

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: P136782

Luminaire Tested: **LDSQ6A20D5LT ESQ6A20935 6LSQ1LI**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P136782  
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: LDSQ6A20D5LT ESQ6A20935 6LSQ1LI  
Description: PORTFOLIO LED SQUARE 6 INCH 60 DEGREE CUTOFF RECESSED DOWNLIGHT  
MEDIUM DISTRIBUTION WITH SPECULAR CLEAR TRIM  
Light Source: (1) HIGH LUMEN LED 3500K  
Ballast/Driver: DALI ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2341.0 lumens  
Efficiency: N/A  
Efficacy: 77.5 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

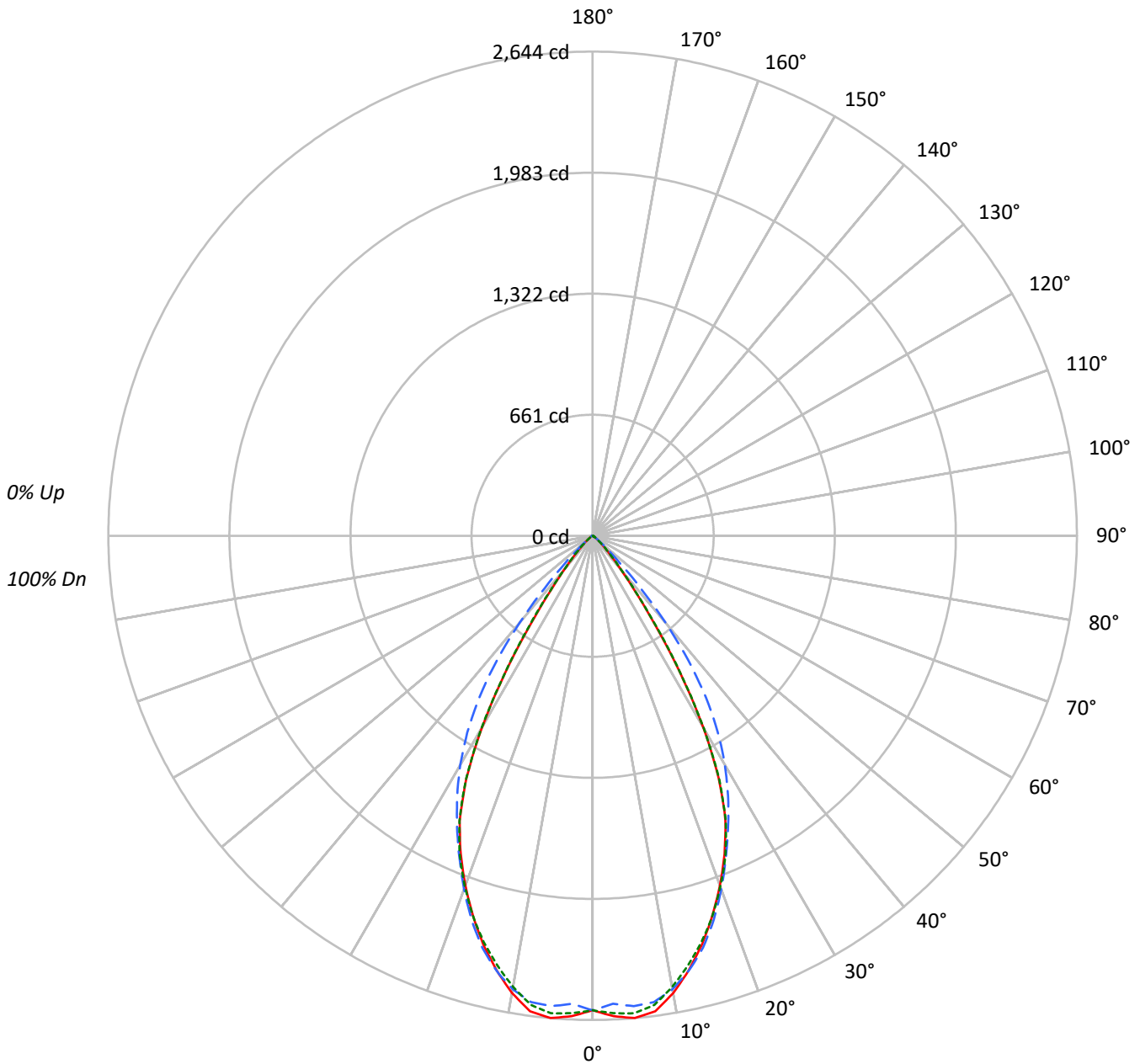
Input Watts (W): 30.2  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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   | 92  | 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°  | 132778 | 132778 | 132778 |
| 5°  | 135970 | 132611 | 134628 |
| 10° | 131886 | 130809 | 130128 |
| 15° | 122471 | 123505 | 121834 |
| 20° | 110774 | 111903 | 111189 |
| 25° | 97034  | 99002  | 97277  |
| 30° | 71450  | 85472  | 71769  |
| 35° | 37125  | 67450  | 37938  |
| 40° | 15632  | 41371  | 16287  |
| 45° | 7167   | 15362  | 7406   |
| 50° | 3292   | 4592   | 3380   |
| 55° | 1644   | 1849   | 1644   |
| 60° | 1004   | 1117   | 1004   |
| 65° | 655    | 788    | 655    |
| 70° | 479    | 479    | 479    |
| 75° | 218    | 436    | 218    |
| 80° | 325    | 325    | 325    |
| 85° | 0      | 0      | 0      |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 245.2  | 10.5      |
| 10°-20°   | 644.7  | 27.5      |
| 20°-30°   | 788.2  | 33.7      |
| 30°-40°   | 506.5  | 21.6      |
| 40°-50°   | 126.4  | 5.4       |
| 50°-60°   | 21.2   | 0.9       |
| 60°-70°   | 6.4    | 0.3       |
| 70°-80°   | 2.0    | 0.1       |
| 80°-90°   | 0.4    | 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°    | 1678.1 | 71.7      |
| 0°-40°    | 2184.7 | 93.3      |
| 0°-60°    | 2332.2 | 99.6      |
| 0°-90°    | 2341.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2341.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2591 | 2591  | 2591 | 2591  | 2591 |      |
| 5°  | 2644 | 2587  | 2578 | 2581  | 2617 | 249  |
| 15° | 2309 | 2321  | 2328 | 2302  | 2297 | 644  |
| 25° | 1716 | 1762  | 1751 | 1768  | 1721 | 765  |
| 35° | 594  | 783   | 1078 | 797   | 606  | 393  |
| 45° | 99   | 124   | 212  | 130   | 102  | 85   |
| 55° | 18   | 21    | 21   | 21    | 18   | 18   |
| 65° | 5    | 6     | 6    | 6     | 5    | 6    |
| 75° | 1    | 2     | 2    | 2     | 1    | 2    |
| 85° | 0    | 0     | 0    | 0     | 0    | 0    |
| 90° | 0    | 0     | 0    | 0     | 0    | 0    |



TEST NUMBER: P136782

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 10°    | 15°    | 20°    | 25°    | 30°    | 35°    | 40°    | 45°    | 50°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 2591.3 | 2591.3 | 2591.3 | 2591.3 | 2591.3 | 2591.3 | 2591.3 | 2591.3 | 2591.3 | 2591.3 | 2591.3 |
| 2.5°  | 2626.0 | 2560.9 | 2611.9 | 2607.6 | 2564.1 | 2572.7 | 2580.4 | 2579.3 | 2578.2 | 2558.6 | 2604.3 |
| 5°    | 2643.5 | 2577.2 | 2629.3 | 2622.8 | 2582.6 | 2591.3 | 2595.6 | 2597.8 | 2592.4 | 2578.2 | 2621.7 |
| 7.5°  | 2618.5 | 2556.5 | 2606.5 | 2598.8 | 2567.3 | 2575.0 | 2578.2 | 2583.6 | 2576.1 | 2568.4 | 2609.7 |
| 10°   | 2534.8 | 2482.6 | 2529.3 | 2523.9 | 2503.2 | 2511.9 | 2514.1 | 2522.8 | 2514.1 | 2514.1 | 2551.1 |
| 12.5° | 2428.2 | 2388.0 | 2430.4 | 2426.1 | 2418.4 | 2428.2 | 2425.0 | 2440.2 | 2427.2 | 2431.5 | 2465.2 |
| 15°   | 2308.7 | 2282.6 | 2317.4 | 2316.2 | 2317.4 | 2325.0 | 2315.1 | 2326.0 | 2314.1 | 2328.2 | 2357.6 |
| 17.5° | 2173.9 | 2161.9 | 2189.1 | 2190.2 | 2198.9 | 2201.1 | 2185.9 | 2200.0 | 2182.6 | 2198.9 | 2223.9 |
| 20°   | 2031.5 | 2033.7 | 2055.4 | 2052.2 | 2065.2 | 2058.6 | 2036.9 | 2051.1 | 2033.7 | 2052.2 | 2071.7 |
| 22.5° | 1881.5 | 1900.0 | 1912.0 | 1909.7 | 1927.2 | 1918.4 | 1891.3 | 1897.8 | 1880.4 | 1901.1 | 1913.1 |
| 25°   | 1716.3 | 1737.0 | 1745.6 | 1745.6 | 1764.1 | 1760.8 | 1737.0 | 1747.8 | 1731.5 | 1751.1 | 1757.6 |
| 27.5° | 1491.2 | 1517.3 | 1523.9 | 1537.0 | 1568.4 | 1575.0 | 1565.2 | 1586.9 | 1580.4 | 1601.1 | 1598.9 |
| 30°   | 1207.6 | 1233.6 | 1243.5 | 1269.5 | 1320.7 | 1351.1 | 1367.3 | 1409.7 | 1420.6 | 1444.6 | 1432.6 |
| 32.5° | 890.2  | 912.0  | 926.1  | 965.2  | 1032.5 | 1094.5 | 1150.0 | 1213.0 | 1246.7 | 1272.8 | 1251.1 |
| 35°   | 593.5  | 609.8  | 625.0  | 673.9  | 744.5  | 821.7  | 902.2  | 992.3  | 1050.0 | 1078.3 | 1048.9 |
| 37.5° | 372.9  | 383.6  | 393.5  | 429.4  | 485.9  | 557.6  | 643.5  | 746.7  | 826.1  | 859.8  | 822.8  |
| 40°   | 233.7  | 240.2  | 245.6  | 267.4  | 302.1  | 345.7  | 418.5  | 505.4  | 586.9  | 618.5  | 583.7  |
| 42.5° | 150.0  | 153.2  | 156.6  | 168.4  | 187.0  | 214.1  | 254.4  | 308.7  | 365.2  | 387.0  | 364.1  |
| 45°   | 98.9   | 100.0  | 101.1  | 107.6  | 117.4  | 130.5  | 151.1  | 176.1  | 203.3  | 212.0  | 202.2  |
| 47.5° | 65.2   | 65.2   | 66.3   | 70.6   | 76.1   | 83.7   | 91.3   | 97.8   | 106.5  | 110.8  | 105.5  |
| 50°   | 41.3   | 42.4   | 43.5   | 46.7   | 50.0   | 53.3   | 55.4   | 55.4   | 57.6   | 57.6   | 56.5   |
| 52.5° | 25.0   | 25.0   | 26.1   | 27.2   | 31.5   | 34.8   | 34.8   | 32.6   | 32.6   | 32.6   | 31.5   |
| 55°   | 18.4   | 18.4   | 18.4   | 19.5   | 20.7   | 20.7   | 20.7   | 20.7   | 20.7   | 20.7   | 19.5   |
| 57.5° | 14.1   | 14.1   | 14.1   | 15.2   | 15.2   | 15.2   | 15.2   | 14.1   | 14.1   | 14.1   | 14.1   |
| 60°   | 9.8    | 9.8    | 10.9   | 10.9   | 10.9   | 10.9   | 10.9   | 10.9   | 10.9   | 10.9   | 9.8    |
| 62.5° | 7.7    | 7.7    | 7.7    | 8.7    | 8.7    | 8.7    | 8.7    | 8.7    | 8.7    | 7.7    | 7.7    |
| 65°   | 5.4    | 5.4    | 6.5    | 6.5    | 6.5    | 6.5    | 6.5    | 6.5    | 6.5    | 6.5    | 6.5    |
| 67.5° | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    | 5.4    | 4.3    | 4.3    | 4.3    | 4.3    |
| 70°   | 3.2    | 3.2    | 3.2    | 3.2    | 3.2    | 3.2    | 3.2    | 3.2    | 3.2    | 3.2    | 3.2    |
| 72.5° | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    |
| 75°   | 1.1    | 1.1    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    |
| 77.5° | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    |
| 80°   | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    |
| 82.5° | 0.0    | 0.0    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    |
| 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°    | 2591.3 | 2591.3 | 2591.3 | 2591.3 | 2591.3 | 2591.3 | 2591.3 | 2591.3 |
| 2.5°  | 2615.2 | 2618.5 | 2570.6 | 2580.4 | 2615.2 | 2580.4 | 2581.5 | 2609.7 |
| 5°    | 2624.9 | 2623.9 | 2575.0 | 2586.9 | 2607.6 | 2582.6 | 2583.6 | 2617.4 |
| 7.5°  | 2603.3 | 2593.4 | 2544.5 | 2558.6 | 2564.1 | 2546.7 | 2546.7 | 2583.6 |
| 10°   | 2535.9 | 2519.5 | 2473.9 | 2488.0 | 2478.2 | 2467.4 | 2464.1 | 2501.0 |
| 12.5° | 2447.8 | 2429.3 | 2390.2 | 2403.2 | 2379.3 | 2379.3 | 2369.5 | 2403.2 |
| 15°   | 2338.0 | 2321.7 | 2294.5 | 2309.7 | 2273.8 | 2281.5 | 2266.3 | 2296.7 |
| 17.5° | 2206.5 | 2195.7 | 2180.4 | 2198.9 | 2156.5 | 2169.6 | 2148.9 | 2175.0 |
| 20°   | 2055.4 | 2050.0 | 2047.8 | 2066.3 | 2022.8 | 2044.5 | 2020.7 | 2039.1 |
| 22.5° | 1898.9 | 1898.9 | 1910.8 | 1935.8 | 1888.0 | 1912.0 | 1883.6 | 1894.5 |
| 25°   | 1744.5 | 1745.6 | 1759.7 | 1777.2 | 1730.4 | 1751.1 | 1719.5 | 1720.6 |
| 27.5° | 1580.4 | 1570.6 | 1585.8 | 1582.6 | 1523.9 | 1535.9 | 1502.1 | 1495.7 |
| 30°   | 1400.0 | 1370.6 | 1359.8 | 1329.3 | 1263.0 | 1260.8 | 1226.1 | 1213.0 |
| 32.5° | 1202.2 | 1146.7 | 1113.0 | 1051.1 | 966.3  | 946.7  | 915.2  | 900.0  |
| 35°   | 982.6  | 898.9  | 838.0  | 756.5  | 672.8  | 644.6  | 619.6  | 606.5  |
| 37.5° | 741.3  | 645.7  | 576.1  | 497.8  | 438.0  | 415.2  | 394.5  | 385.9  |
| 40°   | 505.4  | 423.9  | 364.1  | 311.9  | 275.0  | 260.8  | 248.9  | 243.5  |
| 42.5° | 311.9  | 259.8  | 225.0  | 193.4  | 172.8  | 165.2  | 159.8  | 156.6  |
| 45°   | 178.2  | 154.3  | 139.1  | 121.7  | 111.9  | 107.6  | 104.4  | 102.2  |
| 47.5° | 98.9   | 92.4   | 86.9   | 79.4   | 72.8   | 69.5   | 68.5   | 67.4   |
| 50°   | 55.4   | 56.5   | 56.5   | 52.2   | 49.0   | 45.6   | 43.5   | 42.4   |
| 52.5° | 32.6   | 34.8   | 35.9   | 32.6   | 28.3   | 26.1   | 26.1   | 25.0   |
| 55°   | 20.7   | 20.7   | 20.7   | 20.7   | 19.5   | 18.4   | 18.4   | 18.4   |
| 57.5° | 14.1   | 14.1   | 15.2   | 15.2   | 15.2   | 14.1   | 14.1   | 13.0   |
| 60°   | 10.9   | 10.9   | 10.9   | 10.9   | 10.9   | 10.9   | 9.8    | 9.8    |
| 62.5° | 8.7    | 8.7    | 8.7    | 8.7    | 8.7    | 7.7    | 7.7    | 7.7    |
| 65°   | 6.5    | 6.5    | 6.5    | 6.5    | 6.5    | 5.4    | 5.4    | 5.4    |
| 67.5° | 4.3    | 5.4    | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    |
| 70°   | 3.2    | 3.2    | 3.2    | 3.2    | 3.2    | 3.2    | 3.2    | 3.2    |
| 72.5° | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    |
| 75°   | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 1.1    | 1.1    | 1.1    |
| 77.5° | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    |
| 80°   | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    |
| 82.5° | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 0.0    | 1.1    |
| 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    |



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









(END OF REPORT)