

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: P368467

Luminaire Tested: **MSA-SA4C-727-U-T4W-HSS**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P368467
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-15)
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: MSA-SA4C-727-U-T4W-HSS
Description: MESA POST TOP DECORATIVE LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15171 lumens
Efficiency: N/A
Efficacy: 67.4 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G3

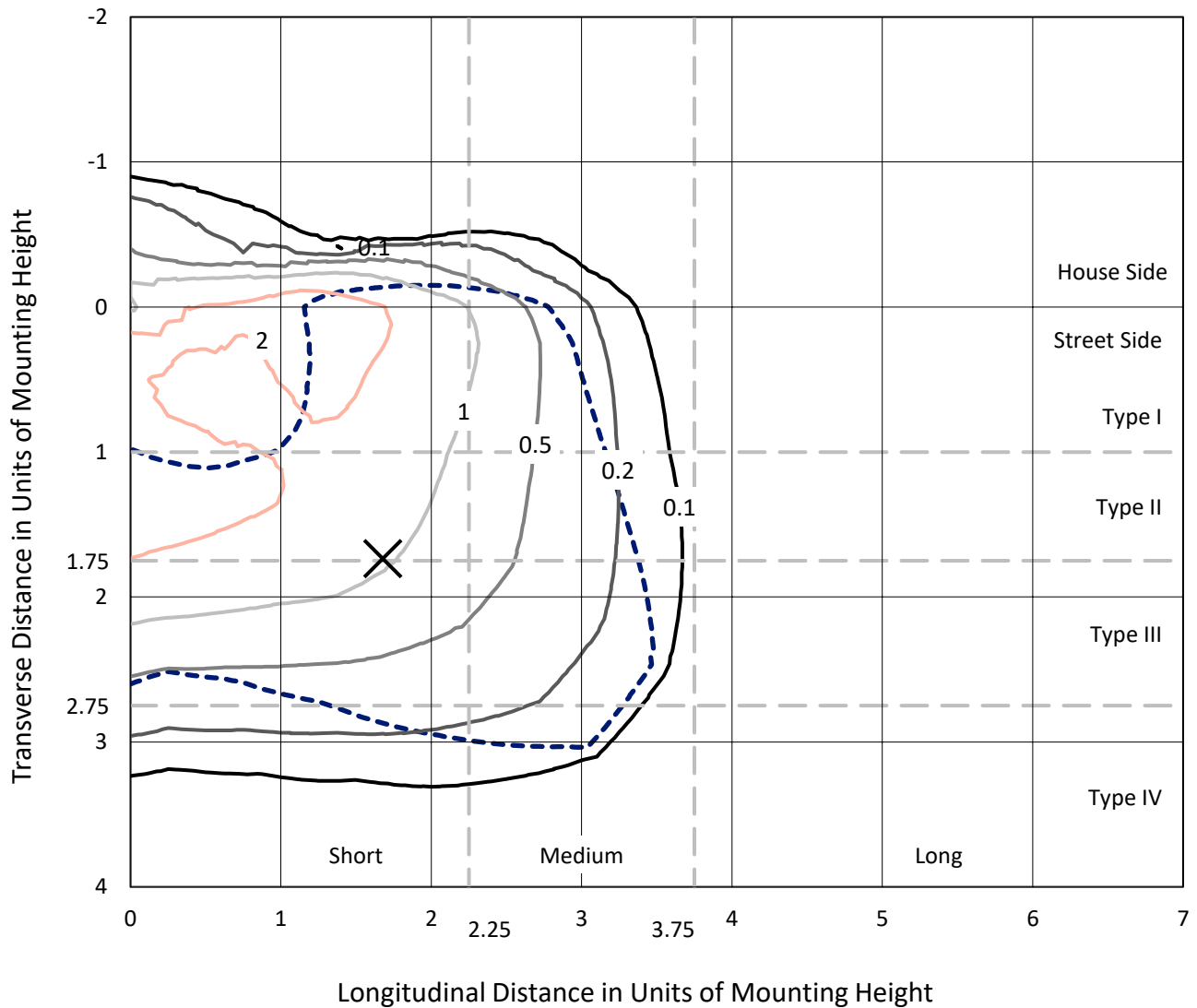
Input Watts (W): 225
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

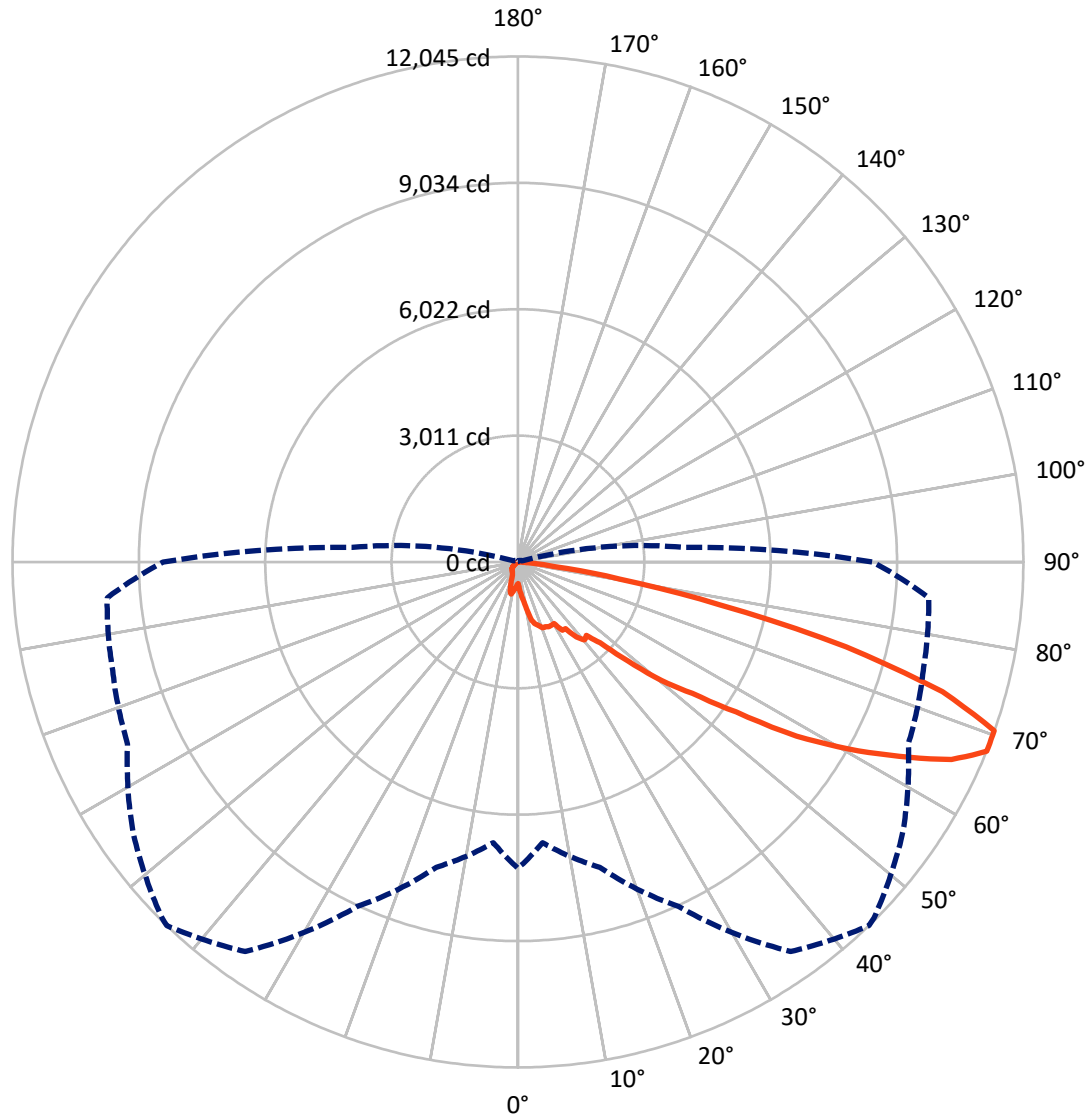
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 3.5 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 44-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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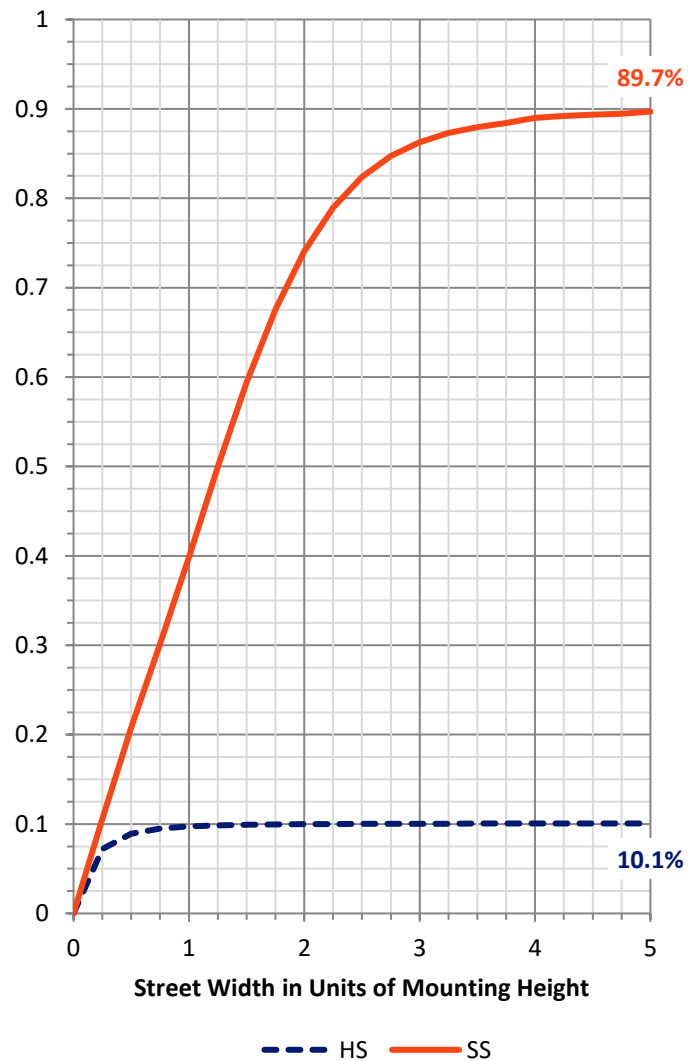
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1541.1 | 0.0 | 1541.1 |
| | % Fixture | 10.2 | 0.0 | 10.2 |
| Street Side | Lumens | 13629.9 | 0.0 | 13629.9 |
| | % Fixture | 89.8 | 0.0 | 89.8 |
| Total | Lumens | 15171.0 | 0.0 | 15171.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 75.8 | 0.5 |
| 10°-20° | 317.2 | 2.1 |
| 20°-30° | 561.9 | 3.7 |
| 30°-40° | 913.3 | 6.0 |
| 40°-50° | 1827.5 | 12.0 |
| 50°-60° | 3749.3 | 24.7 |
| 60°-70° | 5150.4 | 33.9 |
| 70°-80° | 2420.7 | 16.0 |
| 80°-90° | 155.0 | 1.0 |
| 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° | 15171.0 | 100.0 |
| 0°-180° | 15171.0 | 100.0 |

Coefficient of Utilization

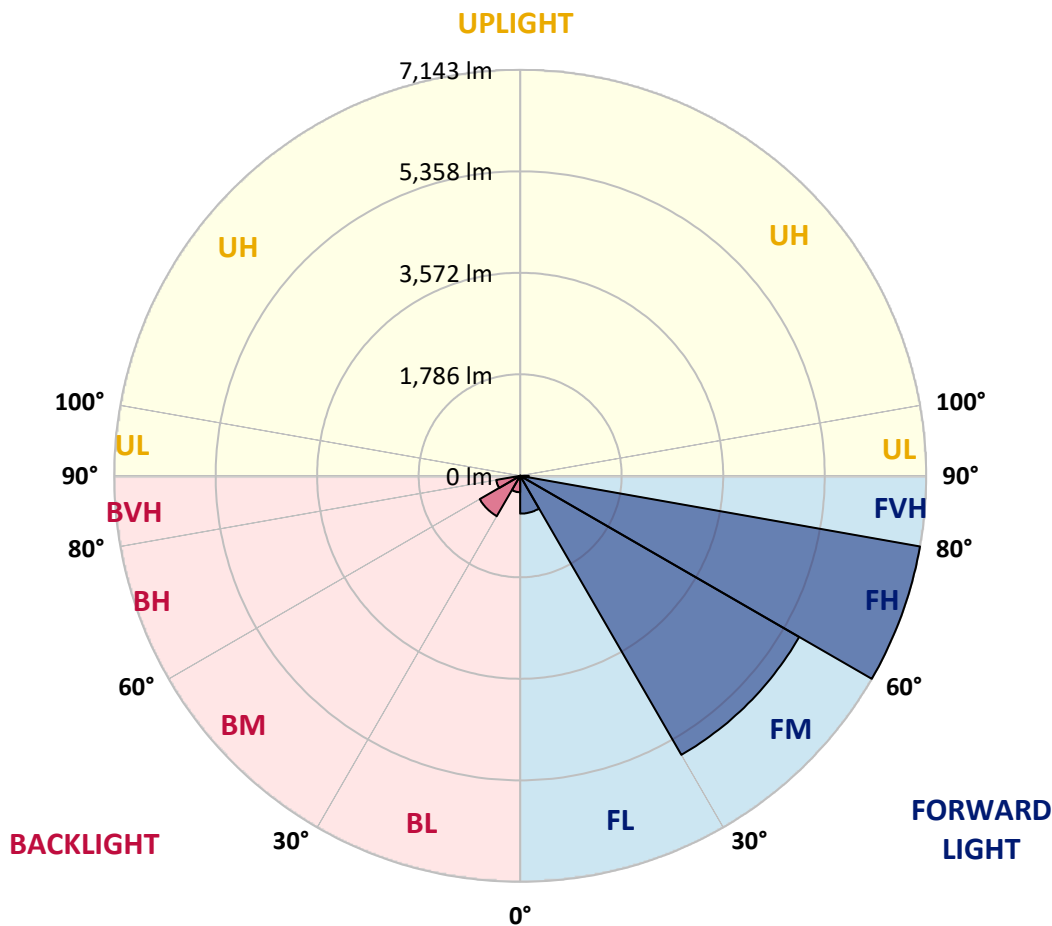


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 665.4 | 4.4 | | | |
| FM (30°-60°) | 5669.2 | 37.4 | | | |
| FH (60°-80°) | 7143.4 | 47.1 | | | G3/7500 |
| FVH (80°-90°) | 151.9 | 1.0 | | | G2/225 |
| BL (0°-30°) | 289.4 | 1.9 | B1/500 | | |
| BM (30°-60°) | 820.9 | 5.4 | B1/1000 | | |
| BH (60°-80°) | 427.6 | 2.8 | 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-G3
 Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 44° | 45° | 55° | 65° | 75° | 85° |
|-------|---------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 |
| 2.5° | 650.0 | 629.1 | 599.0 | 605.7 | 609.0 | 618.2 | 619.1 | 607.3 | 573.9 | 564.7 | 605.7 |
| 5° | 911.0 | 860.0 | 850.8 | 831.5 | 793.1 | 772.1 | 767.1 | 788.0 | 761.3 | 752.9 | 763.8 |
| 7.5° | 1163.7 | 1120.2 | 1072.5 | 1046.5 | 966.2 | 916.9 | 914.4 | 922.7 | 927.7 | 898.5 | 913.5 |
| 10° | 1331.8 | 1284.1 | 1274.1 | 1213.0 | 1143.6 | 1131.9 | 1126.9 | 1095.1 | 1069.1 | 1047.4 | 974.6 |
| 12.5° | 1484.1 | 1483.2 | 1501.6 | 1413.8 | 1402.9 | 1414.6 | 1410.4 | 1296.7 | 1270.7 | 1179.6 | 1158.6 |
| 15° | 1686.5 | 1736.7 | 1657.2 | 1583.6 | 1489.9 | 1530.1 | 1519.2 | 1446.4 | 1428.9 | 1366.9 | 1277.4 |
| 17.5° | 1896.5 | 1909.9 | 1776.9 | 1663.9 | 1639.7 | 1587.0 | 1597.8 | 1571.9 | 1483.2 | 1532.6 | 1443.9 |
| 20° | 1901.5 | 1930.8 | 1788.6 | 1602.0 | 1676.5 | 1674.0 | 1674.8 | 1649.7 | 1532.6 | 1648.0 | 1566.9 |
| 22.5° | 1971.8 | 1899.8 | 1767.7 | 1648.9 | 1662.3 | 1674.8 | 1688.2 | 1657.2 | 1632.1 | 1660.6 | 1675.6 |
| 25° | 1943.3 | 1914.9 | 1787.7 | 1709.1 | 1696.6 | 1706.6 | 1709.9 | 1749.3 | 1733.4 | 1802.0 | 1764.3 |
| 27.5° | 2017.0 | 1976.0 | 1748.4 | 1762.6 | 1718.3 | 1706.6 | 1686.5 | 1817.9 | 1864.7 | 1810.3 | 1910.7 |
| 30° | 2143.3 | 2137.4 | 1816.2 | 1837.1 | 1802.8 | 1699.9 | 1753.4 | 1924.9 | 1983.5 | 1950.0 | 2072.2 |
| 32.5° | 2340.7 | 2360.8 | 2014.4 | 1878.9 | 1896.5 | 1942.5 | 1922.4 | 1924.9 | 2073.0 | 2147.5 | 2244.5 |
| 35° | 2621.0 | 2610.1 | 2207.7 | 2037.9 | 1945.8 | 1953.4 | 1981.8 | 2118.2 | 2309.8 | 2304.7 | 2407.6 |
| 37.5° | 3171.4 | 3052.6 | 2549.8 | 2200.2 | 2227.8 | 2265.4 | 2244.5 | 2427.7 | 2446.1 | 2452.8 | 2698.8 |
| 40° | 3982.9 | 3824.8 | 3089.4 | 2542.3 | 2276.3 | 2442.8 | 2432.7 | 2477.9 | 2600.9 | 2646.9 | 3005.8 |
| 42.5° | 5052.0 | 4839.5 | 4038.9 | 3171.4 | 2510.5 | 2395.9 | 2457.8 | 2543.2 | 2956.4 | 3087.8 | 3480.9 |
| 45° | 6233.2 | 5803.2 | 4985.9 | 4068.2 | 3097.8 | 2742.3 | 2789.1 | 2948.1 | 3521.1 | 3738.6 | 4172.8 |
| 47.5° | 6998.7 | 6620.6 | 5923.7 | 4862.9 | 3710.2 | 3523.6 | 3527.8 | 3562.1 | 4184.5 | 4587.7 | 5170.0 |
| 50° | 7663.8 | 7261.4 | 6614.7 | 5693.7 | 4793.5 | 4440.5 | 4360.2 | 4202.1 | 5029.4 | 5580.7 | 6226.5 |
| 52.5° | 8602.4 | 8132.2 | 7305.7 | 6668.3 | 6029.1 | 5197.6 | 5169.1 | 5222.7 | 6025.8 | 6605.5 | 7309.9 |
| 55° | 9449.0 | 8877.6 | 8088.7 | 7687.2 | 7437.9 | 6310.2 | 6334.5 | 6424.0 | 7304.9 | 7611.9 | 8273.6 |
| 57.5° | 9822.9 | 9203.9 | 8798.1 | 8617.5 | 8484.4 | 7830.2 | 7748.3 | 7694.7 | 8313.8 | 8430.9 | 9283.4 |
| 60° | 10068.1 | 9479.1 | 9295.1 | 9336.9 | 9740.1 | 9045.8 | 8971.3 | 8660.1 | 9148.7 | 9244.9 | 10188.5 |
| 62.5° | 9913.3 | 9376.2 | 9415.5 | 9764.4 | 10659.5 | 10202.7 | 9987.7 | 9467.4 | 9831.3 | 9909.1 | 10838.5 |
| 65° | 8938.7 | 8379.0 | 8884.3 | 9728.4 | 11360.5 | 11349.7 | 11250.1 | 10212.8 | 10209.4 | 10309.0 | 10888.7 |
| 67.5° | 7301.5 | 6714.3 | 7531.6 | 9054.1 | 11331.3 | 12044.9 | 11998.0 | 11201.6 | 10263.8 | 9997.8 | 9826.3 |
| 70° | 5076.3 | 4566.8 | 5493.7 | 7477.2 | 10321.5 | 12039.8 | 11964.5 | 11865.8 | 9833.8 | 8605.7 | 7618.6 |
| 72.5° | 2637.7 | 2357.4 | 3220.8 | 5152.4 | 8227.6 | 10578.4 | 10826.8 | 10664.5 | 8396.6 | 6252.5 | 4486.5 |
| 75° | 896.0 | 803.9 | 1328.5 | 2734.7 | 5469.5 | 8077.9 | 8369.0 | 8204.2 | 5702.9 | 3354.6 | 1774.4 |
| 77.5° | 347.2 | 322.9 | 476.0 | 1110.1 | 2743.9 | 4922.3 | 5238.6 | 5070.4 | 3058.5 | 1228.9 | 417.4 |
| 80° | 197.4 | 190.7 | 262.7 | 500.3 | 1209.7 | 2448.6 | 2671.2 | 2422.7 | 1102.6 | 414.1 | 108.8 |
| 82.5° | 83.7 | 86.2 | 146.4 | 270.2 | 608.2 | 864.2 | 963.7 | 879.2 | 461.8 | 283.6 | 40.2 |
| 85° | 18.4 | 22.6 | 69.4 | 150.6 | 255.2 | 246.8 | 258.5 | 286.9 | 283.6 | 208.3 | 17.6 |
| 87.5° | 0.0 | 0.0 | 21.8 | 41.0 | 61.1 | 40.2 | 31.8 | 56.0 | 87.0 | 83.7 | 7.5 |
| 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° | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 | 511.1 |
| 2.5° | 613.2 | 604.8 | 552.1 | 548.8 | 552.1 | 542.9 | 542.1 | 522.9 | 524.5 | 568.0 | 571.4 |
| 5° | 763.8 | 722.0 | 676.8 | 662.6 | 649.2 | 619.1 | 635.8 | 635.8 | 635.8 | 663.4 | 671.8 |
| 7.5° | 900.1 | 844.1 | 780.5 | 727.0 | 675.1 | 637.5 | 663.4 | 681.8 | 692.7 | 728.6 | 745.4 |
| 10° | 962.0 | 906.8 | 849.9 | 773.8 | 733.7 | 719.4 | 689.3 | 673.4 | 692.7 | 685.1 | 694.3 |
| 12.5° | 1094.2 | 1044.0 | 946.2 | 867.5 | 837.4 | 788.9 | 700.2 | 638.3 | 597.3 | 590.6 | 588.9 |
| 15° | 1223.1 | 1192.1 | 1060.8 | 955.4 | 850.8 | 738.7 | 587.3 | 505.3 | 461.8 | 454.3 | 455.1 |
| 17.5° | 1386.2 | 1341.8 | 1148.6 | 997.2 | 819.8 | 618.2 | 453.4 | 383.1 | 379.8 | 398.2 | 399.9 |
| 20° | 1494.9 | 1422.2 | 1192.9 | 962.9 | 717.8 | 467.6 | 354.7 | 338.0 | 364.7 | 398.2 | 394.9 |
| 22.5° | 1598.7 | 1520.0 | 1251.5 | 932.8 | 556.3 | 354.7 | 326.3 | 327.9 | 350.5 | 386.5 | 395.7 |
| 25° | 1667.3 | 1638.8 | 1323.4 | 862.5 | 424.1 | 307.0 | 312.0 | 324.6 | 343.8 | 378.1 | 378.1 |
| 27.5° | 1873.9 | 1740.9 | 1315.1 | 726.1 | 326.3 | 286.1 | 297.8 | 313.7 | 323.8 | 364.7 | 368.9 |
| 30° | 1999.4 | 1955.9 | 1358.6 | 587.3 | 286.1 | 259.3 | 281.9 | 296.1 | 302.8 | 349.7 | 351.4 |
| 32.5° | 2153.3 | 2057.1 | 1411.3 | 433.3 | 266.0 | 257.7 | 252.6 | 263.5 | 282.8 | 323.8 | 326.3 |
| 35° | 2340.7 | 2312.3 | 1336.0 | 340.5 | 259.3 | 240.9 | 230.9 | 236.7 | 249.3 | 276.9 | 282.8 |
| 37.5° | 2723.0 | 2554.0 | 1290.8 | 292.0 | 259.3 | 235.1 | 224.2 | 209.1 | 210.8 | 230.1 | 240.9 |
| 40° | 3045.1 | 2993.2 | 1164.5 | 283.6 | 247.6 | 226.7 | 199.9 | 181.5 | 169.0 | 174.8 | 179.0 |
| 42.5° | 3636.5 | 3396.5 | 1001.4 | 279.4 | 236.7 | 205.0 | 169.8 | 150.6 | 131.3 | 133.0 | 139.7 |
| 45° | 4354.3 | 3836.5 | 855.8 | 275.2 | 229.2 | 183.2 | 143.1 | 120.5 | 100.4 | 101.2 | 107.9 |
| 47.5° | 5313.0 | 4478.1 | 679.3 | 262.7 | 215.8 | 163.1 | 115.4 | 92.0 | 80.3 | 82.8 | 88.7 |
| 50° | 6402.2 | 5041.1 | 537.1 | 243.4 | 199.9 | 143.9 | 93.7 | 74.5 | 70.3 | 72.8 | 79.5 |
| 52.5° | 7375.2 | 5456.1 | 443.4 | 225.9 | 177.4 | 117.1 | 78.6 | 66.1 | 64.4 | 66.1 | 71.1 |
| 55° | 8240.2 | 5697.0 | 370.6 | 205.8 | 152.3 | 94.5 | 71.1 | 61.1 | 60.2 | 59.4 | 62.7 |
| 57.5° | 9051.6 | 5766.4 | 289.5 | 174.0 | 123.8 | 82.0 | 66.1 | 56.9 | 55.2 | 52.7 | 55.2 |
| 60° | 9643.1 | 5647.6 | 212.5 | 139.7 | 101.2 | 74.5 | 61.9 | 51.0 | 48.5 | 44.3 | 46.0 |
| 62.5° | 9928.3 | 5322.2 | 160.6 | 112.1 | 86.2 | 67.8 | 55.2 | 44.3 | 41.0 | 36.0 | 36.8 |
| 65° | 9657.3 | 4786.0 | 126.3 | 94.5 | 73.6 | 56.9 | 46.8 | 37.6 | 33.5 | 28.4 | 28.4 |
| 67.5° | 8456.8 | 3970.3 | 107.1 | 82.0 | 61.9 | 48.5 | 38.5 | 34.3 | 27.6 | 23.4 | 22.6 |
| 70° | 6207.3 | 2856.0 | 92.0 | 71.9 | 53.5 | 41.8 | 32.6 | 31.0 | 26.8 | 22.6 | 20.9 |
| 72.5° | 3503.5 | 1616.2 | 78.6 | 63.6 | 45.2 | 35.1 | 27.6 | 28.4 | 25.9 | 20.9 | 19.2 |
| 75° | 1336.8 | 544.6 | 65.3 | 52.7 | 36.8 | 26.8 | 23.4 | 23.4 | 23.4 | 17.6 | 15.1 |
| 77.5° | 331.3 | 138.9 | 51.9 | 42.7 | 29.3 | 17.6 | 19.2 | 20.1 | 20.1 | 15.1 | 10.9 |
| 80° | 91.2 | 46.8 | 31.0 | 31.0 | 20.9 | 10.0 | 13.4 | 13.4 | 10.9 | 5.0 | 0.0 |
| 82.5° | 33.5 | 17.6 | 10.9 | 13.4 | 9.2 | 3.3 | 5.0 | 3.3 | 2.5 | 0.0 | 0.0 |
| 85° | 14.2 | 9.2 | 6.7 | 7.5 | 4.2 | 0.0 | 0.8 | 1.7 | 0.0 | 0.0 | 0.0 |
| 87.5° | 5.9 | 4.2 | 3.3 | 3.3 | 1.7 | 0.0 | 0.0 | 0.0 | 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)