

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: INVUE

Report Number: P367641

Luminaire Tested: **MSA-SA2D-830-U-SL4-HSS**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P367641  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-21)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: MSA-SA2D-830-U-SL4-HSS  
Description: MESA POST TOP DECORATIVE LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8864 lumens  
Efficiency: N/A  
Efficacy: 68.7 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B1 - U0 - G2

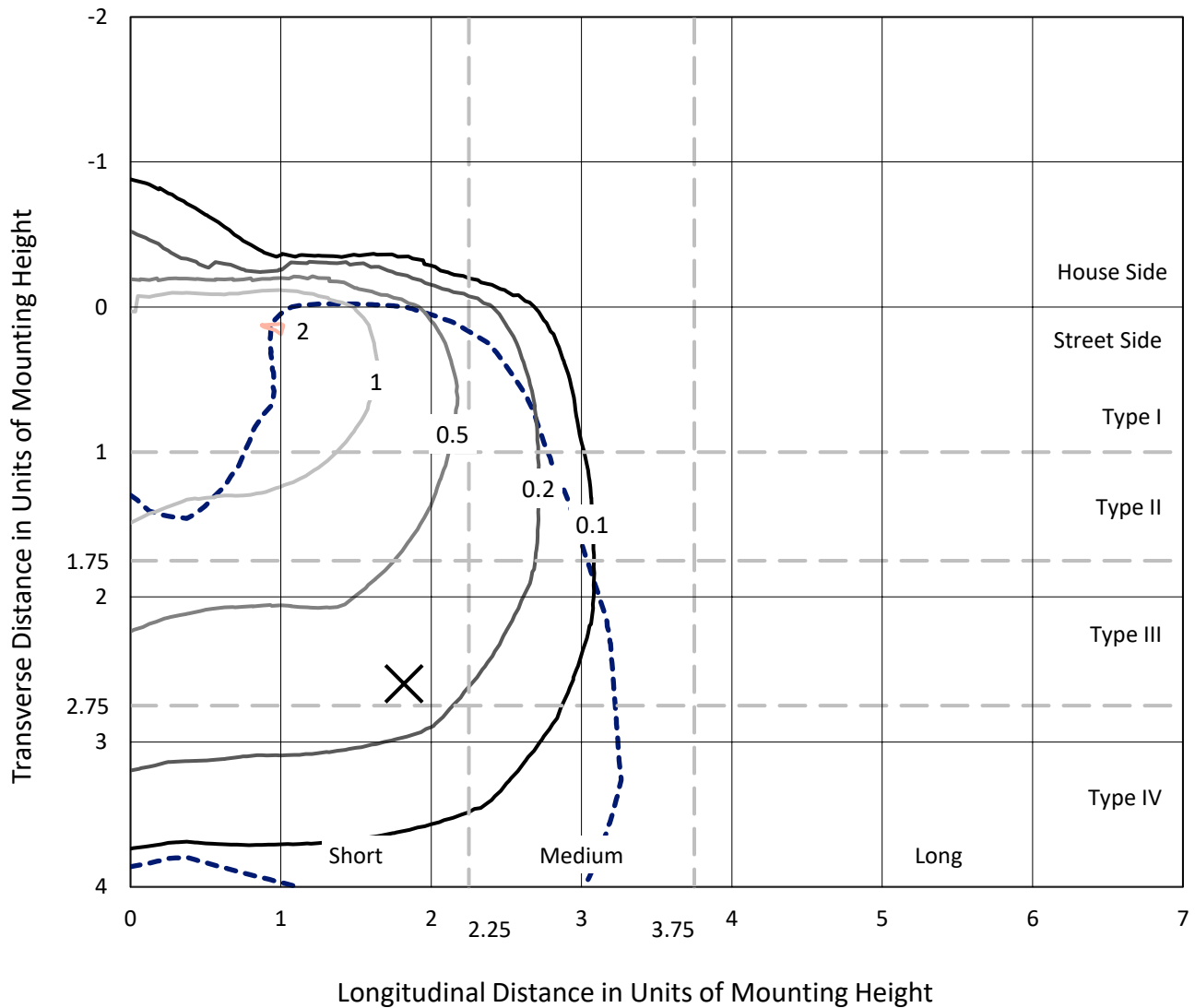
Input Watts (W): 129  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



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### Iso-Footcandle Lines of Horizontal Illumination

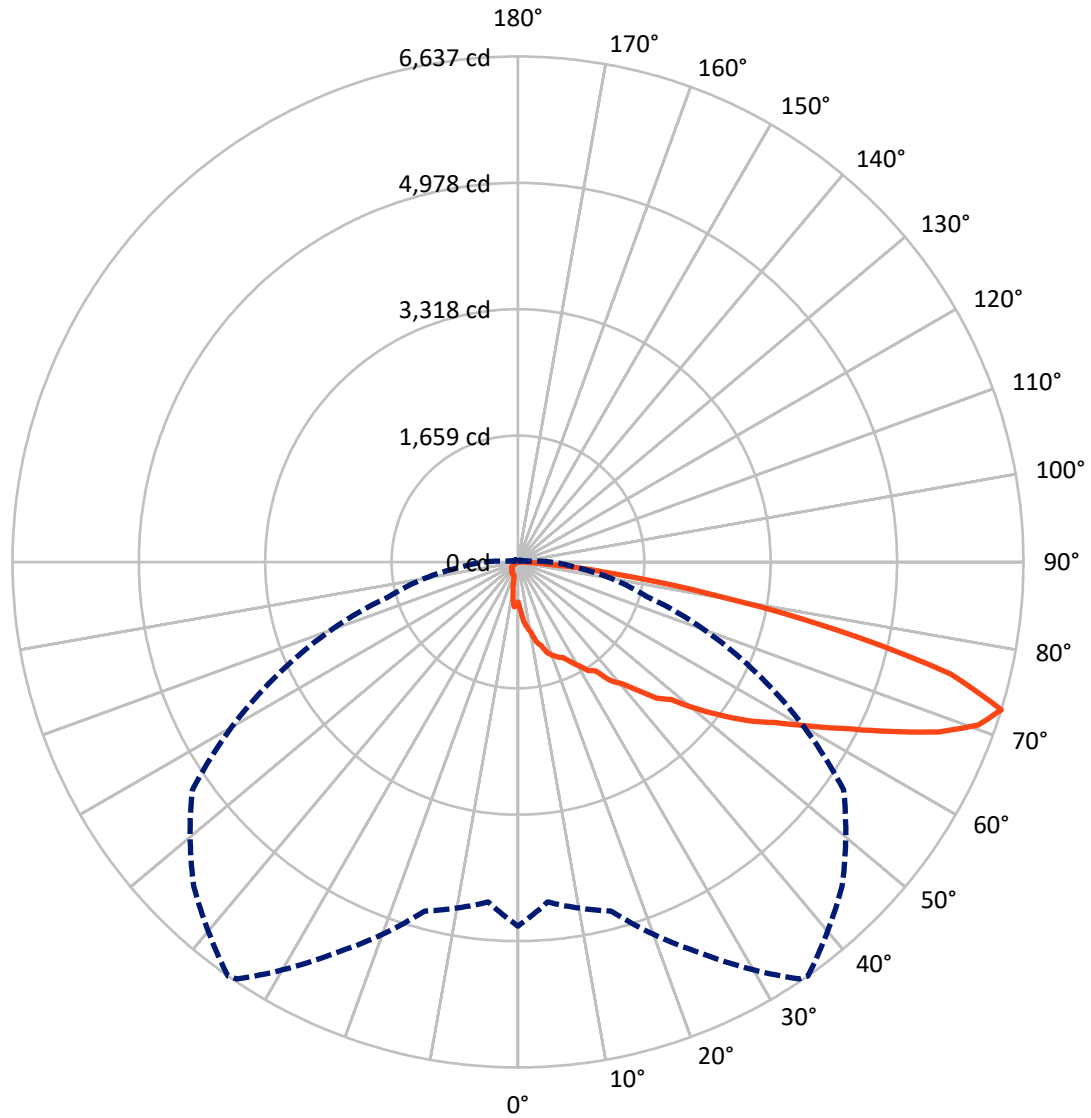
× Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 2 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 35-Deg Lateral      - - - Horizontal Cone Through 72.5-Deg Vertical

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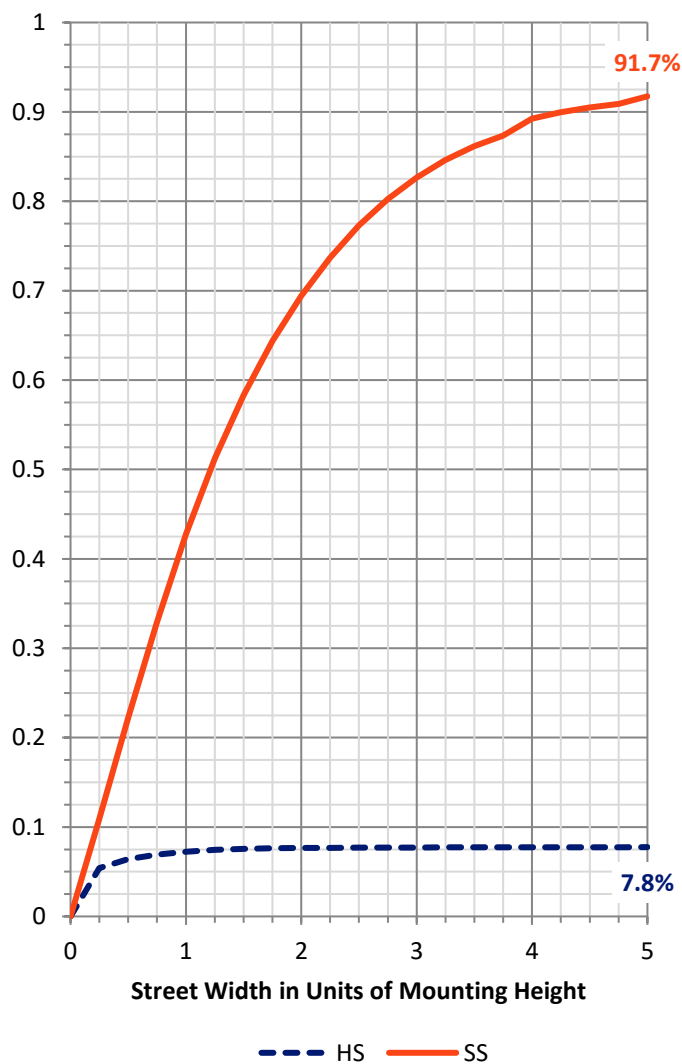
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 691.4    | 0.0    | 691.4  |
|                    | % Fixture | 7.8      | 0.0    | 7.8    |
| <b>Street Side</b> | Lumens    | 8172.6   | 0.0    | 8172.6 |
|                    | % Fixture | 92.2     | 0.0    | 92.2   |
| <b>Total</b>       | Lumens    | 8864.0   | 0.0    | 8864.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 67.3   | 0.8       |
| 10°-20°   | 226.8  | 2.6       |
| 20°-30°   | 413.1  | 4.7       |
| 30°-40°   | 712.6  | 8.0       |
| 40°-50°   | 1266.7 | 14.3      |
| 50°-60°   | 1890.2 | 21.3      |
| 60°-70°   | 2414.9 | 27.2      |
| 70°-80°   | 1680.2 | 19.0      |
| 80°-90°   | 192.2  | 2.2       |
| 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°-90°    | 8864.0 | 100.0     |
| 0°-180°   | 8864.0 | 100.0     |

**Coefficient of Utilization**

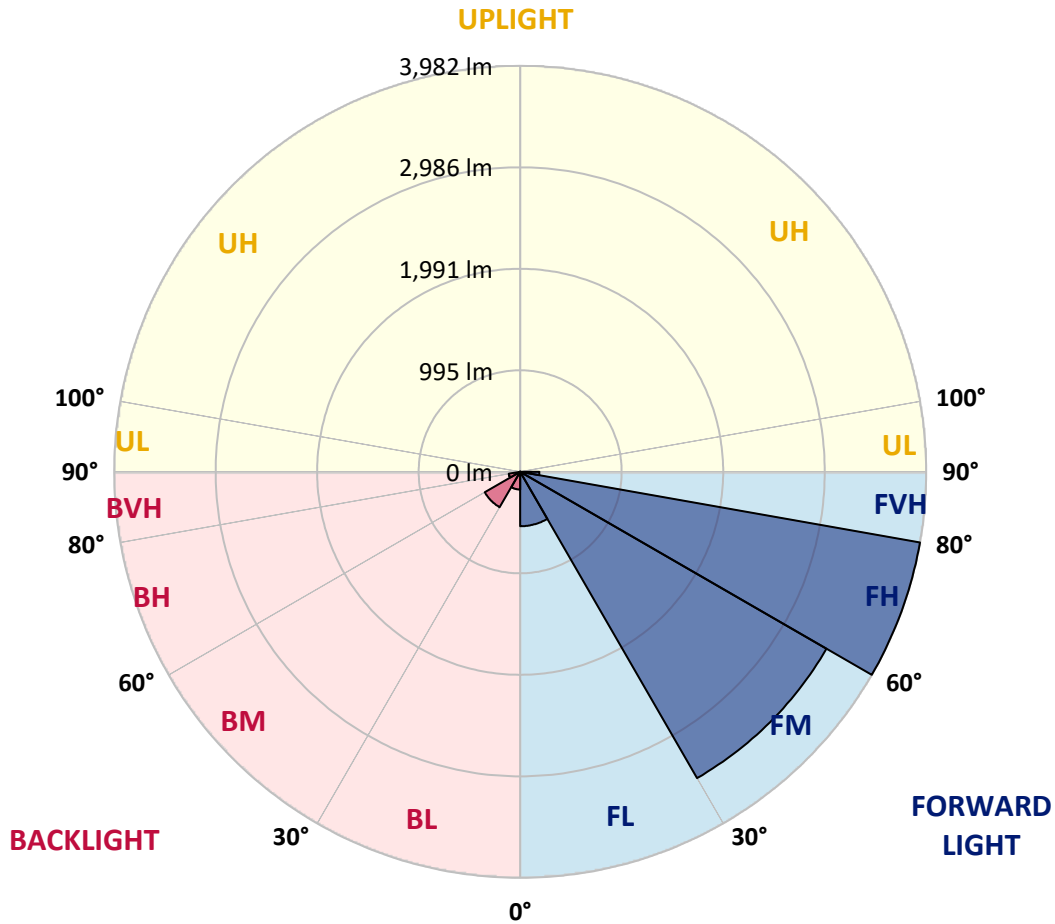


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 533.4  | 6.0       |                         |      |         |
| FM (30°-60°)   | 3468.5 | 39.1      |                         |      |         |
| FH (60°-80°)   | 3981.7 | 44.9      |                         |      | G2/5000 |
| FVH (80°-90°)  | 189.0  | 2.1       |                         |      | G2/225  |
| BL (0°-30°)    | 173.9  | 2.0       | B1/500                  |      |         |
| BM (30°-60°)   | 400.9  | 4.5       | B1/1000                 |      |         |
| BH (60°-80°)   | 113.3  | 1.3       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 3.2    | 0.0       |                         |      | G0/10   |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G2**  
 Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 34°    | 35°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 528.0  | 528.0  | 528.0  | 528.0  | 528.0  | 528.0  | 528.0  | 528.0  | 528.0  | 528.0  | 528.0  |
| 2.5°  | 672.0  | 645.7  | 602.9  | 606.0  | 625.2  | 629.2  | 635.0  | 619.8  | 606.5  | 582.8  | 628.7  |
| 5°    | 860.9  | 823.0  | 798.9  | 791.4  | 780.2  | 781.1  | 753.9  | 763.7  | 761.1  | 778.5  | 799.4  |
| 7.5°  | 967.4  | 946.4  | 916.1  | 907.7  | 866.7  | 862.2  | 828.8  | 873.8  | 878.3  | 872.0  | 906.3  |
| 10°   | 1009.7 | 982.1  | 985.7  | 954.0  | 933.5  | 938.9  | 944.2  | 947.8  | 953.6  | 959.4  | 917.5  |
| 12.5° | 1034.7 | 1039.6 | 1088.1 | 1055.2 | 1075.7 | 1075.7 | 1111.8 | 1073.4 | 1074.8 | 1032.9 | 1040.0 |
| 15°   | 1147.0 | 1174.1 | 1152.3 | 1151.9 | 1129.6 | 1135.4 | 1177.3 | 1147.0 | 1162.6 | 1150.1 | 1102.0 |
| 17.5° | 1287.8 | 1293.1 | 1251.7 | 1233.4 | 1253.5 | 1253.9 | 1236.1 | 1234.7 | 1180.4 | 1272.2 | 1213.8 |
| 20°   | 1332.8 | 1363.1 | 1304.2 | 1233.0 | 1316.3 | 1312.3 | 1310.9 | 1290.0 | 1199.5 | 1327.0 | 1278.9 |
| 22.5° | 1455.3 | 1412.1 | 1372.0 | 1325.2 | 1357.7 | 1357.7 | 1352.8 | 1306.9 | 1271.7 | 1322.1 | 1342.6 |
| 25°   | 1493.6 | 1499.0 | 1446.8 | 1431.7 | 1432.6 | 1392.5 | 1388.9 | 1369.3 | 1335.4 | 1421.4 | 1380.4 |
| 27.5° | 1625.5 | 1623.3 | 1498.1 | 1540.4 | 1486.5 | 1486.9 | 1388.5 | 1432.6 | 1438.4 | 1426.3 | 1472.2 |
| 30°   | 1755.2 | 1791.3 | 1602.4 | 1655.8 | 1599.2 | 1582.3 | 1486.1 | 1525.3 | 1535.5 | 1521.7 | 1579.6 |
| 32.5° | 1920.5 | 1973.5 | 1789.9 | 1737.4 | 1650.9 | 1699.0 | 1632.7 | 1540.0 | 1590.8 | 1714.2 | 1746.7 |
| 35°   | 2095.6 | 2121.5 | 1925.9 | 1852.3 | 1754.7 | 1754.3 | 1752.1 | 1759.6 | 1815.8 | 1954.8 | 1982.4 |
| 37.5° | 2410.2 | 2349.2 | 2172.3 | 2003.8 | 2025.7 | 1977.1 | 1943.2 | 1978.9 | 2037.2 | 2266.3 | 2384.4 |
| 40°   | 2585.8 | 2541.7 | 2292.6 | 2192.8 | 2084.5 | 2102.3 | 2194.1 | 2190.1 | 2345.6 | 2585.3 | 2762.2 |
| 42.5° | 2756.4 | 2714.6 | 2469.5 | 2388.8 | 2249.8 | 2298.4 | 2338.5 | 2389.3 | 2707.9 | 3094.6 | 3191.8 |
| 45°   | 2908.4 | 2785.4 | 2612.5 | 2615.6 | 2543.4 | 2549.2 | 2620.1 | 2666.9 | 3127.6 | 3524.2 | 3592.4 |
| 47.5° | 3000.2 | 2899.0 | 2733.3 | 2730.1 | 2725.7 | 2698.5 | 3032.3 | 3075.0 | 3462.3 | 3933.2 | 3939.5 |
| 50°   | 3129.4 | 3002.8 | 2857.6 | 2860.3 | 2963.2 | 3020.7 | 3419.0 | 3414.6 | 3785.3 | 4274.6 | 4130.6 |
| 52.5° | 3290.3 | 3135.6 | 2975.7 | 3094.6 | 3253.7 | 3347.3 | 3670.8 | 3802.7 | 4132.4 | 4488.9 | 4205.5 |
| 55°   | 3496.1 | 3302.7 | 3148.6 | 3301.0 | 3648.1 | 3684.2 | 3917.2 | 4195.7 | 4510.7 | 4707.7 | 4229.6 |
| 57.5° | 3737.6 | 3506.8 | 3382.0 | 3627.6 | 3973.8 | 3974.7 | 4275.9 | 4614.6 | 4742.9 | 4796.8 | 4202.4 |
| 60°   | 3997.9 | 3728.7 | 3603.1 | 3824.1 | 4332.9 | 4369.5 | 4674.7 | 4845.8 | 4978.6 | 4841.8 | 4153.8 |
| 62.5° | 4226.9 | 3929.7 | 3832.1 | 4091.9 | 4726.8 | 4813.3 | 5022.3 | 4997.8 | 5148.8 | 4898.4 | 4030.4 |
| 65°   | 4499.6 | 4189.9 | 4125.7 | 4509.4 | 5241.1 | 5360.0 | 5412.6 | 5267.4 | 5205.9 | 4854.7 | 3709.1 |
| 67.5° | 4769.6 | 4480.0 | 4478.2 | 4972.4 | 5915.2 | 5956.2 | 5901.0 | 5647.4 | 5139.5 | 4469.7 | 3120.5 |
| 70°   | 4959.9 | 4648.9 | 4766.1 | 5479.5 | 6527.9 | 6413.0 | 6180.4 | 5827.0 | 4660.0 | 3425.7 | 2038.6 |
| 72.5° | 4781.2 | 4481.3 | 4745.6 | 5659.9 | 6603.7 | 6636.7 | 6018.6 | 5219.7 | 3462.3 | 1752.1 | 737.9  |
| 75°   | 3633.4 | 3449.8 | 4120.4 | 5021.4 | 5863.1 | 5870.7 | 5023.6 | 3681.5 | 1704.8 | 475.9  | 204.1  |
| 77.5° | 1830.0 | 1771.7 | 2608.1 | 3564.7 | 4277.7 | 4265.2 | 3451.6 | 1972.2 | 548.5  | 158.2  | 102.9  |
| 80°   | 926.4  | 879.6  | 1110.0 | 1923.2 | 2540.3 | 2559.0 | 1970.9 | 883.2  | 276.7  | 86.0   | 71.3   |
| 82.5° | 569.0  | 540.1  | 607.3  | 870.2  | 1233.0 | 1262.8 | 747.7  | 559.2  | 171.6  | 50.8   | 65.1   |
| 85°   | 110.1  | 115.9  | 348.9  | 435.8  | 492.4  | 480.8  | 221.5  | 460.3  | 51.7   | 30.3   | 47.2   |
| 87.5° | 0.0    | 1.8    | 80.7   | 142.1  | 142.6  | 126.5  | 50.4   | 102.0  | 7.1    | 8.5    | 5.8    |
| 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):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 528.0  | 528.0  | 528.0 | 528.0 | 528.0 | 528.0 | 528.0 | 528.0 | 528.0 | 528.0 | 528.0 |
| 2.5°  | 636.3  | 629.6  | 573.9 | 567.7 | 569.0 | 559.7 | 556.5 | 536.9 | 532.0 | 562.3 | 567.7 |
| 5°    | 790.5  | 745.9  | 694.2 | 675.5 | 646.6 | 597.5 | 590.4 | 577.9 | 564.1 | 569.5 | 565.5 |
| 7.5°  | 884.9  | 825.7  | 770.4 | 672.0 | 590.4 | 519.1 | 507.5 | 486.1 | 464.8 | 465.2 | 479.0 |
| 10°   | 900.1  | 850.2  | 774.0 | 654.1 | 561.0 | 471.9 | 394.3 | 338.2 | 312.8 | 290.1 | 296.8 |
| 12.5° | 987.9  | 941.5  | 801.2 | 648.8 | 518.2 | 379.2 | 277.6 | 222.8 | 198.7 | 190.7 | 189.8 |
| 15°   | 1058.3 | 1021.7 | 847.5 | 632.3 | 423.3 | 266.9 | 198.7 | 182.7 | 178.2 | 185.8 | 183.6 |
| 17.5° | 1163.0 | 1097.0 | 842.6 | 564.1 | 322.6 | 202.7 | 183.1 | 180.9 | 186.3 | 190.7 | 192.1 |
| 20°   | 1208.9 | 1114.0 | 809.2 | 457.2 | 241.5 | 185.8 | 178.7 | 174.2 | 184.0 | 197.4 | 194.7 |
| 22.5° | 1255.2 | 1142.9 | 770.0 | 374.3 | 194.3 | 177.8 | 173.8 | 170.2 | 177.8 | 190.7 | 193.8 |
| 25°   | 1276.2 | 1189.3 | 726.3 | 292.3 | 180.5 | 168.4 | 165.8 | 167.1 | 173.3 | 184.9 | 183.6 |
| 27.5° | 1381.8 | 1194.6 | 643.0 | 230.8 | 174.7 | 161.8 | 161.8 | 164.9 | 164.9 | 180.5 | 179.1 |
| 30°   | 1447.7 | 1285.1 | 575.3 | 194.3 | 168.0 | 152.4 | 157.7 | 159.1 | 156.8 | 173.8 | 175.1 |
| 32.5° | 1563.6 | 1310.0 | 509.3 | 178.2 | 157.3 | 151.1 | 150.2 | 151.1 | 152.8 | 169.3 | 169.8 |
| 35°   | 1741.8 | 1433.0 | 419.3 | 172.0 | 151.9 | 144.4 | 138.1 | 143.0 | 147.5 | 159.5 | 161.8 |
| 37.5° | 2090.3 | 1559.1 | 341.8 | 167.1 | 149.3 | 138.1 | 135.9 | 135.0 | 143.0 | 156.8 | 161.3 |
| 40°   | 2372.3 | 1782.4 | 278.0 | 163.1 | 143.9 | 134.6 | 128.8 | 129.2 | 136.4 | 146.6 | 153.3 |
| 42.5° | 2771.6 | 1943.7 | 235.7 | 156.8 | 136.4 | 127.0 | 120.3 | 124.3 | 127.4 | 138.1 | 142.6 |
| 45°   | 3104.9 | 2068.9 | 207.6 | 152.8 | 128.8 | 119.9 | 114.5 | 119.0 | 115.9 | 121.2 | 127.4 |
| 47.5° | 3370.0 | 2178.1 | 186.7 | 143.0 | 123.9 | 115.9 | 109.2 | 107.8 | 102.5 | 103.8 | 109.6 |
| 50°   | 3515.7 | 2159.8 | 169.3 | 133.2 | 117.6 | 111.8 | 102.5 | 93.1  | 86.0  | 85.6  | 89.1  |
| 52.5° | 3567.4 | 2062.2 | 155.1 | 124.8 | 110.1 | 102.9 | 92.2  | 79.3  | 72.2  | 70.0  | 73.1  |
| 55°   | 3581.7 | 1921.8 | 142.1 | 115.4 | 102.9 | 91.8  | 80.7  | 66.8  | 59.3  | 55.7  | 58.8  |
| 57.5° | 3535.3 | 1705.7 | 129.7 | 106.5 | 94.5  | 81.1  | 69.1  | 54.8  | 47.7  | 43.2  | 45.9  |
| 60°   | 3420.8 | 1431.2 | 118.5 | 95.4  | 85.6  | 71.7  | 58.4  | 44.1  | 36.5  | 32.5  | 33.9  |
| 62.5° | 3167.3 | 1122.0 | 106.5 | 85.1  | 76.2  | 62.8  | 49.0  | 34.8  | 27.6  | 24.1  | 24.5  |
| 65°   | 2781.4 | 836.4  | 92.7  | 75.3  | 67.7  | 54.4  | 39.2  | 26.7  | 20.9  | 17.8  | 17.4  |
| 67.5° | 2215.9 | 566.8  | 78.9  | 65.1  | 60.2  | 45.9  | 31.2  | 20.9  | 16.5  | 14.3  | 13.4  |
| 70°   | 1302.5 | 285.6  | 65.5  | 56.1  | 51.7  | 38.3  | 24.5  | 16.9  | 15.2  | 13.4  | 12.5  |
| 72.5° | 429.6  | 123.4  | 51.2  | 46.3  | 42.8  | 30.7  | 19.2  | 15.6  | 14.7  | 12.9  | 12.0  |
| 75°   | 149.7  | 71.3   | 37.9  | 35.6  | 33.9  | 23.2  | 16.0  | 14.3  | 14.3  | 12.5  | 11.1  |
| 77.5° | 98.0   | 55.3   | 28.1  | 25.8  | 25.4  | 16.9  | 13.8  | 13.4  | 12.5  | 10.2  | 8.5   |
| 80°   | 81.5   | 31.2   | 19.6  | 18.3  | 17.8  | 10.7  | 11.1  | 9.8   | 7.6   | 4.5   | 1.8   |
| 82.5° | 75.3   | 18.7   | 10.2  | 11.1  | 10.2  | 4.0   | 6.2   | 5.3   | 4.0   | 1.8   | 0.0   |
| 85°   | 44.1   | 8.5    | 5.8   | 5.8   | 4.5   | 0.9   | 3.1   | 3.1   | 1.8   | 0.4   | 0.0   |
| 87.5° | 4.9    | 4.0    | 3.1   | 3.1   | 2.2   | 0.0   | 1.3   | 0.9   | 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   |

(END OF REPORT)