
| 47.5° | 685.6 | 695.1 | 689.4 | 695.1 | 706.6 | 708.5 | 718.0 | 714.2 | 721.8 | 716.1 | 723.7 |
| 50° | 611.3 | 611.3 | 617.0 | 624.7 | 636.1 | 638.0 | 649.4 | 657.0 | 660.9 | 662.8 | 664.7 |
| 52.5° | 533.3 | 531.3 | 537.1 | 546.6 | 556.1 | 563.7 | 575.2 | 586.6 | 594.2 | 605.6 | 599.9 |
| 55° | 441.8 | 445.6 | 451.4 | 462.8 | 478.0 | 487.5 | 497.1 | 512.3 | 525.6 | 531.3 | 542.8 |
| 57.5° | 363.8 | 359.9 | 363.8 | 379.0 | 396.1 | 403.7 | 417.1 | 432.3 | 451.4 | 462.8 | 466.6 |
| 60° | 281.9 | 283.8 | 287.6 | 300.9 | 314.2 | 325.7 | 331.4 | 356.1 | 373.3 | 384.7 | 392.3 |
| 62.5° | 207.6 | 211.4 | 215.2 | 226.6 | 240.0 | 249.5 | 259.0 | 280.0 | 295.2 | 306.6 | 314.2 |
| 65° | 144.7 | 146.6 | 152.4 | 158.1 | 171.4 | 180.9 | 188.5 | 205.7 | 220.9 | 230.4 | 236.2 |
| 67.5° | 89.5 | 91.4 | 95.2 | 102.8 | 112.4 | 120.0 | 127.6 | 139.0 | 152.4 | 161.9 | 163.8 |
| 70° | 45.7 | 47.6 | 49.5 | 55.2 | 62.8 | 66.7 | 72.4 | 81.9 | 91.4 | 99.0 | 102.8 |
| 72.5° | 15.2 | 15.2 | 17.1 | 20.9 | 24.8 | 28.6 | 30.5 | 40.0 | 47.6 | 51.4 | 53.3 |
| 75° | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 | 5.7 | 5.7 | 11.4 | 15.2 | 19.0 | 20.9 |
| 77.5° | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 3.8 | 3.8 |
| 80° | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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CANDELA DISTRIBUTION (continued):

| | 50° | 55° | 60° | 65° | 67.5° | 70° | 75° | 80° | 85° | 90° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 |
| 2.5° | 1340.7 | 1336.9 | 1335.0 | 1336.9 | 1336.9 | 1335.0 | 1340.7 | 1348.4 | 1357.9 | 1333.1 |
| 5° | 1338.8 | 1335.0 | 1338.8 | 1327.4 | 1333.1 | 1329.3 | 1336.9 | 1335.0 | 1342.7 | 1335.0 |
| 7.5° | 1333.1 | 1325.5 | 1327.4 | 1321.7 | 1329.3 | 1319.8 | 1325.5 | 1336.9 | 1329.3 | 1317.9 |
| 10° | 1314.1 | 1310.3 | 1323.6 | 1304.6 | 1300.8 | 1308.4 | 1323.6 | 1312.2 | 1308.4 | 1312.2 |
| 12.5° | 1295.0 | 1295.0 | 1300.8 | 1285.5 | 1287.4 | 1291.2 | 1298.9 | 1291.2 | 1295.0 | 1304.6 |
| 15° | 1274.1 | 1270.3 | 1279.8 | 1268.4 | 1266.5 | 1262.7 | 1270.3 | 1270.3 | 1274.1 | 1268.4 |
| 17.5° | 1249.3 | 1243.6 | 1243.6 | 1239.8 | 1237.9 | 1247.4 | 1251.2 | 1253.1 | 1255.0 | 1247.4 |
| 20° | 1218.9 | 1217.0 | 1222.7 | 1217.0 | 1218.9 | 1220.8 | 1220.8 | 1217.0 | 1234.1 | 1213.1 |
| 22.5° | 1186.5 | 1192.2 | 1184.6 | 1180.8 | 1184.6 | 1188.4 | 1188.4 | 1190.3 | 1186.5 | 1182.7 |
| 25° | 1154.1 | 1157.9 | 1159.8 | 1148.4 | 1154.1 | 1148.4 | 1161.7 | 1163.6 | 1156.0 | 1159.8 |
| 27.5° | 1125.5 | 1119.8 | 1117.9 | 1110.3 | 1114.1 | 1112.2 | 1114.1 | 1114.1 | 1125.5 | 1110.3 |
| 30° | 1081.7 | 1076.0 | 1077.9 | 1072.2 | 1074.1 | 1072.2 | 1074.1 | 1074.1 | 1081.7 | 1079.8 |
| 32.5° | 1039.8 | 1034.1 | 1036.0 | 1030.3 | 1030.3 | 1032.2 | 1028.4 | 1028.4 | 1034.1 | 1030.3 |
| 35° | 999.8 | 986.5 | 988.4 | 986.5 | 988.4 | 980.8 | 980.8 | 978.9 | 982.7 | 973.2 |
| 37.5° | 942.7 | 937.0 | 935.1 | 933.2 | 935.1 | 931.3 | 935.1 | 929.4 | 935.1 | 927.5 |
| 40° | 891.3 | 887.5 | 889.4 | 878.0 | 878.0 | 879.9 | 876.1 | 874.2 | 876.1 | 883.7 |
| 42.5° | 839.9 | 832.3 | 828.4 | 824.6 | 826.5 | 820.8 | 818.9 | 815.1 | 818.9 | 811.3 |
| 45° | 778.9 | 778.9 | 777.0 | 767.5 | 769.4 | 769.4 | 761.8 | 754.2 | 756.1 | 756.1 |
| 47.5° | 723.7 | 719.9 | 718.0 | 708.5 | 706.6 | 704.7 | 697.0 | 691.3 | 691.3 | 685.6 |
| 50° | 662.8 | 658.9 | 653.2 | 643.7 | 639.9 | 628.5 | 622.8 | 615.1 | 607.5 | 607.5 |
| 52.5° | 605.6 | 592.3 | 584.7 | 569.4 | 563.7 | 558.0 | 542.8 | 537.1 | 531.3 | 525.6 |
| 55° | 537.1 | 525.6 | 510.4 | 493.3 | 485.6 | 476.1 | 460.9 | 449.5 | 441.8 | 443.7 |
| 57.5° | 470.4 | 451.4 | 436.1 | 413.3 | 403.7 | 398.0 | 382.8 | 367.6 | 359.9 | 359.9 |
| 60° | 388.5 | 373.3 | 354.2 | 333.3 | 325.7 | 316.1 | 297.1 | 287.6 | 281.9 | 276.1 |
| 62.5° | 310.4 | 299.0 | 281.9 | 255.2 | 249.5 | 240.0 | 226.6 | 215.2 | 209.5 | 209.5 |
| 65° | 232.3 | 220.9 | 205.7 | 186.6 | 179.0 | 171.4 | 160.0 | 148.5 | 142.8 | 140.9 |
| 67.5° | 163.8 | 150.5 | 137.1 | 121.9 | 116.2 | 112.4 | 100.9 | 93.3 | 89.5 | 87.6 |
| 70° | 99.0 | 91.4 | 81.9 | 70.5 | 64.8 | 60.9 | 53.3 | 47.6 | 45.7 | 43.8 |
| 72.5° | 51.4 | 45.7 | 38.1 | 30.5 | 26.7 | 22.9 | 19.0 | 15.2 | 13.3 | 13.3 |
| 75° | 19.0 | 15.2 | 9.5 | 5.7 | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 |
| 77.5° | 3.8 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 80° | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - - 90°-270°









(END OF REPORT)