

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: P366723

Luminaire Tested: **MSA-SA1A-830-U-T2-HSS**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P366723  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-9)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: MSA-SA1A-830-U-T2-HSS  
Description: MESA POST TOP DECORATIVE LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2422 lumens  
Efficiency: N/A  
Efficacy: 71.2 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type II - Medium  
BUG Rating: B0 - U0 - G1

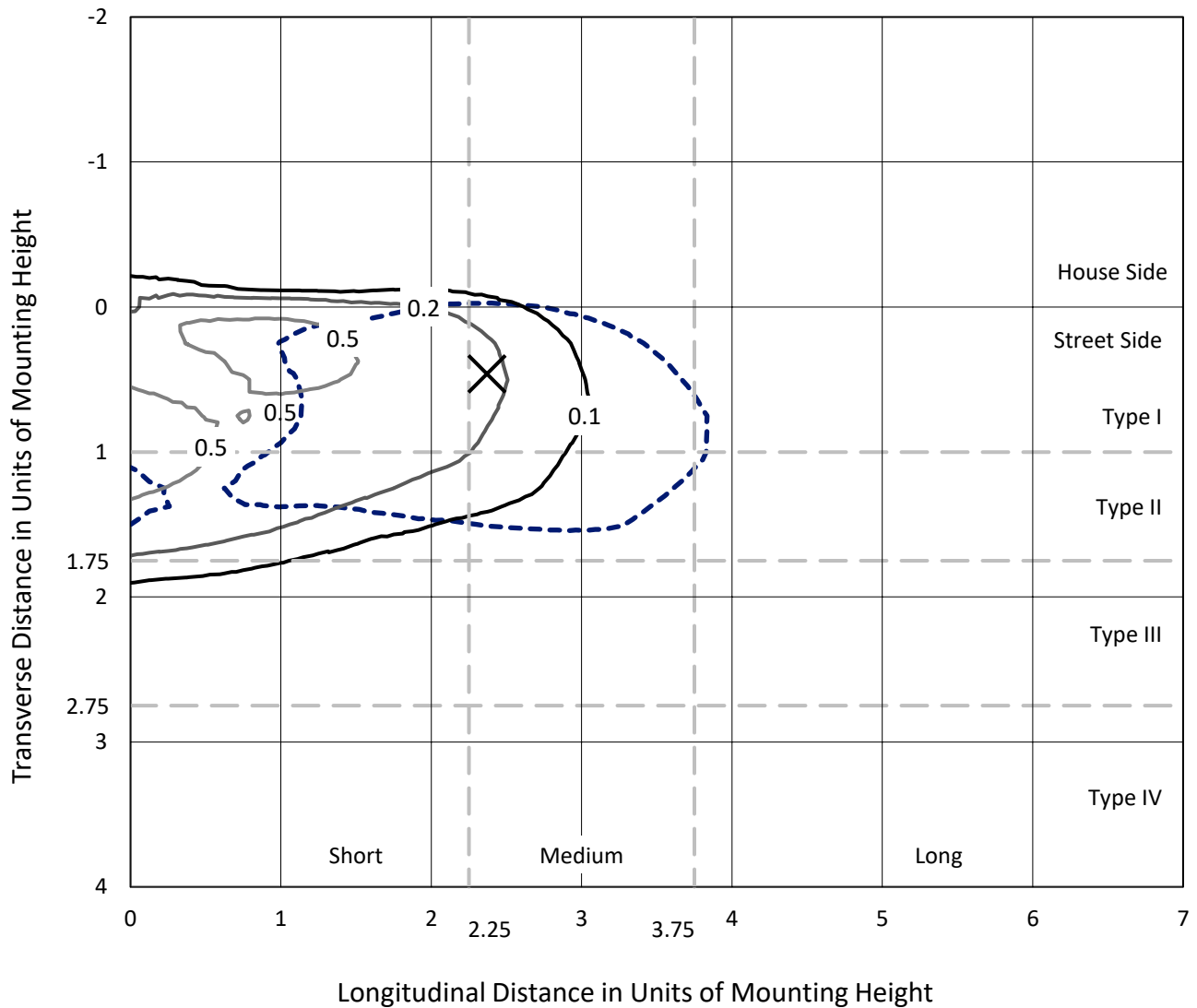
Input Watts (W): 34  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



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### Iso-Footcandle Lines of Horizontal Illumination

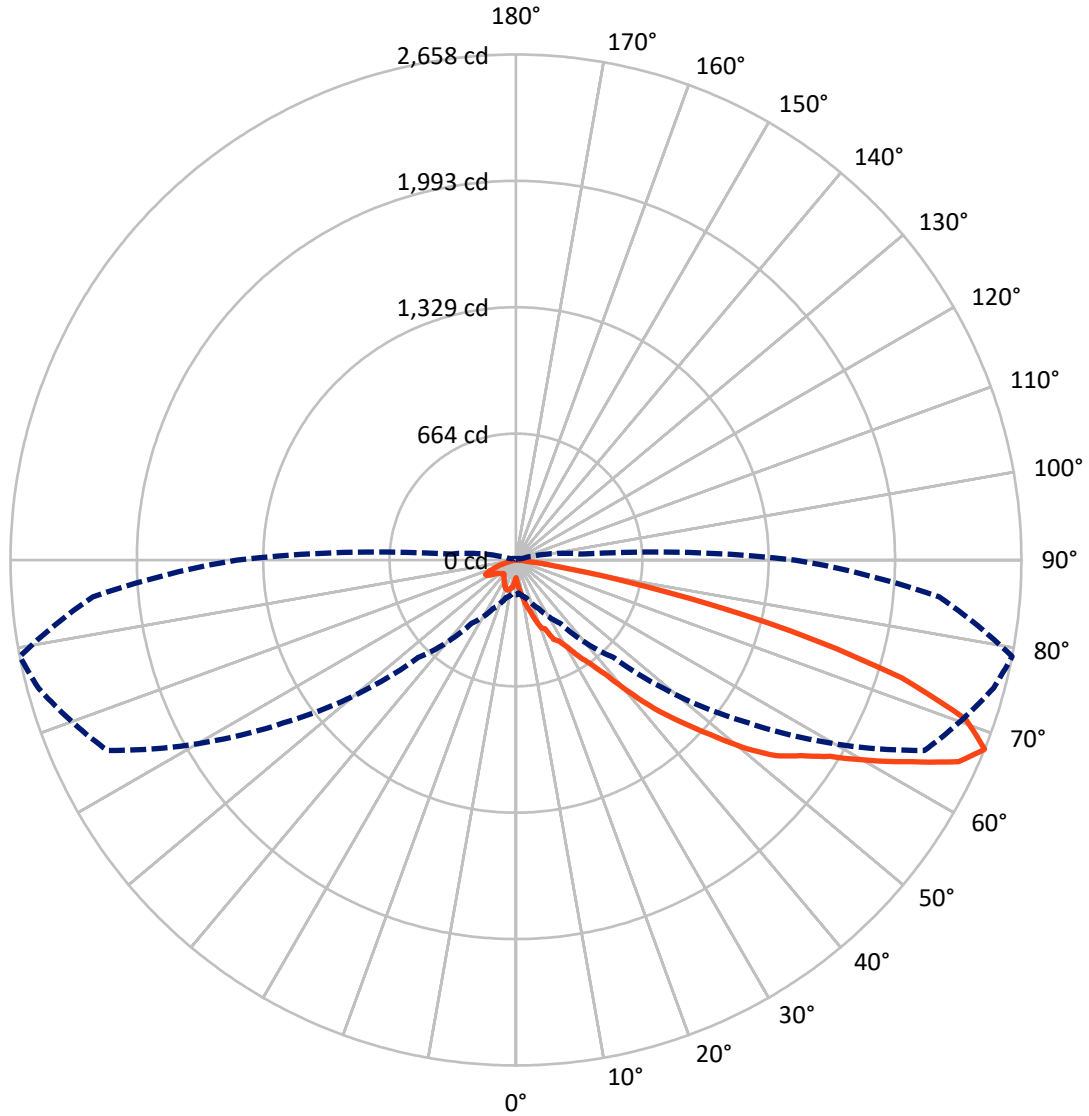
× Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.7 fc  
 Type II - Medium - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 79-Deg Lateral    - - - Horizontal Cone Through 67.5-Deg Vertical

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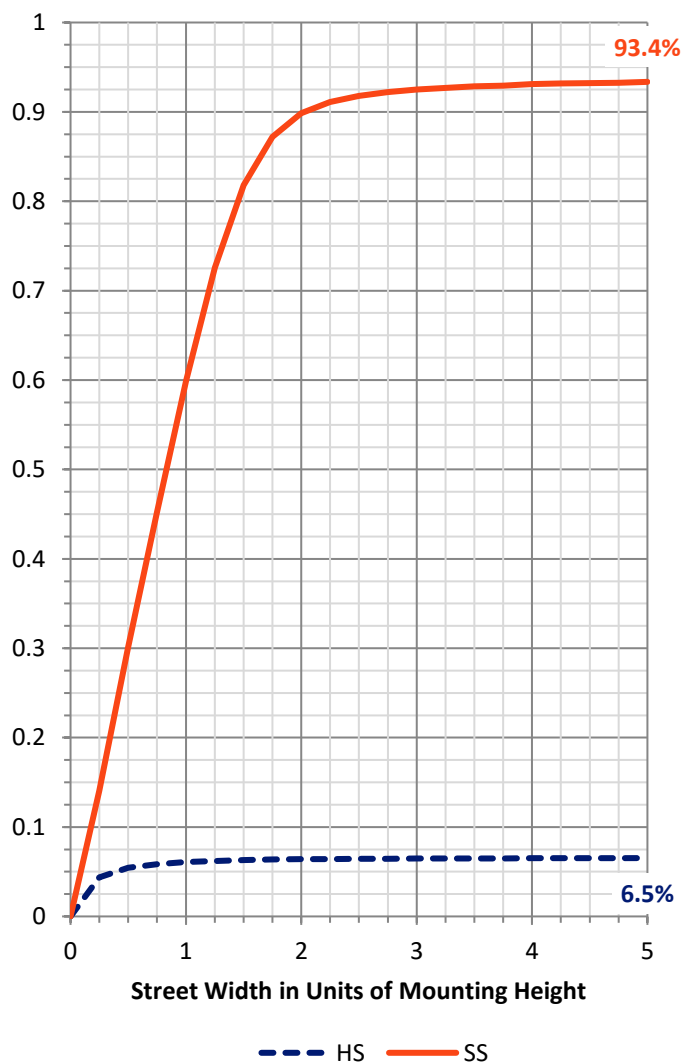
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 159.1    | 0.0    | 159.1  |
|                    | % Fixture | 6.6      | 0.0    | 6.6    |
| <b>Street Side</b> | Lumens    | 2262.9   | 0.0    | 2262.9 |
|                    | % Fixture | 93.4     | 0.0    | 93.4   |
| <b>Total</b>       | Lumens    | 2422.0   | 0.0    | 2422.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 13.6   | 0.6       |
| 10°-20°   | 54.1   | 2.2       |
| 20°-30°   | 104.4  | 4.3       |
| 30°-40°   | 205.1  | 8.5       |
| 40°-50°   | 410.9  | 17.0      |
| 50°-60°   | 656.7  | 27.1      |
| 60°-70°   | 660.7  | 27.3      |
| 70°-80°   | 298.1  | 12.3      |
| 80°-90°   | 18.4   | 0.8       |
| 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°    | 2422.0 | 100.0     |
| 0°-180°   | 2422.0 | 100.0     |

**Coefficient of Utilization**



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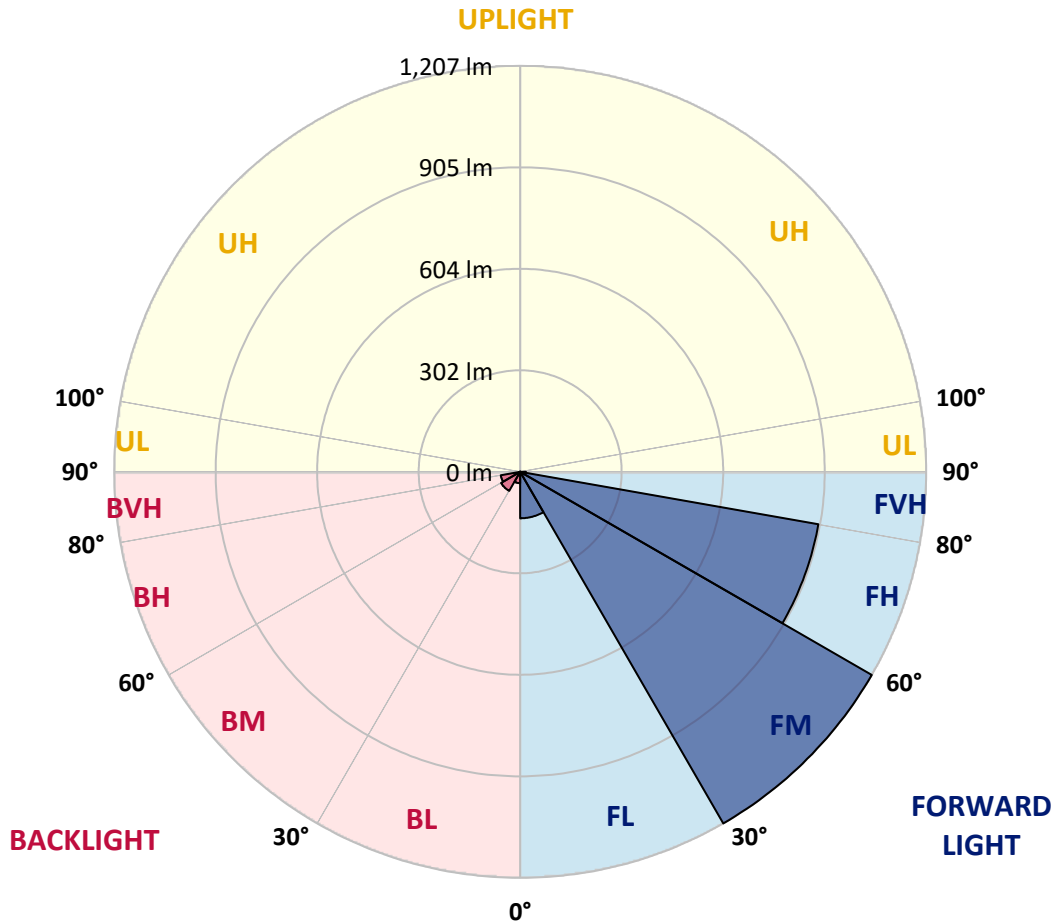
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 138.3  | 5.7       |                         |      |         |
| FM (30°-60°)   | 1207.2 | 49.8      |                         |      |         |
| FH (60°-80°)   | 900.2  | 37.2      |                         |      | G1/1800 |
| FVH (80°-90°)  | 17.3   | 0.7       |                         |      | G1/100  |
| BL (0°-30°)    | 33.8   | 1.4       | B0/110                  |      |         |
| BM (30°-60°)   | 65.5   | 2.7       | B0/220                  |      |         |
| BH (60°-80°)   | 58.7   | 2.4       | B0/110                  |      | G0/110  |
| BVH (80°-90°)  | 1.2    | 0.0       |                         |      | G0/10   |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B0-U0-G1**

Type II Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 79°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 93.3   | 93.3   | 93.3   | 93.3   | 93.3   | 93.3   | 93.3   | 93.3   | 93.3   | 93.3   | 93.3   |
| 2.5°  | 126.0  | 121.5  | 114.2  | 118.3  | 118.0  | 120.2  | 116.2  | 111.8  | 104.7  | 111.8  | 112.3  |
| 5°    | 181.4  | 173.0  | 167.7  | 166.6  | 160.8  | 155.3  | 154.1  | 149.5  | 146.1  | 139.8  | 145.4  |
| 7.5°  | 226.0  | 222.2  | 212.7  | 211.6  | 197.2  | 189.2  | 191.7  | 189.7  | 176.5  | 170.0  | 175.4  |
| 10°   | 245.0  | 238.3  | 239.7  | 238.3  | 232.2  | 234.4  | 229.2  | 223.2  | 212.7  | 201.9  | 188.3  |
| 12.5° | 252.3  | 251.3  | 262.4  | 261.0  | 275.4  | 292.8  | 281.2  | 271.2  | 246.7  | 244.1  | 225.5  |
| 15°   | 268.1  | 274.8  | 273.2  | 278.8  | 288.0  | 317.5  | 317.2  | 319.6  | 293.7  | 279.8  | 253.0  |
| 17.5° | 282.1  | 287.1  | 279.0  | 285.5  | 310.6  | 328.4  | 352.3  | 343.0  | 345.9  | 331.8  | 290.3  |
| 20°   | 276.1  | 281.7  | 273.7  | 269.8  | 314.0  | 347.9  | 379.8  | 373.0  | 390.7  | 381.8  | 324.6  |
| 22.5° | 313.6  | 303.1  | 282.9  | 270.4  | 303.3  | 347.5  | 389.6  | 418.0  | 415.0  | 393.3  | 356.5  |
| 25°   | 360.0  | 353.5  | 329.4  | 307.2  | 310.2  | 345.1  | 420.3  | 462.1  | 471.2  | 462.0  | 386.8  |
| 27.5° | 422.4  | 421.0  | 371.6  | 362.0  | 333.4  | 334.6  | 425.1  | 517.6  | 496.9  | 482.5  | 422.2  |
| 30°   | 504.0  | 492.4  | 433.8  | 421.2  | 379.0  | 358.4  | 454.5  | 565.6  | 550.3  | 530.7  | 455.4  |
| 32.5° | 591.7  | 593.5  | 518.7  | 477.3  | 443.4  | 418.8  | 442.9  | 588.0  | 616.4  | 600.5  | 496.9  |
| 35°   | 691.3  | 699.1  | 607.6  | 559.0  | 493.1  | 456.9  | 492.8  | 656.9  | 707.9  | 666.1  | 552.6  |
| 37.5° | 844.7  | 844.5  | 737.7  | 640.9  | 592.9  | 553.7  | 576.0  | 719.5  | 820.3  | 761.6  | 652.5  |
| 40°   | 979.7  | 950.3  | 851.0  | 739.8  | 665.0  | 654.3  | 638.2  | 805.2  | 940.3  | 905.0  | 741.3  |
| 42.5° | 1080.5 | 1059.8 | 939.8  | 853.3  | 760.6  | 726.7  | 721.0  | 930.9  | 1117.5 | 1068.0 | 868.0  |
| 45°   | 1201.1 | 1133.3 | 1044.9 | 966.9  | 872.5  | 862.6  | 849.1  | 1058.4 | 1323.7 | 1212.0 | 978.1  |
| 47.5° | 1309.1 | 1245.3 | 1161.7 | 1061.6 | 953.2  | 1034.6 | 982.8  | 1170.4 | 1473.6 | 1368.8 | 1099.6 |
| 50°   | 1400.0 | 1332.2 | 1238.6 | 1162.4 | 1115.9 | 1171.2 | 1084.8 | 1262.6 | 1635.5 | 1550.6 | 1213.2 |
| 52.5° | 1446.4 | 1369.6 | 1297.2 | 1250.1 | 1278.5 | 1266.1 | 1223.1 | 1374.4 | 1773.6 | 1710.0 | 1313.9 |
| 55°   | 1408.3 | 1333.3 | 1303.0 | 1326.3 | 1412.7 | 1376.8 | 1380.3 | 1547.6 | 1903.9 | 1816.3 | 1401.5 |
| 57.5° | 1239.5 | 1171.0 | 1184.5 | 1248.5 | 1414.0 | 1508.0 | 1559.4 | 1715.8 | 2008.4 | 1948.8 | 1536.6 |
| 60°   | 937.7  | 882.5  | 932.5  | 1045.9 | 1281.1 | 1481.9 | 1686.5 | 1884.0 | 2157.8 | 2139.2 | 1741.2 |
| 62.5° | 572.6  | 542.7  | 613.5  | 755.0  | 1020.8 | 1353.6 | 1760.6 | 2108.3 | 2317.7 | 2337.6 | 1958.1 |
| 65°   | 292.1  | 278.6  | 337.7  | 462.1  | 689.7  | 1111.9 | 1707.1 | 2247.7 | 2482.8 | 2556.3 | 2164.9 |
| 67.5° | 184.0  | 175.3  | 206.8  | 281.8  | 406.9  | 725.2  | 1494.7 | 2369.6 | 2599.5 | 2657.6 | 2233.9 |
| 70°   | 127.5  | 122.0  | 149.3  | 193.5  | 256.7  | 390.7  | 1109.8 | 2255.8 | 2507.0 | 2509.7 | 2066.9 |
| 72.5° | 80.9   | 76.6   | 103.2  | 143.3  | 189.5  | 201.7  | 636.2  | 1770.1 | 2146.0 | 2121.3 | 1673.9 |
| 75°   | 52.5   | 50.3   | 65.6   | 104.9  | 145.5  | 124.4  | 314.4  | 1194.4 | 1538.7 | 1500.0 | 1111.8 |
| 77.5° | 37.7   | 36.3   | 43.9   | 70.1   | 103.6  | 87.1   | 141.0  | 711.9  | 882.3  | 797.6  | 539.7  |
| 80°   | 22.7   | 22.6   | 31.8   | 43.9   | 73.7   | 61.4   | 65.2   | 323.2  | 342.1  | 278.9  | 164.9  |
| 82.5° | 11.3   | 11.7   | 17.8   | 28.3   | 47.4   | 40.2   | 29.8   | 107.6  | 91.9   | 67.7   | 33.4   |
| 85°   | 2.7    | 3.3    | 9.3    | 19.5   | 23.8   | 16.0   | 14.2   | 28.2   | 25.2   | 19.1   | 9.7    |
| 87.5° | 0.0    | 0.0    | 2.9    | 4.7    | 6.4    | 2.7    | 4.8    | 5.3    | 6.8    | 5.3    | 2.0    |
| 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):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145° | 155° | 165° | 175° | 180°  |
|-------|--------|-------|-------|-------|-------|-------|------|------|------|------|-------|
| 0°    | 93.3   | 93.3  | 93.3  | 93.3  | 93.3  | 93.3  | 93.3 | 93.3 | 93.3 | 93.3 | 93.3  |
| 2.5°  | 112.4  | 110.8 | 101.1 | 98.5  | 98.3  | 95.5  | 96.1 | 93.5 | 93.6 | 99.6 | 99.6  |
| 5°    | 143.3  | 133.9 | 124.6 | 116.3 | 110.7 | 102.7 | 99.7 | 98.5 | 97.5 | 99.9 | 101.3 |
| 7.5°  | 168.2  | 154.5 | 137.7 | 119.6 | 102.9 | 91.5  | 89.9 | 86.9 | 85.8 | 88.3 | 90.1  |
| 10°   | 179.3  | 162.2 | 139.1 | 112.8 | 97.2  | 87.9  | 80.1 | 76.0 | 75.2 | 75.0 | 75.7  |
| 12.5° | 202.8  | 181.6 | 140.7 | 110.3 | 93.3  | 83.0  | 74.2 | 67.3 | 60.9 | 61.5 | 60.9  |
| 15°   | 221.6  | 196.5 | 140.7 | 104.1 | 84.0  | 73.7  | 58.2 | 54.7 | 53.8 | 55.3 | 54.1  |
| 17.5° | 250.1  | 211.4 | 133.6 | 93.2  | 76.0  | 57.3  | 51.4 | 51.1 | 53.0 | 55.1 | 53.8  |
| 20°   | 267.2  | 213.4 | 121.8 | 80.6  | 62.4  | 49.7  | 47.5 | 45.4 | 48.1 | 49.8 | 49.1  |
| 22.5° | 284.9  | 213.5 | 109.9 | 74.0  | 50.2  | 45.3  | 41.8 | 40.1 | 40.5 | 42.1 | 42.3  |
| 25°   | 292.5  | 208.3 | 98.8  | 65.2  | 45.5  | 40.5  | 36.8 | 35.0 | 34.3 | 35.1 | 34.8  |
| 27.5° | 313.2  | 198.3 | 86.8  | 55.5  | 43.3  | 35.9  | 32.6 | 30.3 | 28.3 | 29.6 | 29.9  |
| 30°   | 316.2  | 195.1 | 80.2  | 49.4  | 40.3  | 31.8  | 28.8 | 26.4 | 25.0 | 26.8 | 26.8  |
| 32.5° | 325.5  | 177.4 | 76.9  | 46.9  | 37.3  | 29.4  | 25.4 | 23.6 | 23.4 | 24.6 | 24.7  |
| 35°   | 339.9  | 169.7 | 72.0  | 44.9  | 34.4  | 26.6  | 22.8 | 22.0 | 21.8 | 22.7 | 22.7  |
| 37.5° | 388.8  | 160.1 | 66.5  | 43.1  | 32.0  | 25.1  | 22.2 | 20.8 | 21.0 | 21.8 | 22.3  |
| 40°   | 421.2  | 161.3 | 58.3  | 41.0  | 29.2  | 23.8  | 20.8 | 19.9 | 19.8 | 20.2 | 20.6  |
| 42.5° | 481.4  | 162.2 | 54.7  | 38.7  | 27.1  | 22.2  | 19.5 | 18.8 | 18.3 | 18.7 | 19.1  |
| 45°   | 548.7  | 167.2 | 52.9  | 36.8  | 25.9  | 21.2  | 18.3 | 17.9 | 16.7 | 17.0 | 17.5  |
| 47.5° | 613.6  | 185.2 | 50.6  | 34.2  | 24.8  | 20.7  | 17.1 | 16.2 | 15.4 | 15.2 | 15.8  |
| 50°   | 687.3  | 202.7 | 48.1  | 31.2  | 23.8  | 19.9  | 15.9 | 14.4 | 13.9 | 13.9 | 14.3  |
| 52.5° | 753.3  | 219.4 | 45.7  | 29.2  | 23.0  | 18.4  | 14.8 | 13.4 | 13.0 | 13.0 | 13.5  |
| 55°   | 822.7  | 236.9 | 43.5  | 27.4  | 21.9  | 17.0  | 13.9 | 12.6 | 12.4 | 12.1 | 12.6  |
| 57.5° | 945.3  | 275.0 | 40.9  | 25.8  | 20.4  | 15.8  | 13.1 | 11.7 | 11.5 | 11.1 | 11.5  |
| 60°   | 1123.8 | 333.7 | 37.4  | 24.2  | 18.7  | 15.0  | 12.4 | 10.8 | 10.4 | 9.7  | 9.9   |
| 62.5° | 1298.3 | 381.0 | 33.4  | 22.2  | 17.1  | 14.2  | 11.3 | 9.7  | 9.1  | 8.3  | 8.4   |
| 65°   | 1447.8 | 399.7 | 29.1  | 19.8  | 15.5  | 12.3  | 9.9  | 8.5  | 7.6  | 6.5  | 6.4   |
| 67.5° | 1465.4 | 353.0 | 25.0  | 17.5  | 13.9  | 10.4  | 8.4  | 7.6  | 6.1  | 5.2  | 4.9   |
| 70°   | 1318.8 | 263.0 | 20.8  | 15.5  | 12.0  | 8.8   | 7.2  | 6.7  | 5.7  | 4.9  | 4.5   |
| 72.5° | 1050.2 | 194.1 | 17.5  | 13.8  | 10.5  | 7.5   | 6.1  | 6.3  | 5.7  | 4.8  | 4.3   |
| 75°   | 694.5  | 111.1 | 14.3  | 11.5  | 8.8   | 6.0   | 5.6  | 5.6  | 5.5  | 4.5  | 4.0   |
| 77.5° | 334.2  | 47.9  | 10.9  | 9.1   | 7.1   | 4.5   | 5.1  | 5.1  | 5.2  | 4.1  | 3.3   |
| 80°   | 94.8   | 14.4  | 6.8   | 6.1   | 5.2   | 3.1   | 4.0  | 3.9  | 3.5  | 2.4  | 1.5   |
| 82.5° | 17.0   | 5.6   | 3.1   | 3.2   | 2.9   | 1.2   | 2.3  | 2.1  | 1.7  | 0.9  | 0.1   |
| 85°   | 4.7    | 2.1   | 1.7   | 1.9   | 1.5   | 0.4   | 0.9  | 1.2  | 0.9  | 0.5  | 0.0   |
| 87.5° | 1.2    | 0.9   | 1.2   | 1.3   | 1.1   | 0.1   | 0.4  | 0.1  | 0.4  | 0.1  | 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)