

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: P366708

Luminaire Tested: **MSA-SA1A-760-U-T4W**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P366708  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-14)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: MSA-SA1A-760-U-T4W  
Description: MESA POST TOP DECORATIVE LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS.  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4097 lumens  
Efficiency: N/A  
Efficacy: 120.5 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B1 - U0 - G1

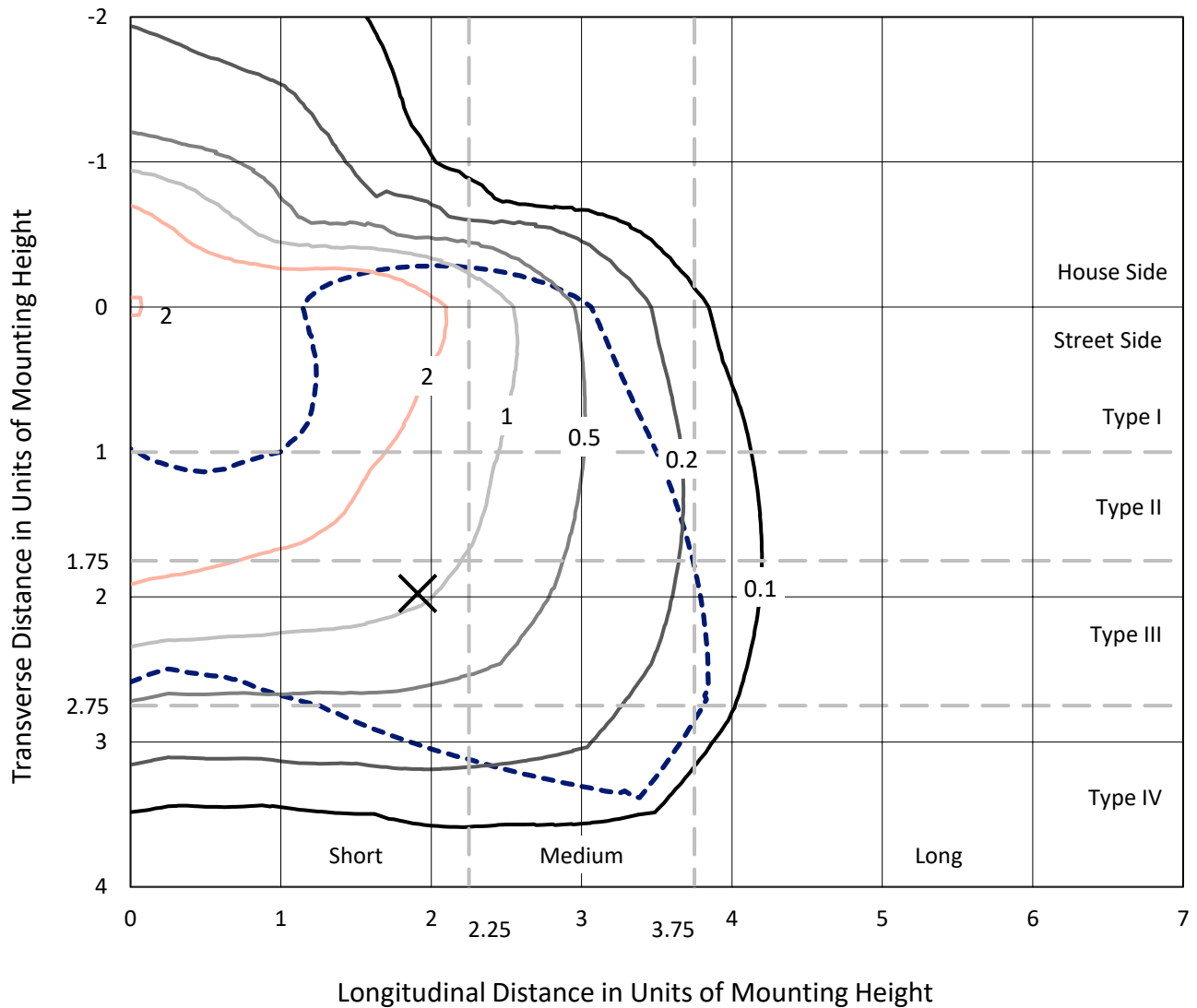
Input Watts (W): 34  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Iso-Footcandle Lines of Horizontal Illumination

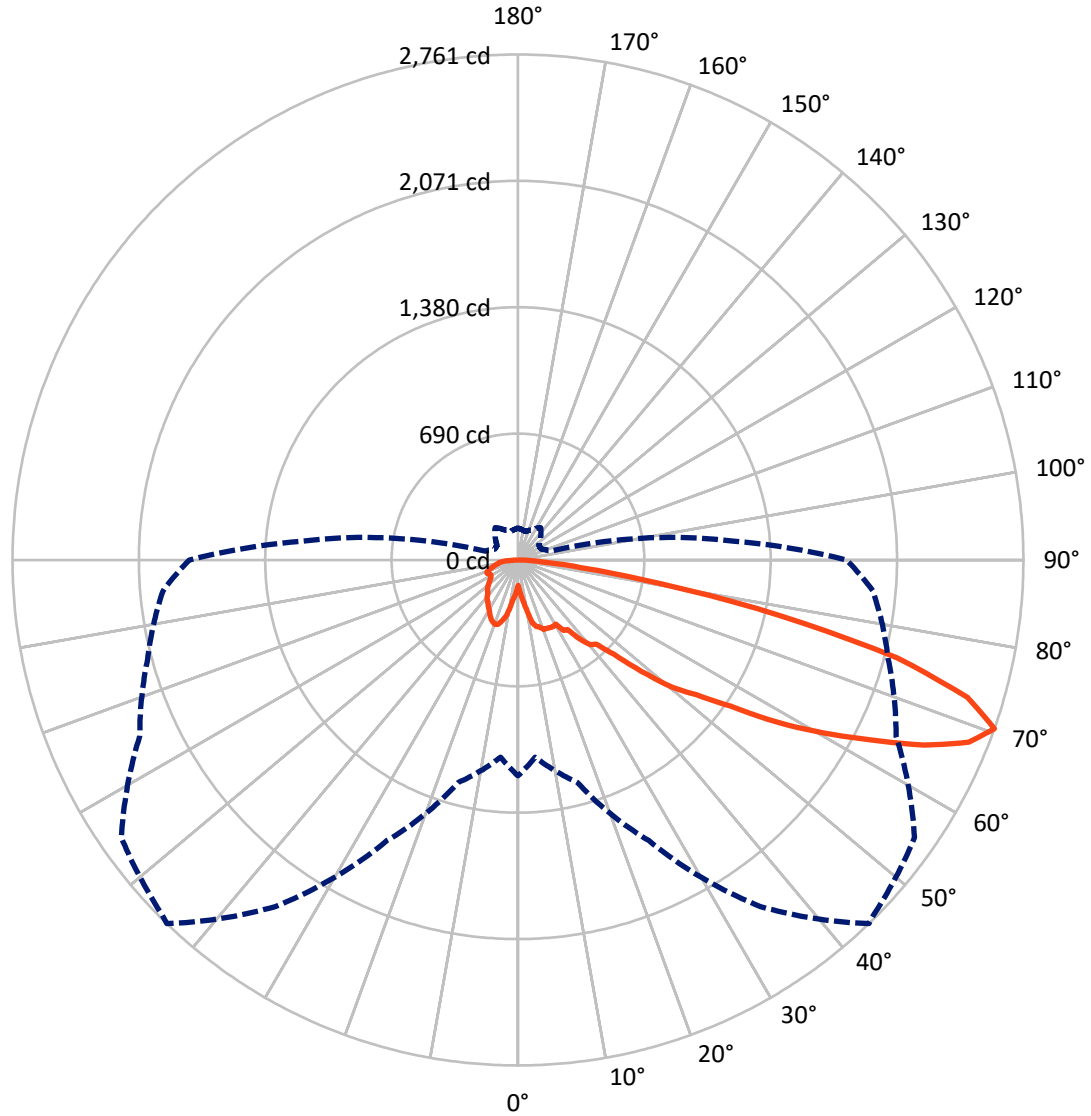
✕ Max cd  
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 5 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 44-Deg Lateral      - - - Horizontal Cone Through 70-Deg Vertical

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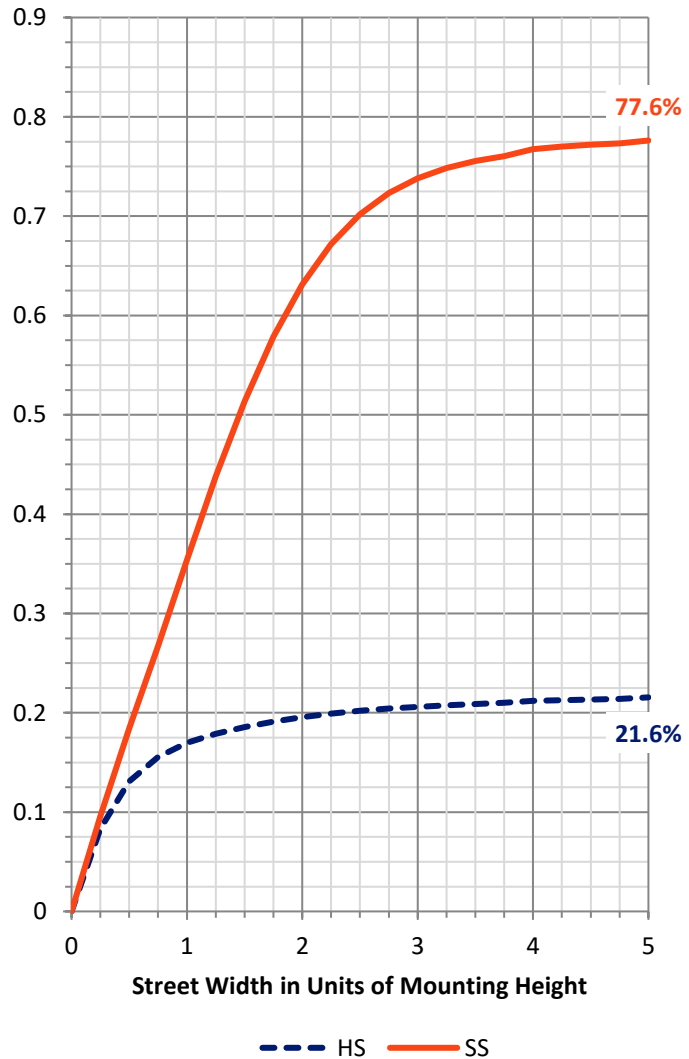
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 904.0    | 0.0    | 904.0  |
|                    | % Fixture | 22.1     | 0.0    | 22.1   |
| <b>Street Side</b> | Lumens    | 3193.0   | 0.0    | 3193.0 |
|                    | % Fixture | 77.9     | 0.0    | 77.9   |
| <b>Total</b>       | Lumens    | 4097.0   | 0.0    | 4097.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 21.8   | 0.5       |
| 10°-20°   | 100.6  | 2.5       |
| 20°-30°   | 187.9  | 4.6       |
| 30°-40°   | 301.6  | 7.4       |
| 40°-50°   | 509.1  | 12.4      |
| 50°-60°   | 907.2  | 22.1      |
| 60°-70°   | 1240.9 | 30.3      |
| 70°-80°   | 729.7  | 17.8      |
| 80°-90°   | 98.3   | 2.4       |
| 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°    | 4097.0 | 100.0     |
| 0°-180°   | 4097.0 | 100.0     |

**Coefficient of Utilization**

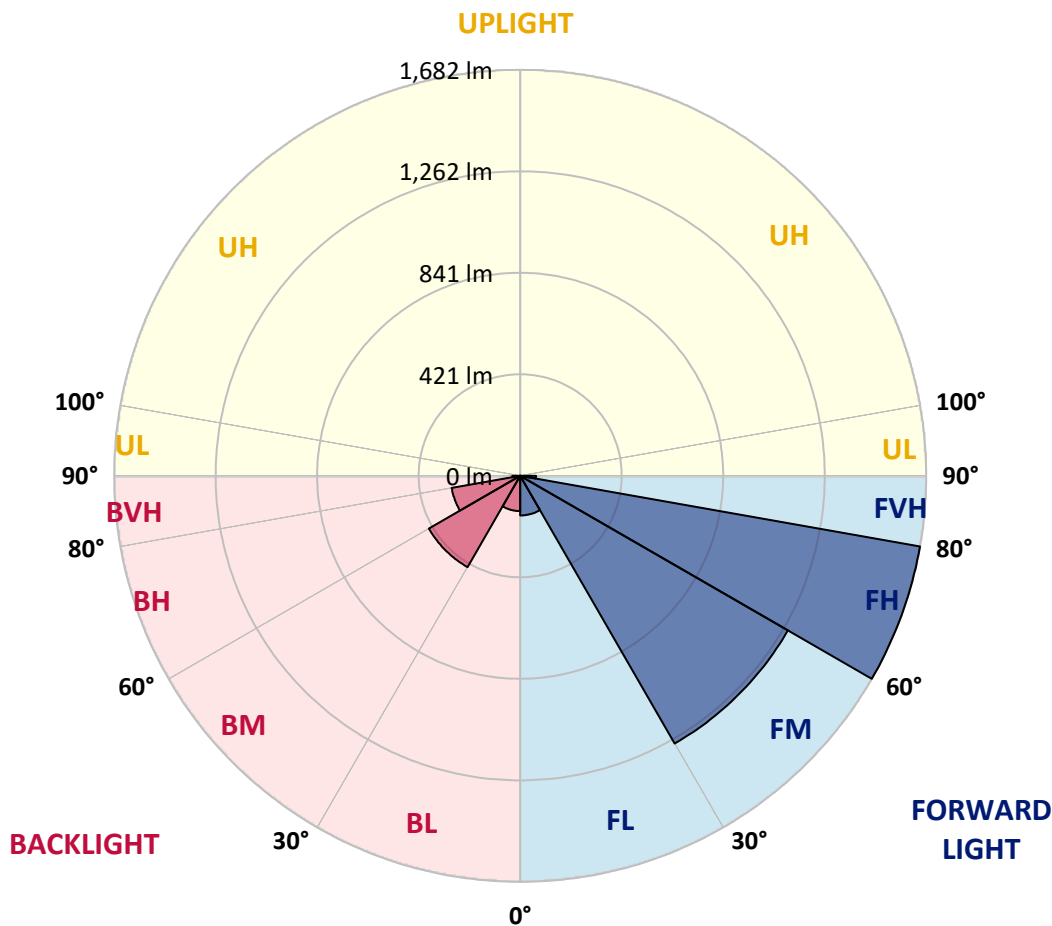


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 164.2  | 4.0       |                         |      |         |
| FM (30°-60°)   | 1281.0 | 31.3      |                         |      |         |
| FH (60°-80°)   | 1682.3 | 41.1      |                         |      | G1/1800 |
| FVH (80°-90°)  | 65.5   | 1.6       |                         |      | G1/100  |
| BL (0°-30°)    | 146.1  | 3.6       | B1/500                  |      |         |
| BM (30°-60°)   | 436.8  | 10.7      | B1/1000                 |      |         |
| BH (60°-80°)   | 288.3  | 7.0       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 32.8   | 0.8       |                         |      | G1/100  |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G1**  
 Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 44°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 139.3  | 139.3  | 139.3  | 139.3  | 139.3  | 139.3  | 139.3  | 139.3  | 139.3  | 139.3  | 139.3  |
| 2.5°  | 169.0  | 165.6  | 157.6  | 160.3  | 163.6  | 165.0  | 164.6  | 164.3  | 159.1  | 157.2  | 166.5  |
| 5°    | 229.6  | 222.2  | 216.4  | 214.0  | 206.3  | 200.2  | 196.5  | 206.3  | 204.8  | 207.3  | 213.7  |
| 7.5°  | 286.8  | 282.1  | 268.8  | 264.1  | 248.3  | 237.9  | 236.7  | 244.4  | 246.4  | 242.4  | 253.3  |
| 10°   | 323.5  | 315.5  | 312.8  | 301.5  | 290.6  | 288.9  | 287.9  | 284.4  | 279.5  | 279.2  | 269.5  |
| 12.5° | 352.1  | 356.3  | 358.5  | 345.6  | 345.9  | 351.9  | 348.7  | 334.5  | 326.2  | 311.8  | 313.0  |
| 15°   | 403.3  | 409.4  | 392.1  | 383.9  | 368.1  | 377.1  | 376.0  | 364.0  | 362.9  | 353.4  | 342.5  |
| 17.5° | 448.0  | 450.7  | 421.8  | 403.0  | 397.6  | 384.5  | 388.1  | 388.4  | 372.9  | 389.7  | 380.0  |
| 20°   | 451.7  | 461.3  | 428.0  | 390.6  | 406.7  | 405.0  | 405.5  | 402.2  | 381.8  | 409.6  | 405.9  |
| 22.5° | 469.9  | 455.2  | 425.3  | 398.0  | 402.2  | 404.7  | 407.0  | 403.0  | 401.8  | 417.3  | 428.5  |
| 25°   | 466.5  | 461.8  | 431.6  | 408.4  | 408.9  | 409.4  | 410.6  | 422.7  | 421.3  | 442.3  | 448.2  |
| 27.5° | 497.9  | 490.7  | 433.4  | 427.7  | 414.6  | 411.7  | 403.7  | 428.9  | 448.5  | 448.0  | 480.4  |
| 30°   | 557.7  | 550.3  | 476.4  | 459.8  | 436.1  | 406.9  | 422.3  | 455.9  | 471.4  | 476.6  | 517.7  |
| 32.5° | 651.1  | 663.2  | 561.1  | 494.1  | 464.7  | 458.3  | 456.6  | 453.2  | 491.5  | 517.2  | 554.7  |
| 35°   | 785.2  | 775.6  | 660.9  | 567.5  | 494.7  | 467.3  | 471.0  | 491.5  | 537.1  | 553.7  | 588.3  |
| 37.5° | 938.7  | 918.9  | 788.7  | 650.6  | 581.4  | 547.1  | 534.9  | 554.7  | 564.8  | 577.9  | 648.6  |
| 40°   | 1094.8 | 1046.4 | 914.2  | 760.0  | 633.5  | 607.6  | 596.9  | 572.5  | 596.2  | 622.7  | 712.6  |
| 42.5° | 1245.5 | 1208.0 | 1050.8 | 890.5  | 721.2  | 628.9  | 623.1  | 599.2  | 672.6  | 700.7  | 805.0  |
| 45°   | 1403.4 | 1316.5 | 1190.7 | 1037.8 | 849.3  | 733.6  | 724.9  | 682.0  | 776.1  | 834.6  | 935.4  |
| 47.5° | 1509.5 | 1429.1 | 1318.9 | 1157.4 | 956.7  | 908.6  | 892.0  | 818.8  | 904.1  | 980.0  | 1136.8 |
| 50°   | 1610.0 | 1527.2 | 1411.4 | 1288.3 | 1151.1 | 1095.8 | 1060.3 | 938.4  | 1063.5 | 1187.2 | 1395.0 |
| 52.5° | 1753.8 | 1679.7 | 1519.0 | 1420.2 | 1359.9 | 1224.0 | 1197.6 | 1130.6 | 1250.0 | 1416.8 | 1677.2 |
| 55°   | 1907.5 | 1806.5 | 1660.9 | 1606.1 | 1581.8 | 1407.7 | 1386.2 | 1343.6 | 1498.3 | 1651.8 | 1951.5 |
| 57.5° | 1975.4 | 1870.0 | 1789.7 | 1757.0 | 1755.0 | 1674.8 | 1650.2 | 1620.4 | 1752.1 | 1853.4 | 2209.7 |
| 60°   | 2029.3 | 1916.2 | 1884.2 | 1902.5 | 1969.0 | 1916.2 | 1884.2 | 1858.0 | 1958.7 | 2052.7 | 2420.4 |
| 62.5° | 2019.4 | 1906.0 | 1922.5 | 1978.2 | 2148.1 | 2163.5 | 2138.8 | 2075.3 | 2163.5 | 2215.9 | 2541.2 |
| 65°   | 1859.5 | 1754.6 | 1850.6 | 1982.9 | 2314.5 | 2438.0 | 2436.7 | 2270.5 | 2301.1 | 2301.1 | 2528.4 |
| 67.5° | 1579.3 | 1470.7 | 1627.8 | 1941.4 | 2429.6 | 2655.6 | 2655.9 | 2477.5 | 2313.7 | 2292.5 | 2330.8 |
| 70°   | 1179.3 | 1081.0 | 1257.6 | 1690.8 | 2310.8 | 2760.9 | 2745.6 | 2644.5 | 2279.1 | 2094.1 | 1947.0 |
| 72.5° | 704.4  | 640.9  | 803.3  | 1230.9 | 1971.2 | 2567.2 | 2607.9 | 2452.1 | 2086.4 | 1741.5 | 1391.8 |
| 75°   | 319.9  | 292.3  | 377.5  | 707.1  | 1407.2 | 2141.3 | 2185.5 | 2069.4 | 1657.2 | 1252.5 | 804.3  |
| 77.5° | 136.9  | 129.5  | 164.8  | 313.6  | 775.9  | 1464.4 | 1554.9 | 1479.0 | 1122.8 | 727.9  | 355.8  |
| 80°   | 88.0   | 83.3   | 101.3  | 150.9  | 360.3  | 791.2  | 869.2  | 840.8  | 572.0  | 283.1  | 125.3  |
| 82.5° | 52.6   | 51.1   | 67.7   | 94.7   | 196.5  | 348.2  | 392.4  | 402.8  | 237.5  | 127.0  | 71.7   |
| 85°   | 28.7   | 29.1   | 37.1   | 57.5   | 117.9  | 135.6  | 145.1  | 157.9  | 111.9  | 73.6   | 34.8   |
| 87.5° | 9.6    | 11.1   | 15.0   | 23.4   | 42.0   | 38.3   | 38.5   | 44.7   | 47.2   | 30.6   | 11.1   |
| 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°    | 139.3  | 139.3  | 139.3 | 139.3 | 139.3 | 139.3 | 139.3 | 139.3 | 139.3 | 139.3 | 139.3 |
| 2.5°  | 168.0  | 165.0  | 157.2 | 157.7 | 160.6 | 161.3 | 162.1 | 157.2 | 156.2 | 165.5 | 166.3 |
| 5°    | 214.7  | 204.8  | 200.2 | 198.7 | 194.4 | 192.9 | 200.9 | 204.6 | 208.3 | 215.5 | 219.1 |
| 7.5°  | 252.2  | 241.1  | 232.8 | 225.3 | 218.9 | 215.2 | 228.8 | 239.2 | 245.6 | 260.4 | 267.1 |
| 10°   | 269.3  | 259.7  | 256.7 | 250.6 | 255.5 | 266.6 | 269.1 | 269.5 | 283.6 | 283.2 | 286.1 |
| 12.5° | 303.4  | 297.2  | 287.3 | 289.4 | 302.2 | 313.6 | 310.4 | 315.3 | 320.4 | 332.4 | 326.9 |
| 15°   | 334.5  | 332.8  | 323.5 | 325.1 | 327.6 | 341.9 | 343.7 | 348.6 | 356.3 | 365.9 | 359.3 |
| 17.5° | 372.8  | 372.1  | 349.6 | 347.6 | 353.4 | 367.4 | 363.0 | 354.5 | 380.0 | 390.2 | 387.5 |
| 20°   | 398.8  | 393.8  | 364.9 | 356.3 | 371.3 | 373.1 | 368.1 | 354.5 | 376.6 | 399.0 | 405.0 |
| 22.5° | 420.5  | 414.6  | 384.9 | 368.1 | 365.0 | 365.9 | 365.9 | 363.4 | 374.3 | 392.6 | 392.4 |
| 25°   | 437.9  | 443.5  | 405.7 | 389.6 | 373.4 | 353.3 | 350.8 | 352.9 | 359.2 | 394.4 | 393.3 |
| 27.5° | 481.8  | 466.5  | 412.7 | 400.7 | 367.6 | 335.8 | 342.7 | 346.1 | 348.1 | 386.7 | 393.1 |
| 30°   | 510.3  | 515.1  | 437.9 | 407.2 | 359.0 | 316.3 | 318.7 | 328.4 | 340.2 | 385.9 | 387.7 |
| 32.5° | 548.8  | 538.7  | 477.3 | 396.3 | 336.1 | 304.6 | 300.2 | 313.3 | 330.8 | 372.3 | 377.3 |
| 35°   | 584.6  | 596.5  | 493.9 | 394.3 | 320.2 | 286.9 | 291.6 | 296.2 | 314.3 | 357.1 | 363.0 |
| 37.5° | 668.6  | 641.4  | 540.6 | 384.5 | 306.9 | 278.0 | 273.0 | 279.9 | 295.3 | 328.4 | 342.0 |
| 40°   | 732.4  | 734.1  | 550.7 | 372.3 | 281.5 | 265.3 | 254.5 | 261.4 | 267.9 | 294.3 | 300.2 |
| 42.5° | 852.2  | 815.6  | 575.4 | 345.4 | 265.6 | 246.1 | 240.1 | 243.1 | 244.1 | 255.2 | 264.9 |
| 45°   | 1004.6 | 918.7  | 585.1 | 309.3 | 244.6 | 238.2 | 225.9 | 224.4 | 218.9 | 220.4 | 229.0 |
| 47.5° | 1215.4 | 1079.7 | 578.0 | 270.8 | 225.9 | 228.0 | 210.3 | 203.4 | 195.7 | 197.6 | 205.6 |
| 50°   | 1488.0 | 1285.3 | 577.5 | 238.2 | 213.2 | 214.5 | 200.1 | 187.6 | 179.9 | 183.8 | 190.8 |
| 52.5° | 1793.9 | 1491.6 | 579.9 | 215.9 | 199.2 | 198.6 | 193.4 | 178.2 | 172.0 | 176.1 | 184.1 |
| 55°   | 2086.6 | 1669.0 | 597.4 | 201.8 | 184.8 | 186.0 | 188.0 | 175.2 | 168.3 | 172.0 | 180.4 |
| 57.5° | 2341.3 | 1809.1 | 590.8 | 186.8 | 171.3 | 176.7 | 182.1 | 171.0 | 165.8 | 171.2 | 179.6 |
| 60°   | 2519.3 | 1874.1 | 539.1 | 172.5 | 161.4 | 168.8 | 179.2 | 170.5 | 169.8 | 181.4 | 191.5 |
| 62.5° | 2584.3 | 1850.1 | 438.3 | 161.3 | 155.6 | 167.8 | 185.8 | 181.6 | 182.3 | 196.5 | 210.5 |
| 65°   | 2489.4 | 1723.7 | 326.9 | 154.0 | 151.0 | 172.7 | 200.9 | 188.1 | 178.9 | 190.7 | 203.4 |
| 67.5° | 2219.5 | 1499.1 | 238.9 | 147.8 | 145.8 | 180.4 | 214.9 | 187.5 | 170.3 | 182.3 | 192.7 |
| 70°   | 1795.6 | 1183.3 | 185.0 | 139.9 | 138.9 | 175.2 | 216.2 | 182.4 | 161.1 | 168.8 | 174.7 |
| 72.5° | 1230.3 | 810.2  | 153.2 | 132.4 | 127.0 | 155.2 | 205.3 | 171.2 | 150.0 | 154.5 | 159.4 |
| 75°   | 687.6  | 454.7  | 128.8 | 123.0 | 111.2 | 138.3 | 192.5 | 164.5 | 141.8 | 143.1 | 149.8 |
| 77.5° | 308.6  | 196.7  | 109.4 | 110.5 | 96.9  | 122.3 | 175.9 | 153.7 | 129.2 | 126.2 | 132.9 |
| 80°   | 116.8  | 95.9   | 88.7  | 93.4  | 81.5  | 106.0 | 158.6 | 144.0 | 115.9 | 112.0 | 115.9 |
| 82.5° | 67.7   | 58.1   | 65.9  | 71.9  | 64.7  | 97.4  | 151.4 | 135.1 | 102.1 | 92.4  | 95.8  |
| 85°   | 31.4   | 30.1   | 39.5  | 46.7  | 45.2  | 75.9  | 129.5 | 101.6 | 72.7  | 61.5  | 68.0  |
| 87.5° | 8.2    | 9.2    | 13.9  | 16.5  | 16.8  | 26.0  | 49.9  | 37.8  | 28.4  | 21.5  | 20.7  |
| 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)