

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: P368168

Luminaire Tested: **MSA-SA3D-830-U-SL3**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P368168  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-18)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: MSA-SA3D-830-U-SL3  
Description: MESA POST TOP DECORATIVE LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III SPILL LIGHT ELIMINATOR OPTICS.  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 15520 lumens  
Efficiency: N/A  
Efficacy: 80.8 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B2 - U0 - G3

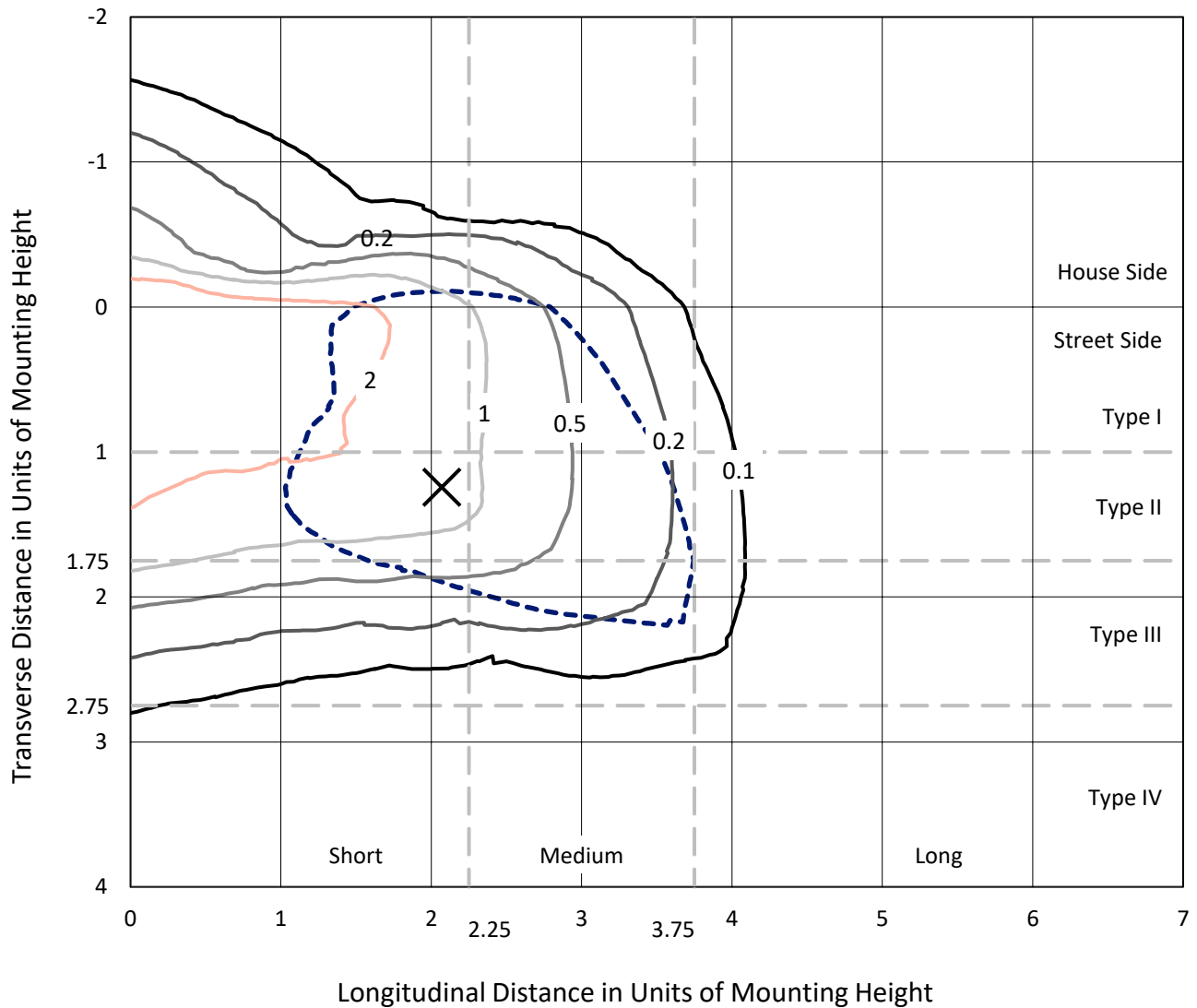
Input Watts (W): 192  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



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### Iso-Footcandle Lines of Horizontal Illumination

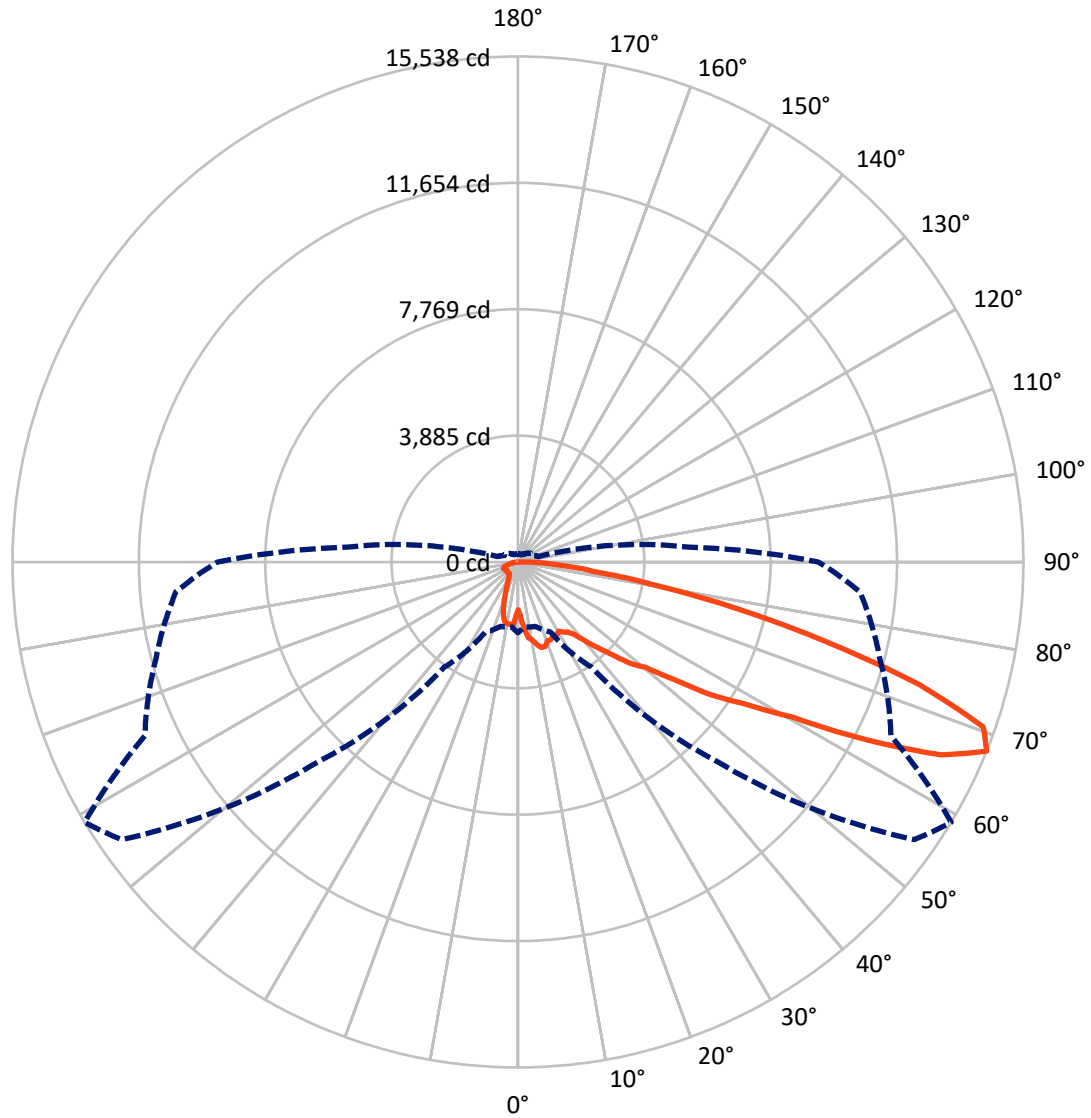
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 4 fc  
 Type III - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 59-Deg Lateral    - - - Horizontal Cone Through 67.5-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 2336.1   | 0.0    | 2336.1  |
|                    | % Fixture | 15.1     | 0.0    | 15.1    |
| <b>Street Side</b> | Lumens    | 13183.9  | 0.0    | 13183.9 |
|                    | % Fixture | 84.9     | 0.0    | 84.9    |
| <b>Total</b>       | Lumens    | 15520.0  | 0.0    | 15520.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 191.8   | 1.2       |
| 10°-20°   | 567.6   | 3.7       |
| 20°-30°   | 810.6   | 5.2       |
| 30°-40°   | 1194.4  | 7.7       |
| 40°-50°   | 2018.0  | 13.0      |
| 50°-60°   | 3511.8  | 22.6      |
| 60°-70°   | 4475.0  | 28.8      |
| 70°-80°   | 2369.6  | 15.3      |
| 80°-90°   | 381.2   | 2.5       |
| 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°    | 15520.0 | 100.0     |
| 0°-180°   | 15520.0 | 100.0     |

**Coefficient of Utilization**



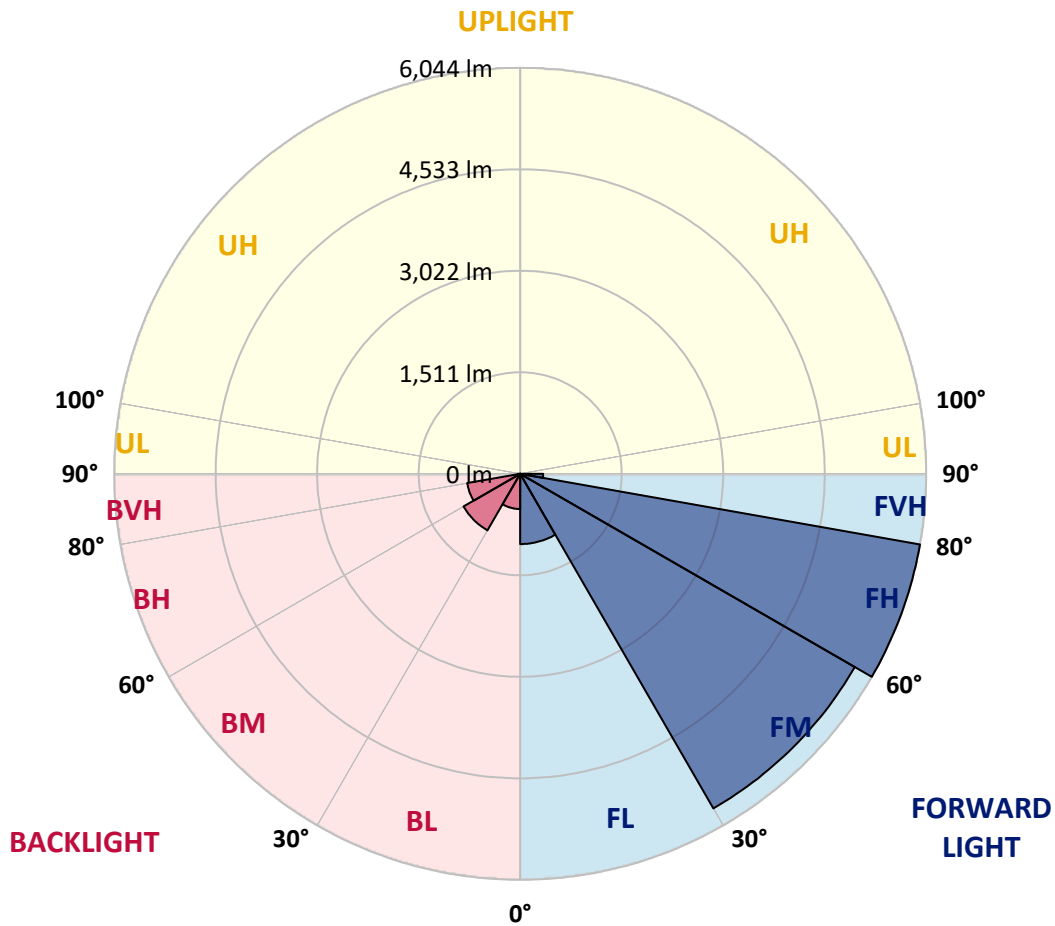
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 1046.1 | 6.7       |                         |      |         |
| FM (30°-60°)   | 5751.5 | 37.1      |                         |      |         |
| FH (60°-80°)   | 6044.0 | 38.9      |                         |      | G3/7500 |
| FVH (80°-90°)  | 342.4  | 2.2       |                         |      | G3/500  |
| BL (0°-30°)    | 523.9  | 3.4       | B2/1000                 |      |         |
| BM (30°-60°)   | 972.7  | 6.3       | B1/1000                 |      |         |
| BH (60°-80°)   | 800.7  | 5.2       | B2/1000                 |      | G2/1000 |
| BVH (80°-90°)  | 38.8   | 0.3       |                         |      | G1/100  |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B2-U0-G3**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°     | 55°     | 59°     | 65°     | 75°     | 85°     |
|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|
| 0°    | 1468.6 | 1468.6 | 1468.6 | 1468.6 | 1468.6 | 1468.6  | 1468.6  | 1468.6  | 1468.6  | 1468.6  | 1468.6  |
| 2.5°  | 1833.6 | 1748.1 | 1657.4 | 1683.0 | 1735.0 | 1758.6  | 1733.0  | 1708.0  | 1675.8  | 1637.6  | 1767.8  |
| 5°    | 2223.6 | 2096.7 | 2078.3 | 2077.6 | 2059.2 | 1985.5  | 2080.2  | 2073.7  | 2111.8  | 2151.3  | 2252.6  |
| 7.5°  | 2334.8 | 2287.4 | 2236.1 | 2260.4 | 2167.7 | 2163.8  | 2311.1  | 2353.2  | 2426.8  | 2402.5  | 2538.6  |
| 10°   | 2277.5 | 2224.3 | 2251.2 | 2241.4 | 2249.9 | 2347.3  | 2437.4  | 2440.0  | 2518.9  | 2596.5  | 2509.1  |
| 12.5° | 2176.9 | 2180.9 | 2288.1 | 2284.1 | 2422.2 | 2603.1  | 2630.1  | 2609.0  | 2737.9  | 2685.3  | 2760.3  |
| 15°   | 2248.6 | 2296.6 | 2269.7 | 2292.7 | 2347.3 | 2577.5  | 2652.4  | 2728.7  | 2851.0  | 2898.4  | 2823.4  |
| 17.5° | 2363.0 | 2388.7 | 2267.7 | 2255.2 | 2367.7 | 2476.8  | 2662.9  | 2728.1  | 2747.1  | 3084.5  | 2978.6  |
| 20°   | 2314.4 | 2366.3 | 2248.0 | 2096.0 | 2282.8 | 2427.5  | 2611.0  | 2591.3  | 2684.0  | 3099.0  | 3010.9  |
| 22.5° | 2452.5 | 2366.3 | 2215.7 | 2107.9 | 2173.6 | 2306.5  | 2462.4  | 2591.9  | 2701.8  | 3014.2  | 3057.6  |
| 25°   | 2478.8 | 2438.0 | 2297.3 | 2190.1 | 2167.7 | 2215.1  | 2437.4  | 2522.2  | 2707.7  | 3129.9  | 3032.6  |
| 27.5° | 2639.3 | 2578.1 | 2291.4 | 2294.6 | 2183.5 | 2100.0  | 2358.4  | 2536.7  | 2774.8  | 3058.2  | 3093.7  |
| 30°   | 2838.6 | 2791.9 | 2432.1 | 2445.3 | 2291.4 | 2137.5  | 2412.4  | 2466.3  | 2813.6  | 3170.0  | 3170.7  |
| 32.5° | 2987.8 | 3070.1 | 2709.0 | 2530.1 | 2475.5 | 2360.4  | 2329.5  | 2572.2  | 2768.2  | 3372.6  | 3302.2  |
| 35°   | 3256.8 | 3320.6 | 2922.1 | 2778.7 | 2593.9 | 2464.3  | 2554.4  | 2641.9  | 2956.9  | 3638.9  | 3497.5  |
| 37.5° | 3754.7 | 3681.0 | 3318.0 | 3092.4 | 3023.4 | 2836.6  | 2886.6  | 2825.4  | 3162.1  | 3938.2  | 3880.3  |
| 40°   | 4042.8 | 3979.0 | 3596.9 | 3471.9 | 3198.3 | 3222.0  | 3159.5  | 3204.2  | 3436.4  | 4256.5  | 4238.1  |
| 42.5° | 4326.9 | 4241.4 | 3918.5 | 3831.6 | 3558.7 | 3443.0  | 3454.1  | 3598.8  | 3859.3  | 4770.8  | 4709.7  |
| 45°   | 4607.7 | 4388.7 | 4247.3 | 4270.3 | 4138.8 | 3901.4  | 3917.8  | 4053.9  | 4321.0  | 5358.8  | 5218.0  |
| 47.5° | 4822.8 | 4641.9 | 4531.4 | 4503.1 | 4438.0 | 4755.7  | 4613.6  | 4668.9  | 4786.6  | 5882.3  | 5829.0  |
| 50°   | 5229.9 | 5018.8 | 4874.7 | 4834.0 | 5054.9 | 5496.9  | 5207.5  | 5088.5  | 5339.1  | 6559.1  | 6531.4  |
| 52.5° | 5881.6 | 5618.6 | 5378.5 | 5375.9 | 5695.5 | 5982.3  | 6186.1  | 5980.9  | 6073.0  | 7252.2  | 7331.2  |
| 55°   | 6450.5 | 6146.0 | 5930.3 | 6049.3 | 6504.5 | 6680.1  | 7372.6  | 7212.1  | 7134.5  | 7952.0  | 8177.6  |
| 57.5° | 6663.0 | 6307.2 | 6166.4 | 6342.0 | 7012.8 | 7915.2  | 8647.2  | 8225.0  | 8149.3  | 8743.9  | 9216.7  |
| 60°   | 6196.7 | 5820.5 | 5829.0 | 6159.8 | 7322.0 | 8822.1  | 10040.8 | 9682.4  | 9239.1  | 9729.7  | 10191.4 |
| 62.5° | 4868.2 | 4528.1 | 4749.8 | 5252.9 | 7062.8 | 9703.4  | 11908.6 | 12059.9 | 10484.1 | 10547.2 | 10732.0 |
| 65°   | 3308.8 | 3073.3 | 3273.3 | 3765.9 | 5728.4 | 10184.2 | 13687.7 | 14294.0 | 11617.9 | 11082.6 | 10965.5 |
| 67.5° | 2177.6 | 2011.2 | 2050.0 | 2377.5 | 3943.5 | 8682.0  | 14877.4 | 15538.4 | 12654.4 | 11521.9 | 10553.8 |
| 70°   | 1686.3 | 1552.1 | 1535.0 | 1706.7 | 2338.7 | 6031.6  | 14172.4 | 15177.3 | 13285.8 | 11110.2 | 9199.0  |
| 72.5° | 1323.3 | 1221.3 | 1230.5 | 1395.6 | 1811.3 | 3346.3  | 10966.8 | 12906.3 | 12334.8 | 9581.8  | 7067.4  |
| 75°   | 1031.9 | 948.4  | 995.1  | 1183.8 | 1675.1 | 2079.6  | 7566.6  | 9795.5  | 9536.4  | 7095.1  | 4030.9  |
| 77.5° | 749.1  | 695.2  | 761.6  | 1008.2 | 1574.5 | 1784.3  | 4710.3  | 6834.0  | 6109.2  | 3642.9  | 1383.1  |
| 80°   | 491.3  | 461.0  | 515.6  | 822.1  | 1427.8 | 1717.2  | 2910.9  | 4187.5  | 3018.8  | 1023.4  | 523.5   |
| 82.5° | 289.4  | 276.2  | 321.6  | 556.4  | 1147.7 | 1609.3  | 1941.5  | 2326.9  | 1235.1  | 432.8   | 278.2   |
| 85°   | 151.9  | 142.1  | 190.7  | 319.6  | 791.2  | 1469.3  | 1528.5  | 1393.0  | 596.5   | 188.1   | 132.9   |
| 87.5° | 50.6   | 49.3   | 80.9   | 123.6  | 299.2  | 780.0   | 815.5   | 661.6   | 246.0   | 54.6    | 28.9    |
| 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°    | 1468.6 | 1468.6 | 1468.6 | 1468.6 | 1468.6 | 1468.6 | 1468.6 | 1468.6 | 1468.6 | 1468.6 | 1468.6 |
| 2.5°  | 1785.6 | 1759.3 | 1608.0 | 1629.1 | 1648.8 | 1638.9 | 1633.0 | 1564.6 | 1558.0 | 1655.4 | 1647.5 |
| 5°    | 2249.9 | 2140.8 | 2011.8 | 2005.9 | 1921.1 | 1834.3 | 1851.4 | 1823.7 | 1831.6 | 1871.8 | 1875.7 |
| 7.5°  | 2495.2 | 2359.1 | 2236.1 | 2036.2 | 1866.5 | 1729.0 | 1750.7 | 1744.2 | 1726.4 | 1817.2 | 1841.5 |
| 10°   | 2490.6 | 2369.6 | 2230.9 | 1988.8 | 1874.4 | 1762.6 | 1628.4 | 1501.5 | 1464.0 | 1419.3 | 1423.2 |
| 12.5° | 2655.1 | 2547.9 | 2245.3 | 1998.7 | 1843.5 | 1650.8 | 1399.5 | 1260.8 | 1127.9 | 1125.3 | 1091.8 |
| 15°   | 2706.4 | 2627.4 | 2276.2 | 1942.1 | 1627.1 | 1350.9 | 1091.1 | 940.5  | 844.5  | 825.4  | 797.1  |
| 17.5° | 2835.9 | 2712.3 | 2182.2 | 1759.3 | 1375.9 | 1056.2 | 820.1  | 714.9  | 707.0  | 720.2  | 705.7  |
| 20°   | 2844.5 | 2643.9 | 2012.5 | 1489.0 | 1105.6 | 800.4  | 668.9  | 616.2  | 644.5  | 676.8  | 675.4  |
| 22.5° | 2837.2 | 2557.7 | 1865.8 | 1258.8 | 830.7  | 643.2  | 586.0  | 574.2  | 600.5  | 648.5  | 654.4  |
| 25°   | 2763.6 | 2529.4 | 1682.3 | 1033.9 | 674.1  | 551.1  | 535.4  | 542.6  | 575.5  | 632.0  | 632.0  |
| 27.5° | 2840.5 | 2414.3 | 1452.2 | 841.2  | 566.9  | 490.6  | 501.8  | 520.2  | 544.6  | 609.0  | 620.9  |
| 30°   | 2815.5 | 2452.5 | 1266.7 | 677.4  | 499.8  | 448.5  | 473.5  | 491.9  | 519.6  | 586.7  | 592.6  |
| 32.5° | 2882.6 | 2350.6 | 1110.8 | 569.6  | 455.8  | 432.1  | 438.0  | 463.0  | 499.2  | 551.8  | 562.3  |
| 35°   | 2985.2 | 2388.0 | 931.9  | 512.3  | 434.1  | 413.0  | 424.2  | 443.9  | 480.1  | 531.4  | 540.0  |
| 37.5° | 3312.7 | 2386.1 | 808.3  | 480.8  | 430.1  | 409.1  | 414.3  | 428.2  | 470.2  | 516.9  | 536.7  |
| 40°   | 3523.2 | 2522.9 | 695.8  | 473.5  | 425.5  | 407.1  | 402.5  | 417.6  | 451.2  | 506.4  | 520.2  |
| 42.5° | 3918.5 | 2606.4 | 647.2  | 470.9  | 424.9  | 395.9  | 391.3  | 409.1  | 442.0  | 493.3  | 514.3  |
| 45°   | 4336.1 | 2725.4 | 608.4  | 469.6  | 422.9  | 394.0  | 380.1  | 402.5  | 430.1  | 479.4  | 503.8  |
| 47.5° | 4827.4 | 2977.3 | 586.7  | 465.0  | 418.9  | 396.6  | 376.2  | 387.4  | 418.3  | 467.6  | 491.9  |
| 50°   | 5470.6 | 3310.8 | 591.3  | 458.4  | 424.9  | 397.2  | 370.3  | 375.5  | 403.8  | 451.8  | 476.8  |
| 52.5° | 6252.6 | 3827.0 | 620.9  | 461.0  | 428.8  | 394.0  | 367.6  | 365.0  | 389.3  | 431.4  | 456.4  |
| 55°   | 7195.0 | 4559.7 | 709.6  | 473.5  | 428.8  | 393.3  | 363.7  | 351.9  | 370.3  | 404.5  | 428.8  |
| 57.5° | 8332.2 | 5408.1 | 883.3  | 479.4  | 425.5  | 389.3  | 355.1  | 334.1  | 345.3  | 373.6  | 396.6  |
| 60°   | 9308.8 | 6092.8 | 1062.2 | 483.4  | 432.1  | 380.1  | 338.0  | 311.7  | 319.0  | 340.7  | 361.1  |
| 62.5° | 9806.7 | 6284.8 | 1116.1 | 480.1  | 449.9  | 374.2  | 317.7  | 288.1  | 288.7  | 307.1  | 325.6  |
| 65°   | 9900.1 | 6029.0 | 899.7  | 476.8  | 472.9  | 373.6  | 303.2  | 267.7  | 263.1  | 276.2  | 292.0  |
| 67.5° | 9234.5 | 5233.2 | 649.1  | 469.6  | 475.5  | 369.6  | 293.3  | 251.2  | 239.4  | 248.6  | 261.8  |
| 70°   | 7840.9 | 4214.4 | 545.2  | 455.1  | 443.9  | 349.9  | 276.2  | 234.1  | 218.4  | 224.9  | 234.8  |
| 72.5° | 5845.5 | 3118.1 | 475.5  | 424.2  | 386.7  | 299.2  | 249.9  | 215.1  | 198.6  | 203.2  | 210.5  |
| 75°   | 3247.6 | 1663.3 | 397.9  | 369.0  | 315.7  | 242.0  | 213.1  | 190.7  | 176.3  | 178.2  | 186.1  |
| 77.5° | 1078.6 | 613.6  | 292.0  | 292.7  | 238.7  | 186.8  | 175.6  | 163.1  | 151.9  | 152.6  | 159.2  |
| 80°   | 488.7  | 339.4  | 209.1  | 210.5  | 166.4  | 135.5  | 134.8  | 130.9  | 123.6  | 121.7  | 126.3  |
| 82.5° | 283.5  | 205.9  | 143.4  | 136.8  | 107.2  | 88.1   | 98.0   | 96.0   | 94.0   | 86.8   | 88.1   |
| 85°   | 139.4  | 110.5  | 75.0   | 71.0   | 59.2   | 44.1   | 52.6   | 54.6   | 52.6   | 44.7   | 44.1   |
| 87.5° | 34.2   | 36.2   | 18.4   | 17.1   | 9.9    | 4.6    | 7.9    | 7.9    | 9.9    | 6.6    | 3.3    |
| 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)