

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: P368663

Luminaire Tested: **MSA-SA4D-750-U-T4FT-HSS**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P368663  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-13)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: MSA-SA4D-750-U-T4FT-HSS  
Description: MESA POST TOP DECORATIVE LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS  
EACH AND TYPE IV FORWARD THROW OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 19700 lumens  
Efficiency: N/A  
Efficacy: 76.1 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B2 - U0 - G4

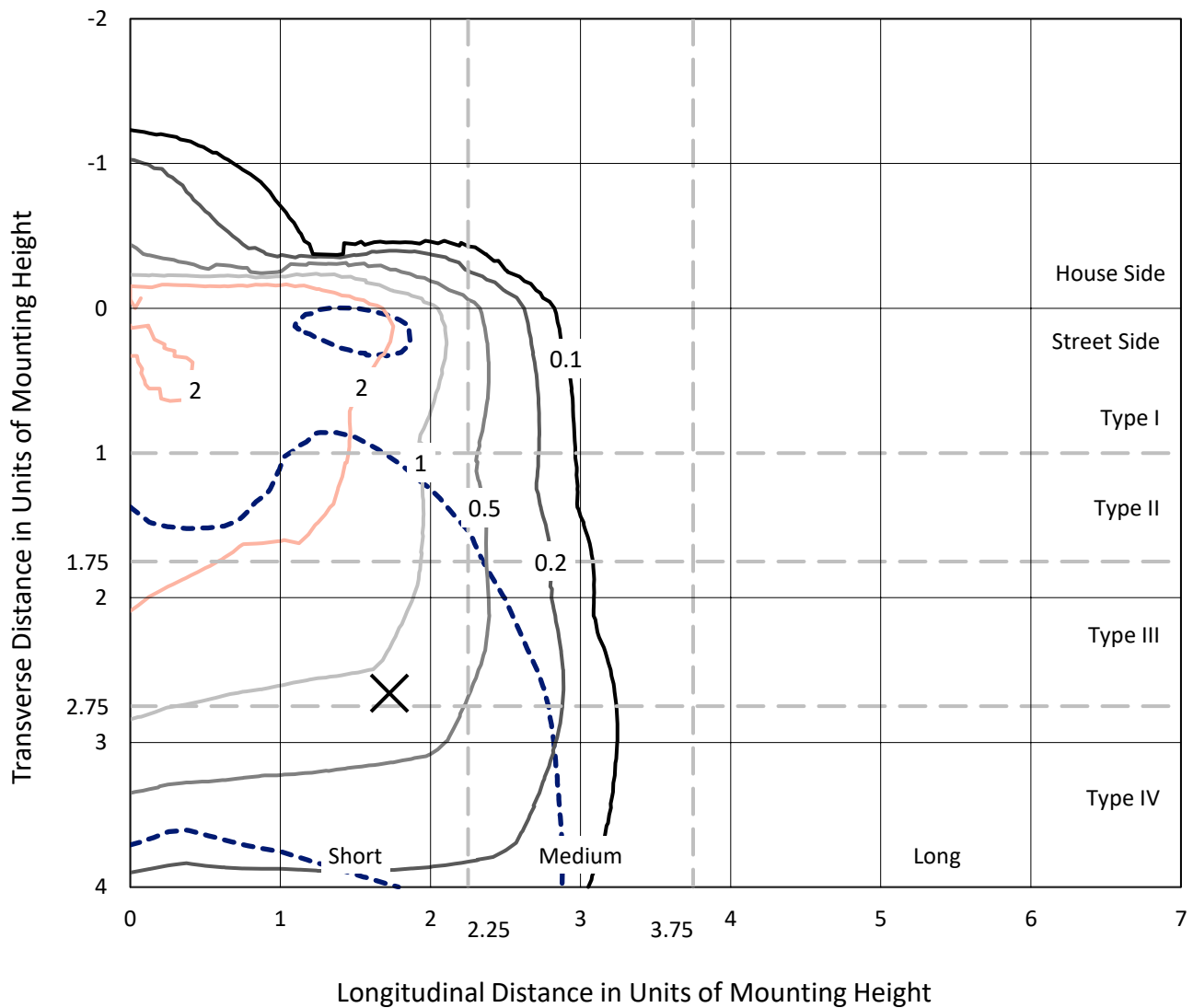
Input Watts (W): 259  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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## Iso-Footcandle Lines of Horizontal Illumination

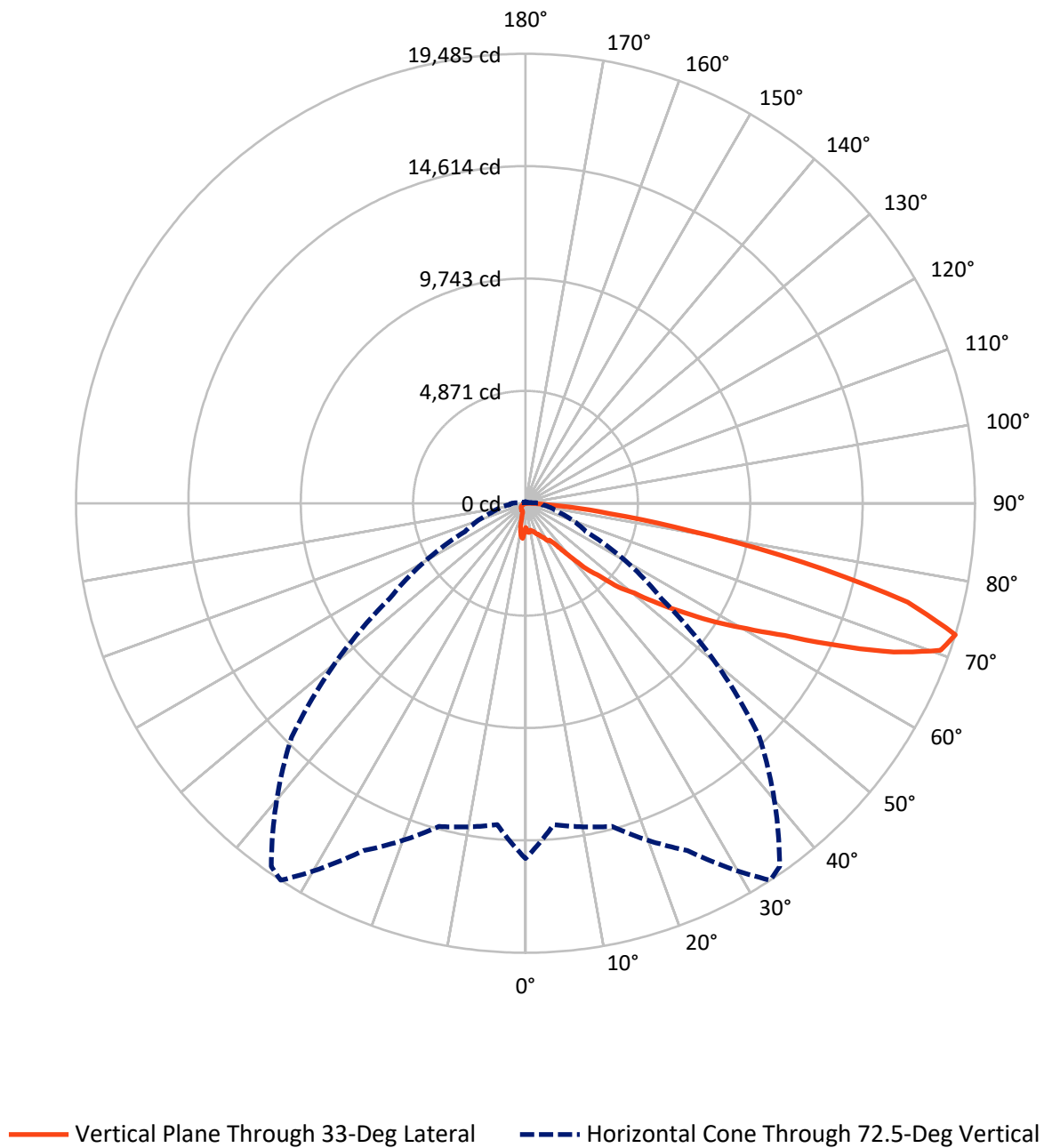
× Max cd  
--- 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 4.9 fc  
Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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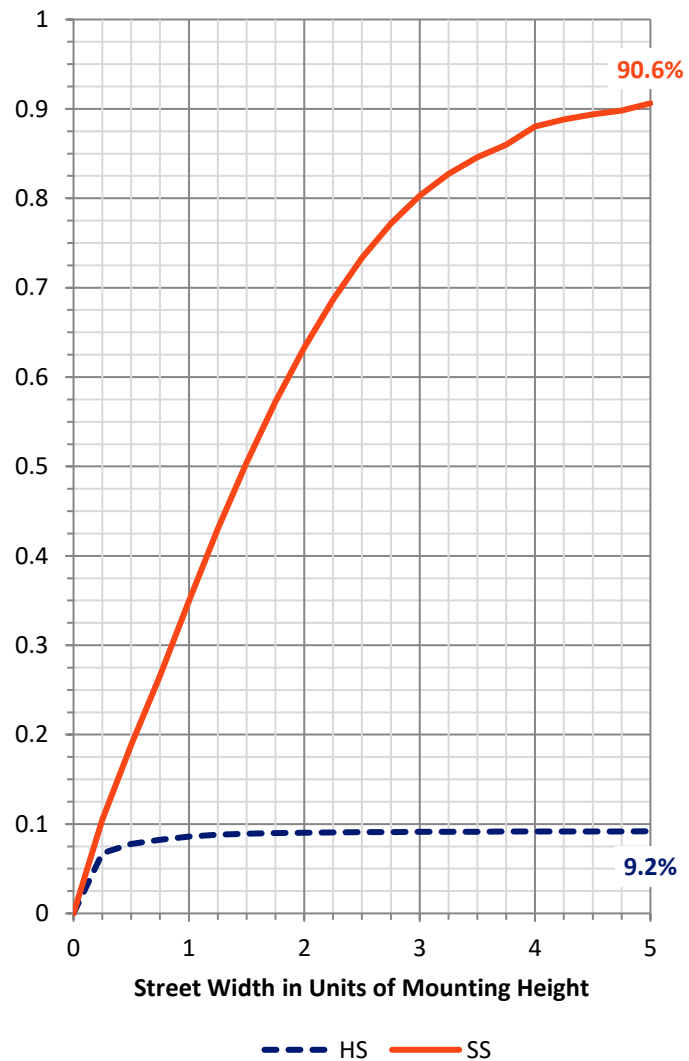
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 1821.5   | 0.0    | 1821.5  |
|                    | % Fixture | 9.2      | 0.0    | 9.2     |
| <b>Street Side</b> | Lumens    | 17878.5  | 0.0    | 17878.5 |
|                    | % Fixture | 90.8     | 0.0    | 90.8    |
| <b>Total</b>       | Lumens    | 19700.0  | 0.0    | 19700.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 135.6   | 0.7       |
| 10°-20°   | 404.1   | 2.1       |
| 20°-30°   | 685.3   | 3.5       |
| 30°-40°   | 1254.3  | 6.4       |
| 40°-50°   | 2647.2  | 13.4      |
| 50°-60°   | 4429.0  | 22.5      |
| 60°-70°   | 5928.5  | 30.1      |
| 70°-80°   | 3872.5  | 19.7      |
| 80°-90°   | 343.3   | 1.7       |
| 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°    | 19700.0 | 100.0     |
| 0°-180°   | 19700.0 | 100.0     |

**Coefficient of Utilization**



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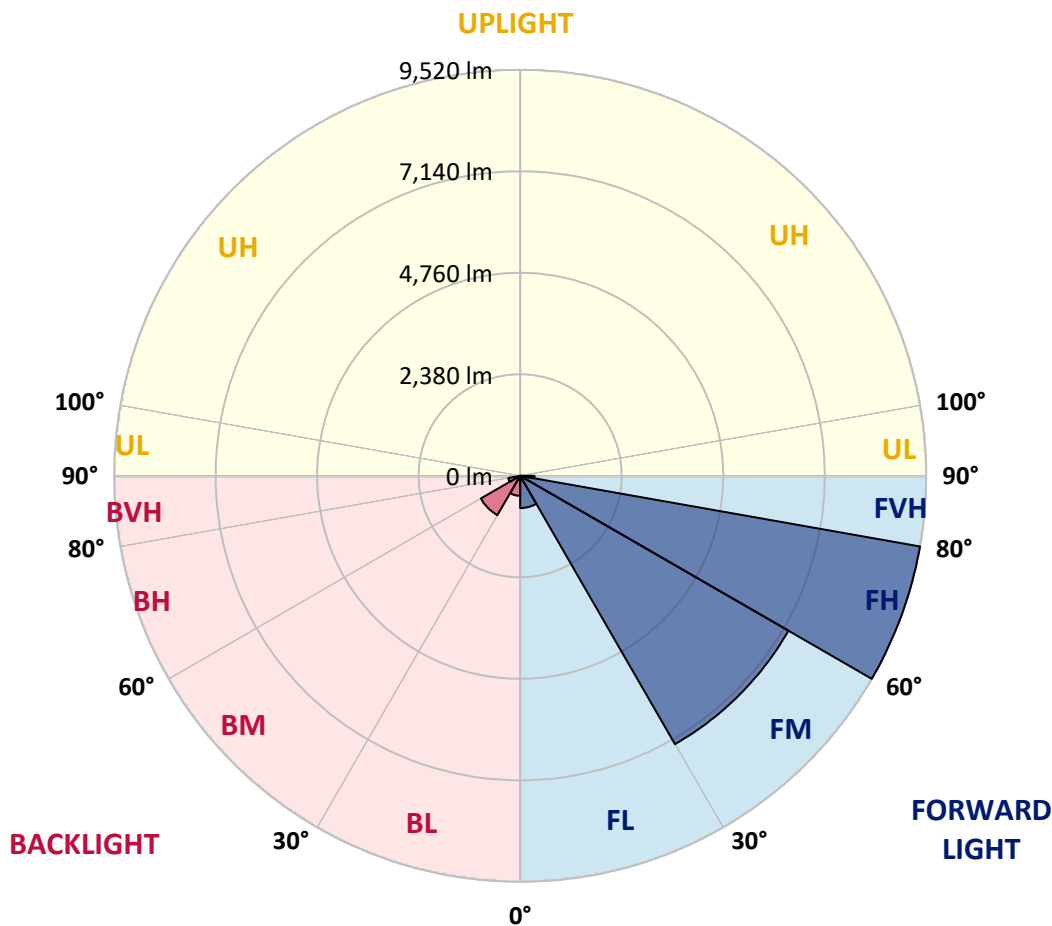
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|--------|-----------|-------------------------|------|----------|
|      |             |        |           | B                       | U    | G        |
| FL   | (0°-30°)    | 756.2  | 3.8       |                         |      |          |
| FM   | (30°-60°)   | 7265.7 | 36.9      |                         |      |          |
| FH   | (60°-80°)   | 9519.9 | 48.3      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 336.7  | 1.7       |                         |      | G3/500   |
| BL   | (0°-30°)    | 468.8  | 2.4       | B1/500                  |      |          |
| BM   | (30°-60°)   | 1064.9 | 5.4       | B2/2500                 |      |          |
| BH   | (60°-80°)   | 281.1  | 1.4       | B1/500                  |      | G1/500   |
| BVH  | (80°-90°)   | 6.6    | 0.0       |                         |      | G0/10    |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |          |

**BUG Rating: B2-U0-G4**

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 33°     | 35°     | 45°     | 55°     | 65°    | 75°    | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|--------|--------|---------|
| 0°    | 1047.8  | 1047.8  | 1047.8  | 1047.8  | 1047.8  | 1047.8  | 1047.8  | 1047.8  | 1047.8 | 1047.8 | 1047.8  |
| 2.5°  | 1249.1  | 1200.9  | 1130.9  | 1135.3  | 1147.3  | 1157.2  | 1183.4  | 1172.5  | 1151.7 | 1150.6 | 1249.1  |
| 5°    | 1323.4  | 1269.8  | 1265.5  | 1272.0  | 1268.7  | 1286.2  | 1264.4  | 1335.5  | 1395.6 | 1467.8 | 1583.7  |
| 7.5°  | 1287.3  | 1262.2  | 1230.5  | 1263.3  | 1262.2  | 1253.4  | 1267.7  | 1412.0  | 1557.5 | 1649.4 | 1840.8  |
| 10°   | 1183.4  | 1155.0  | 1179.1  | 1190.0  | 1182.3  | 1220.6  | 1315.8  | 1433.9  | 1607.8 | 1800.3 | 1893.3  |
| 12.5° | 1153.9  | 1171.4  | 1180.2  | 1180.2  | 1253.4  | 1273.1  | 1418.6  | 1530.2  | 1736.9 | 1888.9 | 2159.1  |
| 15°   | 1268.7  | 1302.7  | 1242.5  | 1229.4  | 1252.3  | 1263.3  | 1425.2  | 1559.7  | 1824.4 | 2102.2 | 2328.6  |
| 17.5° | 1451.4  | 1449.2  | 1356.2  | 1304.8  | 1340.9  | 1367.2  | 1456.9  | 1614.4  | 1769.7 | 2269.5 | 2597.7  |
| 20°   | 1577.2  | 1579.4  | 1412.0  | 1304.8  | 1424.1  | 1439.4  | 1538.9  | 1664.7  | 1787.2 | 2353.7 | 2773.7  |
| 22.5° | 1739.1  | 1681.1  | 1496.2  | 1392.3  | 1473.3  | 1487.5  | 1596.9  | 1696.4  | 1876.9 | 2343.9 | 2999.1  |
| 25°   | 1871.4  | 1834.2  | 1601.2  | 1529.1  | 1601.2  | 1581.6  | 1681.1  | 1830.9  | 1973.1 | 2500.3 | 3131.4  |
| 27.5° | 2077.0  | 2013.6  | 1675.6  | 1688.7  | 1684.4  | 1698.6  | 1721.6  | 1951.2  | 2142.7 | 2508.0 | 3437.7  |
| 30°   | 2268.4  | 2231.2  | 1841.9  | 1841.9  | 1884.5  | 1857.2  | 1873.6  | 2151.4  | 2306.7 | 2685.2 | 3782.2  |
| 32.5° | 2466.4  | 2468.6  | 2037.7  | 1933.7  | 1899.8  | 2012.5  | 2123.0  | 2248.7  | 2504.7 | 2989.2 | 4309.4  |
| 35°   | 2990.3  | 2946.6  | 2412.8  | 2153.6  | 2126.2  | 2119.7  | 2296.9  | 2637.0  | 2855.8 | 3385.2 | 5019.2  |
| 37.5° | 4045.8  | 3893.7  | 3220.0  | 2652.3  | 2549.5  | 2514.5  | 2715.8  | 3064.7  | 3282.3 | 3967.0 | 6192.8  |
| 40°   | 5128.6  | 4849.7  | 4101.6  | 3461.7  | 3128.1  | 2977.2  | 3211.2  | 3507.7  | 3894.8 | 4610.2 | 7278.9  |
| 42.5° | 6079.1  | 5734.5  | 4765.5  | 4334.5  | 3900.3  | 3834.7  | 3614.8  | 4097.2  | 4769.8 | 5546.4 | 8343.1  |
| 45°   | 7005.5  | 6327.3  | 5356.1  | 5014.8  | 4487.7  | 4524.8  | 4450.5  | 4868.3  | 5678.7 | 6572.3 | 9287.0  |
| 47.5° | 7643.1  | 7033.9  | 6080.1  | 5637.2  | 5426.1  | 5208.4  | 5799.1  | 6233.3  | 6488.1 | 7224.2 | 10103.0 |
| 50°   | 8330.0  | 7713.1  | 6702.5  | 6393.0  | 6115.1  | 6335.0  | 7101.7  | 7159.7  | 7138.9 | 7832.3 | 10658.6 |
| 52.5° | 9217.0  | 8489.7  | 7416.7  | 7066.7  | 7224.2  | 7443.0  | 8327.8  | 8338.7  | 7717.5 | 8344.2 | 11058.9 |
| 55°   | 10037.3 | 9231.2  | 8368.3  | 8038.0  | 8367.2  | 8552.0  | 9533.1  | 9173.3  | 8054.4 | 8692.0 | 11255.8 |
| 57.5° | 11193.4 | 10260.5 | 9633.7  | 9051.9  | 9719.1  | 9541.9  | 10593.0 | 10058.1 | 8432.8 | 8922.8 | 11183.6 |
| 60°   | 12654.7 | 11556.5 | 10928.7 | 10313.0 | 11028.3 | 11148.6 | 11627.6 | 10500.0 | 8579.4 | 8998.3 | 10749.4 |
| 62.5° | 14141.1 | 13036.4 | 12210.6 | 11792.8 | 12604.4 | 13000.3 | 12585.8 | 10719.8 | 8403.3 | 8850.6 | 9766.1  |
| 65°   | 15985.1 | 14570.9 | 13606.2 | 13361.2 | 14865.1 | 15447.0 | 13718.9 | 10773.4 | 8063.1 | 8038.0 | 7852.0  |
| 67.5° | 17248.4 | 15871.4 | 14986.5 | 15396.7 | 17213.4 | 17260.4 | 14736.1 | 10789.8 | 6918.0 | 6293.4 | 5153.7  |
| 70°   | 17548.1 | 16073.7 | 15677.8 | 16885.3 | 19087.0 | 18495.3 | 15064.2 | 9958.6  | 5130.8 | 3735.2 | 2355.9  |
| 72.5° | 15404.4 | 13984.7 | 14499.8 | 16604.2 | 19485.1 | 19213.9 | 14339.0 | 7184.8  | 2888.6 | 1494.1 | 723.0   |
| 75°   | 9448.9  | 8590.3  | 10877.3 | 14077.6 | 17104.0 | 16929.0 | 11186.9 | 3712.2  | 1163.7 | 597.2  | 270.2   |
| 77.5° | 4109.2  | 3816.1  | 5676.6  | 9340.6  | 12290.5 | 12134.0 | 6554.8  | 1367.2  | 601.6  | 420.0  | 136.7   |
| 80°   | 1359.5  | 1319.1  | 2150.3  | 4423.1  | 7199.1  | 7061.2  | 2761.7  | 568.7   | 428.7  | 336.9  | 76.6    |
| 82.5° | 322.7   | 320.5   | 750.3   | 2035.5  | 3667.3  | 3552.5  | 847.7   | 313.9   | 310.6  | 265.8  | 40.5    |
| 85°   | 80.9    | 83.1    | 207.8   | 832.3   | 1489.7  | 1313.6  | 220.9   | 156.4   | 218.7  | 180.5  | 20.8    |
| 87.5° | 0.0     | 0.0     | 53.6    | 119.2   | 225.3   | 141.1   | 24.1    | 41.6    | 61.2   | 64.5   | 10.9    |
| 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°    | 1047.8 | 1047.8 | 1047.8 | 1047.8 | 1047.8 | 1047.8 | 1047.8 | 1047.8 | 1047.8 | 1047.8 | 1047.8 |
| 2.5°  | 1270.9 | 1258.9 | 1160.5 | 1184.5 | 1221.7 | 1218.4 | 1242.5 | 1223.9 | 1207.5 | 1288.4 | 1280.8 |
| 5°    | 1616.6 | 1550.9 | 1520.3 | 1563.0 | 1540.0 | 1486.4 | 1531.2 | 1523.6 | 1510.5 | 1537.8 | 1558.6 |
| 7.5°  | 1875.8 | 1815.6 | 1788.3 | 1698.6 | 1568.4 | 1465.6 | 1482.0 | 1443.7 | 1407.7 | 1450.3 | 1494.1 |
| 10°   | 1961.1 | 1928.3 | 1925.0 | 1750.0 | 1627.5 | 1478.7 | 1302.7 | 1150.6 | 1110.2 | 1056.6 | 1080.6 |
| 12.5° | 2193.0 | 2212.7 | 2089.1 | 1884.5 | 1648.3 | 1362.8 | 1050.0 | 834.5  | 747.0  | 690.2  | 693.4  |
| 15°   | 2383.3 | 2452.2 | 2272.8 | 1905.3 | 1450.3 | 1039.1 | 698.9  | 505.3  | 450.6  | 436.4  | 432.0  |
| 17.5° | 2666.6 | 2733.3 | 2329.7 | 1757.7 | 1169.2 | 704.4  | 449.5  | 393.7  | 397.0  | 406.9  | 404.7  |
| 20°   | 2876.6 | 2866.7 | 2280.5 | 1496.2 | 861.9  | 461.6  | 376.2  | 368.6  | 386.1  | 414.5  | 408.0  |
| 22.5° | 3078.9 | 3011.1 | 2249.8 | 1254.5 | 557.8  | 370.8  | 363.1  | 362.0  | 378.4  | 405.8  | 413.4  |
| 25°   | 3223.3 | 3234.2 | 2198.4 | 982.2  | 405.8  | 344.5  | 351.1  | 360.9  | 377.3  | 406.9  | 402.5  |
| 27.5° | 3636.7 | 3330.5 | 1984.1 | 713.1  | 342.3  | 330.3  | 346.7  | 366.4  | 371.9  | 409.1  | 410.2  |
| 30°   | 3904.7 | 3693.6 | 1844.1 | 480.2  | 316.1  | 305.2  | 338.0  | 364.2  | 370.8  | 418.9  | 422.2  |
| 32.5° | 4371.7 | 3850.0 | 1682.2 | 356.6  | 294.2  | 297.5  | 318.3  | 353.3  | 383.9  | 435.3  | 437.5  |
| 35°   | 4952.5 | 4352.0 | 1389.1 | 320.5  | 286.6  | 281.1  | 290.9  | 331.4  | 381.7  | 437.5  | 448.4  |
| 37.5° | 6058.3 | 4652.8 | 1101.4 | 310.6  | 286.6  | 276.7  | 286.6  | 310.6  | 375.2  | 459.4  | 482.3  |
| 40°   | 6798.7 | 5265.3 | 794.1  | 308.4  | 281.1  | 272.3  | 275.6  | 299.7  | 356.6  | 446.2  | 480.2  |
| 42.5° | 7710.9 | 5523.4 | 585.2  | 303.0  | 275.6  | 262.5  | 264.7  | 295.3  | 338.0  | 418.9  | 444.1  |
| 45°   | 8458.0 | 5711.6 | 460.5  | 300.8  | 262.5  | 258.1  | 262.5  | 292.0  | 320.5  | 359.8  | 382.8  |
| 47.5° | 9025.6 | 5930.3 | 369.7  | 286.6  | 259.2  | 258.1  | 252.7  | 273.4  | 290.9  | 300.8  | 316.1  |
| 50°   | 9441.2 | 5881.1 | 306.2  | 264.7  | 248.3  | 254.8  | 245.0  | 248.3  | 252.7  | 247.2  | 264.7  |
| 52.5° | 9696.1 | 5703.9 | 254.8  | 238.4  | 235.2  | 240.6  | 228.6  | 218.7  | 211.1  | 206.7  | 217.7  |
| 55°   | 9789.1 | 5348.4 | 216.6  | 204.5  | 212.2  | 214.4  | 204.5  | 187.0  | 173.9  | 167.3  | 176.1  |
| 57.5° | 9613.0 | 4807.0 | 188.1  | 169.5  | 187.0  | 187.0  | 173.9  | 155.3  | 140.0  | 129.1  | 137.8  |
| 60°   | 9166.7 | 4208.7 | 167.3  | 141.1  | 159.7  | 160.8  | 145.5  | 125.8  | 113.7  | 102.8  | 108.3  |
| 62.5° | 8335.5 | 3556.9 | 146.6  | 122.5  | 137.8  | 138.9  | 120.3  | 101.7  | 93.0   | 80.9   | 85.3   |
| 65°   | 6673.0 | 2720.2 | 124.7  | 108.3  | 119.2  | 115.9  | 99.5   | 86.4   | 75.5   | 64.5   | 66.7   |
| 67.5° | 4331.2 | 1678.9 | 108.3  | 98.4   | 100.6  | 97.3   | 84.2   | 75.5   | 63.4   | 54.7   | 55.8   |
| 70°   | 1939.2 | 723.0  | 95.2   | 88.6   | 87.5   | 82.0   | 71.1   | 70.0   | 62.3   | 54.7   | 54.7   |
| 72.5° | 598.3  | 272.3  | 82.0   | 79.8   | 75.5   | 68.9   | 62.3   | 66.7   | 61.2   | 52.5   | 51.4   |
| 75°   | 236.2  | 124.7  | 67.8   | 67.8   | 65.6   | 56.9   | 55.8   | 60.2   | 56.9   | 48.1   | 45.9   |
| 77.5° | 123.6  | 78.7   | 55.8   | 58.0   | 56.9   | 43.7   | 50.3   | 54.7   | 52.5   | 40.5   | 33.9   |
| 80°   | 73.3   | 48.1   | 41.6   | 47.0   | 45.9   | 30.6   | 38.3   | 35.0   | 25.2   | 12.0   | 3.3    |
| 82.5° | 40.5   | 21.9   | 18.6   | 27.3   | 27.3   | 10.9   | 19.7   | 17.5   | 9.8    | 0.0    | 0.0    |
| 85°   | 19.7   | 15.3   | 14.2   | 15.3   | 10.9   | 3.3    | 9.8    | 9.8    | 5.5    | 0.0    | 0.0    |
| 87.5° | 9.8    | 8.7    | 6.6    | 5.5    | 4.4    | 0.0    | 3.3    | 4.4    | 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)