

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: P136720

Luminaire Tested: **LDSQ6A10D010TE ESQ6A10827 6LSQ1LI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P136720
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P23378)
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQ6A10D010TE ESQ6A10827 6LSQ1LI
Description: PORTFOLIO LED SQUARE 6 INCH 60 DEGREE CUTOFF RECESSED DOWNLIGHT
MEDIUM DISTRIBUTION WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 2700K
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1170.0 lumens
Efficiency: N/A
Efficacy: 83.6 lumens/watt
Spacing Criteria (0/90/45): 0.92 / 0.93 / 0.95
Luminous Opening: Rectangular (W 0.46' x L: 0.46' x H: 0')
CIE Type: Direct

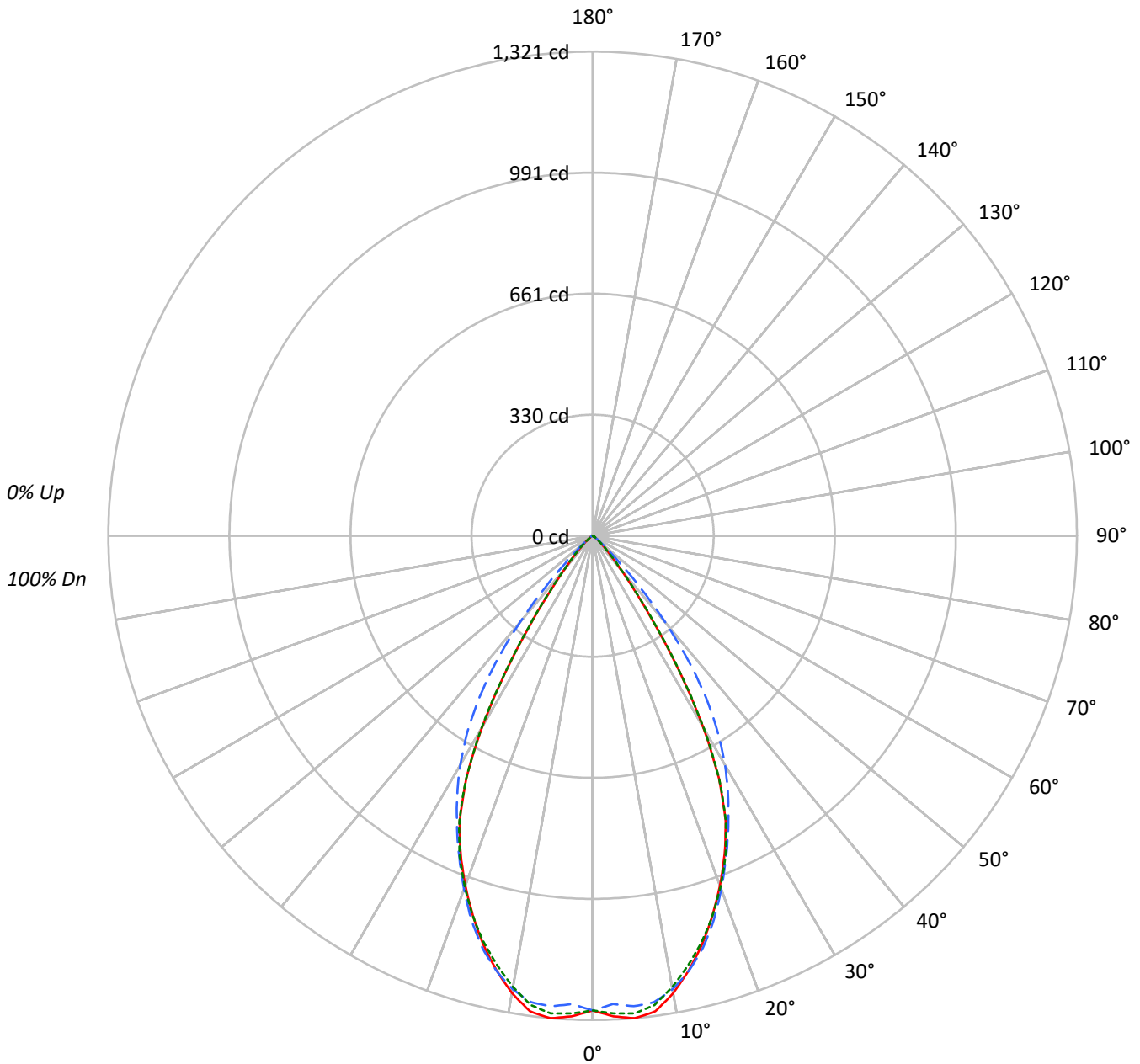
Input Watts (W): 14
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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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 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | |
| 1 | 114 | 111 | 108 | 106 | 111 | 109 | 106 | 104 | 105 | 103 | 101 | 101 | 99 | 98 | 97 | 96 | 95 | 94 | | | |
| 2 | 108 | 103 | 99 | 96 | 106 | 101 | 98 | 95 | 98 | 95 | 93 | 95 | 93 | 91 | 92 | 91 | 89 | 87 | | | |
| 3 | 103 | 96 | 91 | 87 | 101 | 95 | 90 | 87 | 92 | 88 | 85 | 90 | 87 | 84 | 88 | 85 | 83 | 81 | | | |
| 4 | 97 | 90 | 84 | 80 | 96 | 89 | 84 | 80 | 87 | 82 | 79 | 85 | 81 | 78 | 83 | 80 | 77 | 75 | | | |
| 5 | 93 | 84 | 78 | 74 | 91 | 83 | 78 | 74 | 81 | 77 | 73 | 80 | 76 | 72 | 78 | 75 | 72 | 70 | | | |
| 6 | 88 | 79 | 73 | 69 | 86 | 78 | 73 | 69 | 77 | 72 | 68 | 75 | 71 | 68 | 74 | 70 | 67 | 66 | | | |
| 7 | 84 | 74 | 68 | 64 | 82 | 74 | 68 | 64 | 72 | 67 | 64 | 71 | 67 | 63 | 70 | 66 | 63 | 62 | | | |
| 8 | 79 | 70 | 64 | 60 | 78 | 69 | 64 | 60 | 68 | 63 | 60 | 67 | 63 | 59 | 66 | 62 | 59 | 58 | | | |
| 9 | 76 | 66 | 60 | 56 | 75 | 66 | 60 | 56 | 65 | 59 | 56 | 64 | 59 | 56 | 63 | 59 | 56 | 54 | | | |
| 10 | 72 | 62 | 57 | 53 | 71 | 62 | 56 | 53 | 61 | 56 | 53 | 60 | 56 | 52 | 60 | 55 | 52 | 51 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 66361 | 66361 | 66361 |
| 5° | 67957 | 66280 | 67283 |
| 10° | 65917 | 65376 | 65038 |
| 15° | 61211 | 61726 | 60893 |
| 20° | 55363 | 55930 | 55570 |
| 25° | 48497 | 49481 | 48622 |
| 30° | 35707 | 42718 | 35873 |
| 35° | 18553 | 33709 | 18960 |
| 40° | 7813 | 20675 | 8140 |
| 45° | 3580 | 7674 | 3703 |
| 50° | 1642 | 2296 | 1690 |
| 55° | 822 | 920 | 822 |
| 60° | 502 | 553 | 502 |
| 65° | 327 | 400 | 327 |
| 70° | 240 | 240 | 240 |
| 75° | 99 | 218 | 99 |
| 80° | 148 | 148 | 148 |
| 85° | 0 | 0 | 0 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 122.6 | 10.5 |
| 10°-20° | 322.2 | 27.5 |
| 20°-30° | 394.0 | 33.7 |
| 30°-40° | 253.2 | 21.6 |
| 40°-50° | 63.2 | 5.4 |
| 50°-60° | 10.6 | 0.9 |
| 60°-70° | 3.2 | 0.3 |
| 70°-80° | 1.0 | 0.1 |
| 80°-90° | 0.2 | 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° | 838.7 | 71.7 |
| 0°-40° | 1091.9 | 93.3 |
| 0°-60° | 1165.6 | 99.6 |
| 0°-90° | 1170.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1170.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1295 | 1295 | 1295 | 1295 | 1295 | |
| 5° | 1321 | 1293 | 1289 | 1290 | 1308 | 124 |
| 15° | 1154 | 1160 | 1164 | 1151 | 1148 | 322 |
| 25° | 858 | 881 | 875 | 884 | 860 | 383 |
| 35° | 297 | 391 | 539 | 398 | 303 | 196 |
| 45° | 49 | 62 | 106 | 65 | 51 | 43 |
| 55° | 9 | 10 | 10 | 10 | 9 | 9 |
| 65° | 3 | 3 | 3 | 3 | 3 | 3 |
| 75° | 0 | 1 | 1 | 1 | 0 | 1 |
| 85° | 0 | 0 | 0 | 0 | 0 | 0 |
| 90° | 0 | 0 | 0 | 0 | 0 | 0 |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 10° | 15° | 20° | 25° | 30° | 35° | 40° | 45° | 50° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1295.1 | 1295.1 | 1295.1 | 1295.1 | 1295.1 | 1295.1 | 1295.1 | 1295.1 | 1295.1 | 1295.1 | 1295.1 |
| 2.5° | 1312.5 | 1279.9 | 1305.4 | 1303.3 | 1281.5 | 1285.9 | 1289.7 | 1289.1 | 1288.6 | 1278.8 | 1301.6 |
| 5° | 1321.2 | 1288.0 | 1314.1 | 1310.9 | 1290.8 | 1295.1 | 1297.3 | 1298.4 | 1295.6 | 1288.6 | 1310.3 |
| 7.5° | 1308.7 | 1277.7 | 1302.7 | 1298.9 | 1283.2 | 1287.0 | 1288.6 | 1291.3 | 1287.5 | 1283.7 | 1304.3 |
| 10° | 1266.9 | 1240.8 | 1264.1 | 1261.4 | 1251.1 | 1255.4 | 1256.5 | 1260.9 | 1256.5 | 1256.5 | 1275.0 |
| 12.5° | 1213.6 | 1193.5 | 1214.7 | 1212.5 | 1208.7 | 1213.6 | 1212.0 | 1219.6 | 1213.1 | 1215.2 | 1232.1 |
| 15° | 1153.9 | 1140.8 | 1158.2 | 1157.7 | 1158.2 | 1162.0 | 1157.1 | 1162.6 | 1156.6 | 1163.6 | 1178.3 |
| 17.5° | 1086.5 | 1080.5 | 1094.1 | 1094.6 | 1099.0 | 1100.1 | 1092.5 | 1099.5 | 1090.8 | 1099.0 | 1111.5 |
| 20° | 1015.3 | 1016.4 | 1027.3 | 1025.7 | 1032.2 | 1028.9 | 1018.0 | 1025.1 | 1016.4 | 1025.7 | 1035.4 |
| 22.5° | 940.4 | 949.6 | 955.6 | 954.5 | 963.2 | 958.8 | 945.3 | 948.5 | 939.8 | 950.1 | 956.1 |
| 25° | 857.8 | 868.1 | 872.5 | 872.5 | 881.7 | 880.1 | 868.1 | 873.5 | 865.4 | 875.2 | 878.4 |
| 27.5° | 745.3 | 758.4 | 761.6 | 768.2 | 783.9 | 787.2 | 782.3 | 793.1 | 789.9 | 800.2 | 799.1 |
| 30° | 603.5 | 616.6 | 621.5 | 634.5 | 660.0 | 675.3 | 683.4 | 704.6 | 710.0 | 722.0 | 716.0 |
| 32.5° | 444.9 | 455.8 | 462.8 | 482.4 | 516.1 | 547.1 | 574.8 | 606.3 | 623.1 | 636.1 | 625.3 |
| 35° | 296.6 | 304.8 | 312.4 | 336.8 | 372.1 | 410.7 | 450.9 | 496.0 | 524.8 | 538.9 | 524.2 |
| 37.5° | 186.3 | 191.8 | 196.7 | 214.6 | 242.8 | 278.7 | 321.6 | 373.2 | 412.9 | 429.7 | 411.2 |
| 40° | 116.8 | 120.1 | 122.8 | 133.6 | 151.0 | 172.8 | 209.2 | 252.6 | 293.4 | 309.1 | 291.7 |
| 42.5° | 75.0 | 76.6 | 78.2 | 84.2 | 93.4 | 107.0 | 127.1 | 154.3 | 182.5 | 193.4 | 182.0 |
| 45° | 49.4 | 50.0 | 50.5 | 53.8 | 58.7 | 65.2 | 75.5 | 88.0 | 101.6 | 105.9 | 101.0 |
| 47.5° | 32.6 | 32.6 | 33.1 | 35.3 | 38.0 | 41.8 | 45.6 | 48.9 | 53.2 | 55.4 | 52.7 |
| 50° | 20.6 | 21.2 | 21.7 | 23.4 | 25.0 | 26.6 | 27.7 | 27.7 | 28.8 | 28.8 | 28.2 |
| 52.5° | 12.5 | 12.5 | 13.0 | 13.6 | 15.8 | 17.4 | 17.4 | 16.3 | 16.3 | 16.3 | 15.8 |
| 55° | 9.2 | 9.2 | 9.2 | 9.8 | 10.3 | 10.3 | 10.3 | 10.3 | 10.3 | 10.3 | 9.8 |
| 57.5° | 7.1 | 7.1 | 7.1 | 7.6 | 7.6 | 7.6 | 7.6 | 7.1 | 7.1 | 7.1 | 7.1 |
| 60° | 4.9 | 4.9 | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 | 4.9 |
| 62.5° | 3.8 | 3.8 | 3.8 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 3.8 | 3.8 |
| 65° | 2.7 | 2.7 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 |
| 67.5° | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.7 | 2.2 | 2.2 | 2.2 | 2.2 |
| 70° | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 72.5° | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| 75° | 0.5 | 0.5 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| 77.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 80° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 82.5° | 0.0 | 0.0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 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):

| | 55° | 60° | 65° | 70° | 75° | 80° | 85° | 90° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1295.1 | 1295.1 | 1295.1 | 1295.1 | 1295.1 | 1295.1 | 1295.1 | 1295.1 |
| 2.5° | 1307.1 | 1308.7 | 1284.8 | 1289.7 | 1307.1 | 1289.7 | 1290.2 | 1304.3 |
| 5° | 1311.9 | 1311.4 | 1287.0 | 1292.9 | 1303.3 | 1290.8 | 1291.3 | 1308.1 |
| 7.5° | 1301.1 | 1296.2 | 1271.7 | 1278.8 | 1281.5 | 1272.8 | 1272.8 | 1291.3 |
| 10° | 1267.4 | 1259.2 | 1236.4 | 1243.5 | 1238.6 | 1233.2 | 1231.5 | 1250.0 |
| 12.5° | 1223.4 | 1214.2 | 1194.6 | 1201.1 | 1189.2 | 1189.2 | 1184.3 | 1201.1 |
| 15° | 1168.5 | 1160.4 | 1146.8 | 1154.4 | 1136.5 | 1140.3 | 1132.7 | 1147.9 |
| 17.5° | 1102.8 | 1097.4 | 1089.8 | 1099.0 | 1077.8 | 1084.3 | 1074.0 | 1087.0 |
| 20° | 1027.3 | 1024.6 | 1023.5 | 1032.7 | 1011.0 | 1021.8 | 1009.9 | 1019.1 |
| 22.5° | 949.1 | 949.1 | 955.0 | 967.5 | 943.6 | 955.6 | 941.4 | 946.9 |
| 25° | 871.9 | 872.5 | 879.5 | 888.2 | 864.9 | 875.2 | 859.4 | 860.0 |
| 27.5° | 789.9 | 785.0 | 792.6 | 791.0 | 761.6 | 767.6 | 750.8 | 747.5 |
| 30° | 699.7 | 685.0 | 679.6 | 664.4 | 631.3 | 630.2 | 612.8 | 606.3 |
| 32.5° | 600.8 | 573.1 | 556.3 | 525.3 | 482.9 | 473.2 | 457.4 | 449.8 |
| 35° | 491.1 | 449.3 | 418.8 | 378.1 | 336.3 | 322.1 | 309.7 | 303.1 |
| 37.5° | 370.5 | 322.7 | 287.9 | 248.8 | 218.9 | 207.5 | 197.2 | 192.9 |
| 40° | 252.6 | 211.9 | 182.0 | 155.9 | 137.4 | 130.4 | 124.4 | 121.7 |
| 42.5° | 155.9 | 129.8 | 112.5 | 96.7 | 86.4 | 82.6 | 79.9 | 78.2 |
| 45° | 89.1 | 77.1 | 69.5 | 60.8 | 56.0 | 53.8 | 52.2 | 51.1 |
| 47.5° | 49.4 | 46.2 | 43.5 | 39.7 | 36.4 | 34.8 | 34.2 | 33.7 |
| 50° | 27.7 | 28.2 | 28.2 | 26.1 | 24.4 | 22.8 | 21.7 | 21.2 |
| 52.5° | 16.3 | 17.4 | 17.9 | 16.3 | 14.1 | 13.0 | 13.0 | 12.5 |
| 55° | 10.3 | 10.3 | 10.3 | 10.3 | 9.8 | 9.2 | 9.2 | 9.2 |
| 57.5° | 7.1 | 7.1 | 7.6 | 7.6 | 7.6 | 7.1 | 7.1 | 6.5 |
| 60° | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 | 4.9 | 4.9 |
| 62.5° | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 3.8 | 3.8 | 3.8 |
| 65° | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 2.7 | 2.7 | 2.7 |
| 67.5° | 2.2 | 2.7 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| 70° | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 72.5° | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| 75° | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 0.5 | 0.5 | 0.5 |
| 77.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 80° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 82.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.0 | 0.5 |
| 85° | 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 |
| 90° | 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)