

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: P596731

Luminaire Tested: **MSA-SA3D-827-U-T2-HSS**

Issue Date: 5/27/2021

Test Information

Test Method: LM-79-08
Report Number: P596731
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-9)
Test Lab: INNOVATIONS CENTER
Issue Date: 5/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: MSA-SA3D-827-U-T2-HSS
Description: MESA POST TOP DECORATIVE LUMINAIRE. (3) 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: 11036 lumens
Efficiency: N/A
Efficacy: 57.5 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Medium
BUG Rating: B1 - U0 - G2

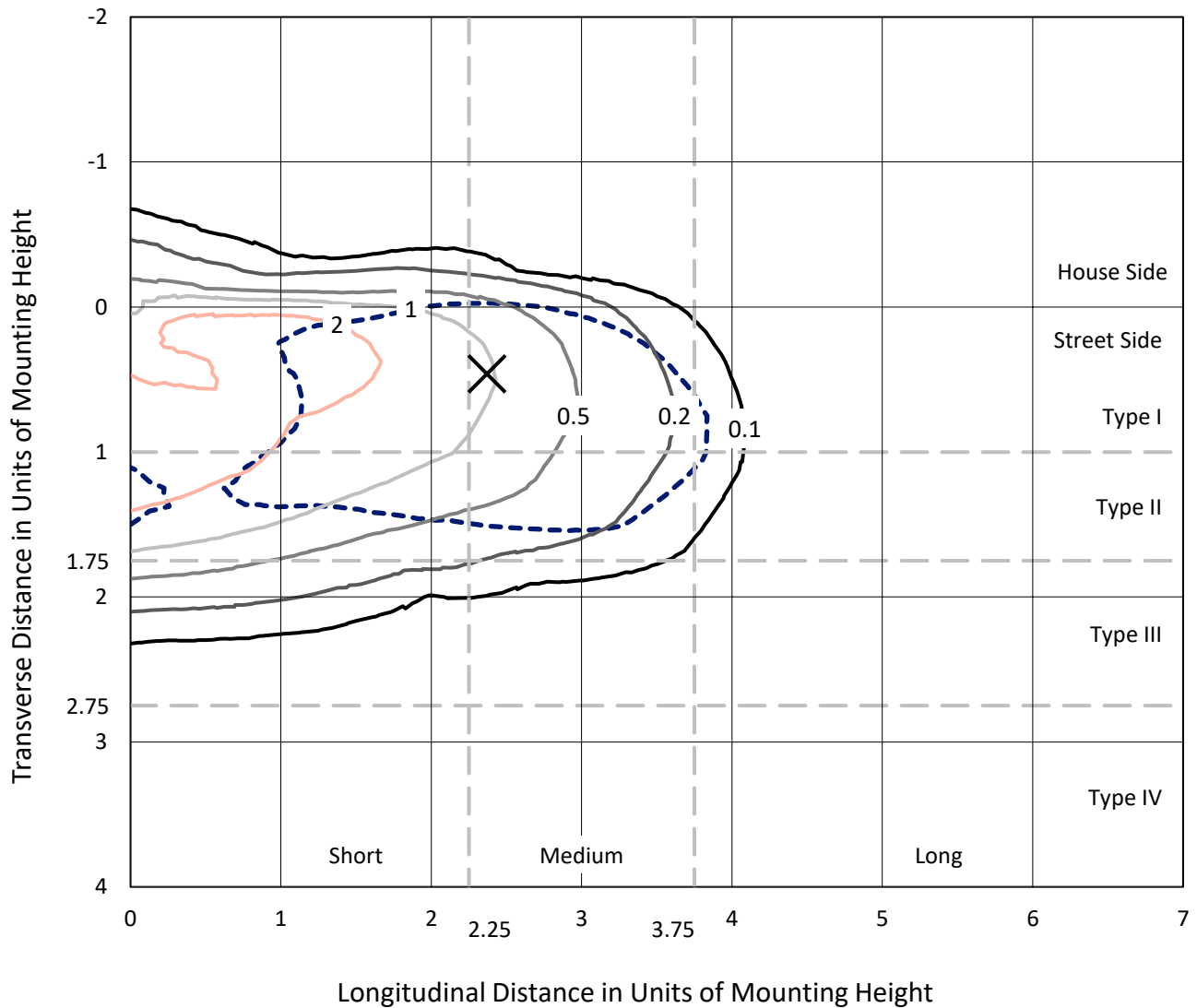
Input Watts (W): 192
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

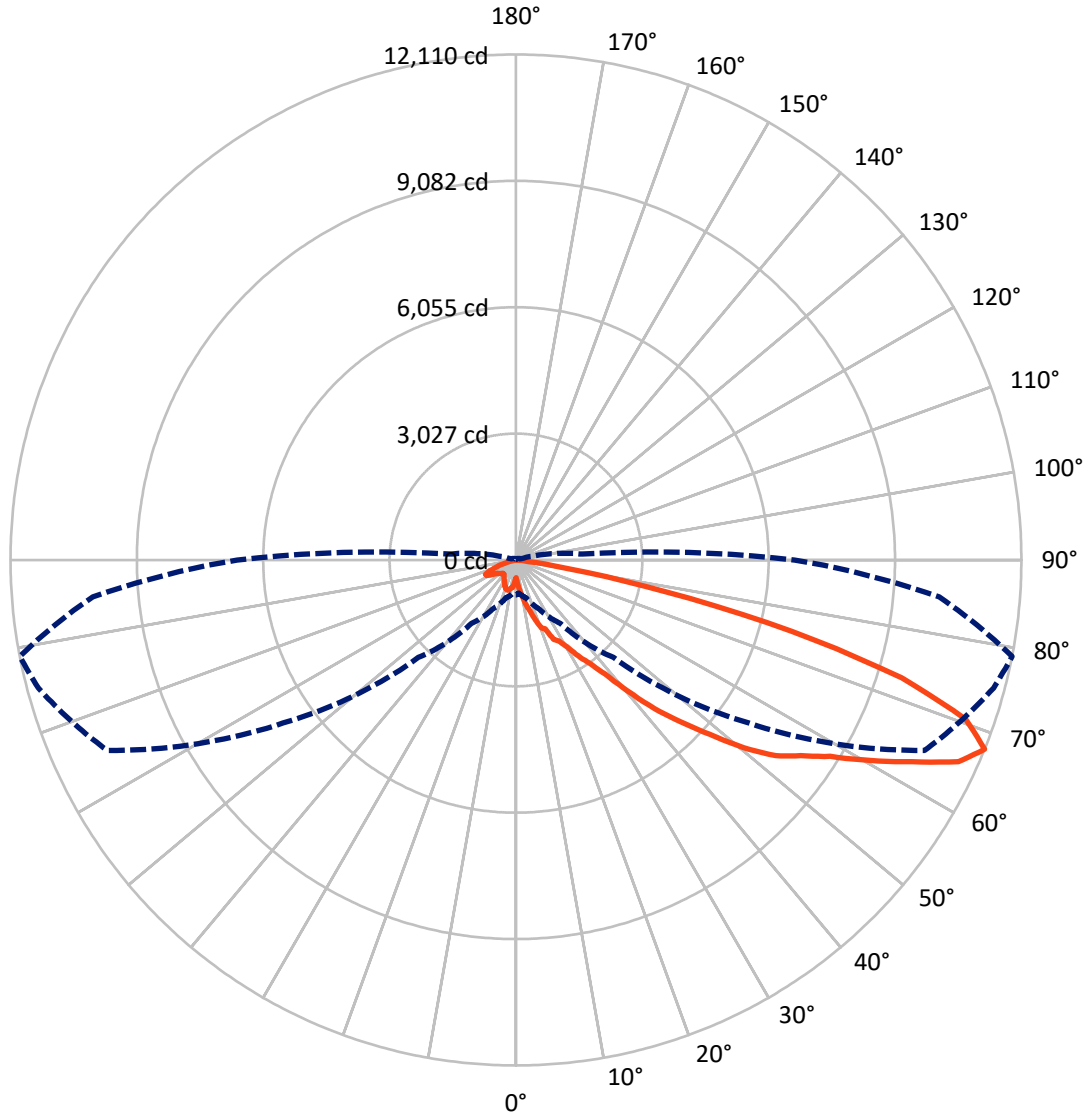
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 3.3 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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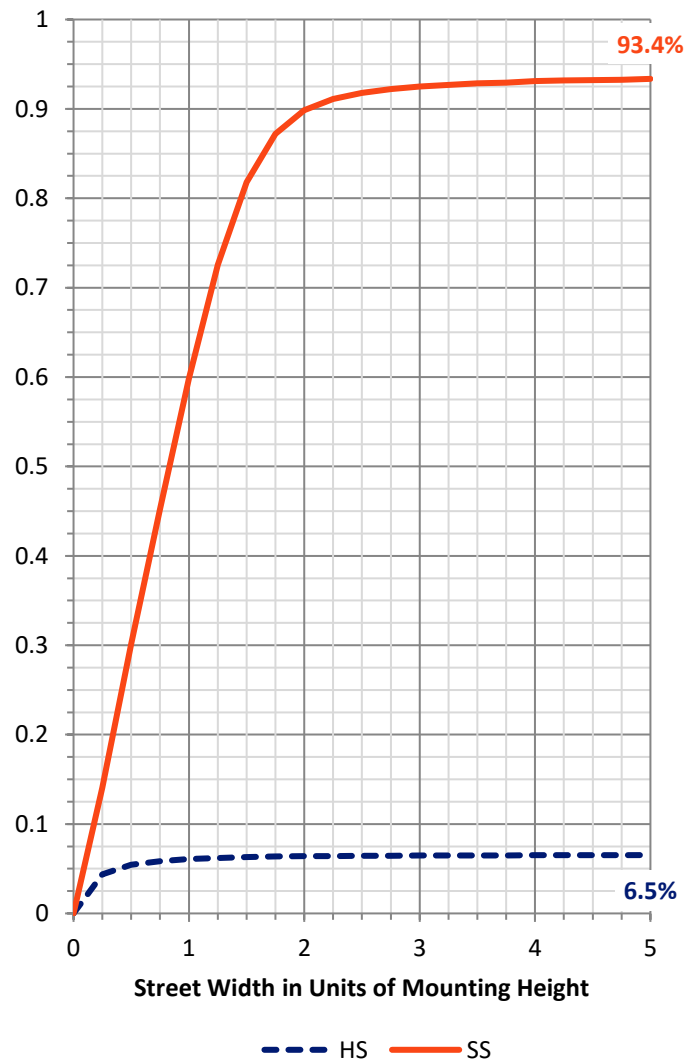
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 725.2 | 0.0 | 725.2 |
| | % Fixture | 6.6 | 0.0 | 6.6 |
| Street Side | Lumens | 10310.9 | 0.0 | 10310.9 |
| | % Fixture | 93.4 | 0.0 | 93.4 |
| Total | Lumens | 11036.0 | 0.0 | 11036.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 61.8 | 0.6 |
| 10°-20° | 246.6 | 2.2 |
| 20°-30° | 475.7 | 4.3 |
| 30°-40° | 934.5 | 8.5 |
| 40°-50° | 1872.1 | 17.0 |
| 50°-60° | 2992.3 | 27.1 |
| 60°-70° | 3010.7 | 27.3 |
| 70°-80° | 1358.2 | 12.3 |
| 80°-90° | 84.0 | 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° | 11036.0 | 100.0 |
| 0°-180° | 11036.0 | 100.0 |

Coefficient of Utilization



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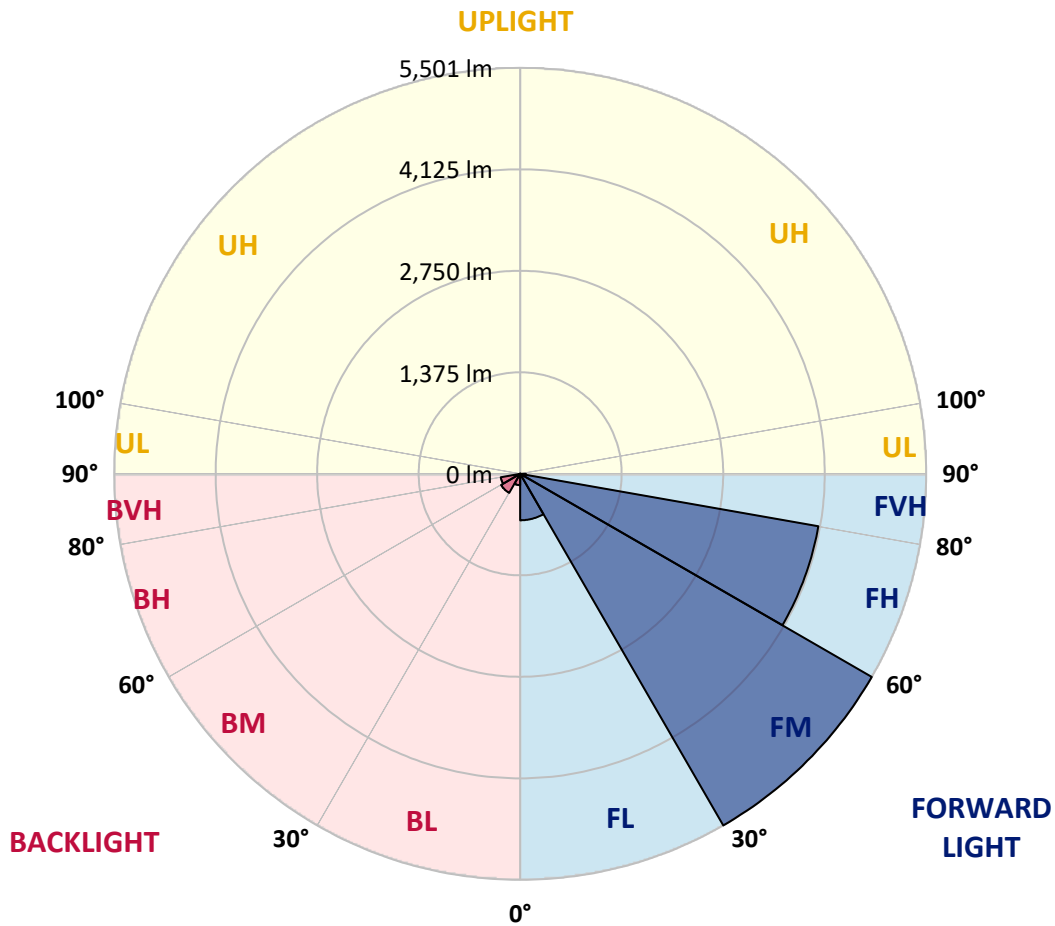
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 630.0 | 5.7 | | | |
| FM (30°-60°) | 5500.5 | 49.8 | | | |
| FH (60°-80°) | 4101.6 | 37.2 | | | G2/5000 |
| FVH (80°-90°) | 78.7 | 0.7 | | | G1/100 |
| BL (0°-30°) | 154.1 | 1.4 | B1/500 | | |
| BM (30°-60°) | 298.3 | 2.7 | B1/1000 | | |
| BH (60°-80°) | 267.3 | 2.4 | B1/500 | | G1/500 |
| BVH (80°-90°) | 5.4 | 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-G2

Type II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 79° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|
| 0° | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 |
| 2.5° | 574.3 | 553.6 | 520.2 | 539.0 | 537.8 | 547.5 | 529.3 | 509.2 | 477.0 | 509.2 | 511.6 |
| 5° | 826.8 | 788.4 | 764.1 | 759.2 | 732.5 | 707.5 | 702.1 | 681.4 | 665.5 | 637.0 | 662.5 |
| 7.5° | 1030.0 | 1012.3 | 969.1 | 964.3 | 898.6 | 862.1 | 873.6 | 864.5 | 804.3 | 774.4 | 799.4 |
| 10° | 1116.3 | 1085.9 | 1092.0 | 1085.9 | 1057.9 | 1068.3 | 1044.6 | 1017.2 | 969.1 | 919.8 | 857.8 |
| 12.5° | 1149.8 | 1144.9 | 1195.4 | 1189.3 | 1255.1 | 1334.1 | 1281.2 | 1235.6 | 1124.3 | 1112.1 | 1027.5 |
| 15° | 1221.6 | 1252.0 | 1244.7 | 1270.3 | 1312.2 | 1446.7 | 1445.5 | 1456.4 | 1338.4 | 1275.1 | 1152.8 |
| 17.5° | 1285.5 | 1308.0 | 1271.5 | 1300.7 | 1415.1 | 1496.6 | 1605.5 | 1562.9 | 1576.3 | 1511.8 | 1322.6 |
| 20° | 1258.1 | 1283.6 | 1247.1 | 1229.5 | 1430.9 | 1585.4 | 1730.8 | 1699.8 | 1780.1 | 1739.9 | 1478.9 |
| 22.5° | 1429.0 | 1381.0 | 1289.1 | 1231.9 | 1382.2 | 1583.6 | 1775.2 | 1904.8 | 1890.8 | 1792.2 | 1624.3 |
| 25° | 1640.1 | 1610.9 | 1500.8 | 1399.8 | 1413.2 | 1572.6 | 1915.1 | 2105.5 | 2146.9 | 2104.9 | 1762.4 |
| 27.5° | 1924.9 | 1918.2 | 1693.1 | 1649.3 | 1519.1 | 1524.6 | 1937.0 | 2358.6 | 2264.3 | 2198.6 | 1923.6 |
| 30° | 2296.6 | 2243.6 | 1976.6 | 1919.4 | 1727.1 | 1632.8 | 2070.9 | 2577.0 | 2507.7 | 2418.2 | 2075.1 |
| 32.5° | 2696.3 | 2704.2 | 2363.5 | 2174.9 | 2020.4 | 1908.4 | 2017.9 | 2679.2 | 2808.8 | 2736.4 | 2264.3 |
| 35° | 3150.1 | 3185.4 | 2768.7 | 2547.2 | 2246.7 | 2081.8 | 2245.5 | 2993.1 | 3225.5 | 3035.1 | 2518.0 |
| 37.5° | 3849.1 | 3847.9 | 3361.2 | 2920.1 | 2701.7 | 2522.9 | 2624.5 | 3278.5 | 3737.8 | 3470.1 | 2973.1 |
| 40° | 4464.2 | 4330.3 | 3877.7 | 3370.9 | 3030.3 | 2981.6 | 2908.0 | 3669.0 | 4284.7 | 4123.5 | 3377.6 |
| 42.5° | 4923.5 | 4829.2 | 4282.3 | 3888.0 | 3465.8 | 3311.3 | 3285.2 | 4241.5 | 5092.0 | 4866.3 | 3955.0 |
| 45° | 5472.8 | 5163.8 | 4761.0 | 4405.8 | 3975.7 | 3930.6 | 3869.2 | 4822.5 | 6031.3 | 5522.7 | 4456.9 |
| 47.5° | 5965.0 | 5674.2 | 5293.4 | 4837.1 | 4343.1 | 4714.2 | 4478.2 | 5332.9 | 6714.5 | 6236.9 | 5010.5 |
| 50° | 6379.3 | 6070.2 | 5643.8 | 5296.4 | 5084.7 | 5336.6 | 4943.0 | 5753.3 | 7452.4 | 7065.5 | 5528.2 |
| 52.5° | 6590.4 | 6240.6 | 5910.9 | 5696.1 | 5825.7 | 5769.1 | 5573.2 | 6262.5 | 8081.5 | 7791.9 | 5986.9 |
| 55° | 6417.0 | 6075.1 | 5937.0 | 6043.5 | 6437.1 | 6273.4 | 6289.3 | 7051.5 | 8675.3 | 8276.2 | 6386.0 |
| 57.5° | 5648.0 | 5336.0 | 5397.4 | 5688.8 | 6443.2 | 6871.5 | 7105.7 | 7818.1 | 9151.6 | 8879.7 | 7001.7 |
| 60° | 4272.5 | 4021.3 | 4248.8 | 4765.9 | 5837.2 | 6752.2 | 7684.8 | 8584.6 | 9832.4 | 9747.2 | 7933.7 |
| 62.5° | 2609.3 | 2473.0 | 2795.4 | 3440.3 | 4651.5 | 6167.6 | 8022.5 | 9606.7 | 10560.6 | 10651.2 | 8922.3 |
| 65° | 1331.1 | 1269.7 | 1538.6 | 2105.5 | 3142.8 | 5066.4 | 7778.5 | 10241.8 | 11313.1 | 11647.7 | 9864.6 |
| 67.5° | 838.3 | 798.8 | 942.4 | 1284.3 | 1854.3 | 3304.6 | 6810.6 | 10797.2 | 11844.8 | 12109.5 | 10179.1 |
| 70° | 581.0 | 556.0 | 680.1 | 881.5 | 1169.9 | 1780.1 | 5056.7 | 10278.9 | 11423.2 | 11435.4 | 9418.1 |
| 72.5° | 368.7 | 349.2 | 470.3 | 652.8 | 863.3 | 919.2 | 2898.9 | 8065.7 | 9778.2 | 9665.7 | 7627.0 |
| 75° | 239.1 | 229.4 | 298.7 | 478.2 | 663.1 | 567.0 | 1432.7 | 5442.4 | 7011.4 | 6835.0 | 5065.8 |
| 77.5° | 171.6 | 165.5 | 200.2 | 319.4 | 472.1 | 396.7 | 642.4 | 3243.8 | 4020.1 | 3634.4 | 2459.0 |
| 80° | 103.4 | 102.8 | 144.8 | 200.2 | 335.8 | 279.8 | 296.9 | 1472.8 | 1558.6 | 1270.9 | 751.3 |
| 82.5° | 51.7 | 53.5 | 80.9 | 129.0 | 216.0 | 183.1 | 135.7 | 490.3 | 418.6 | 308.4 | 152.1 |
| 85° | 12.2 | 15.2 | 42.6 | 88.8 | 108.3 | 73.0 | 64.5 | 128.4 | 115.0 | 87.0 | 44.4 |
| 87.5° | 0.0 | 0.0 | 13.4 | 21.3 | 29.2 | 12.2 | 21.9 | 24.3 | 31.0 | 24.3 | 9.1 |
| 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° | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 | 425.2 |
| 2.5° | 512.2 | 504.9 | 460.5 | 449.0 | 447.8 | 435.0 | 438.0 | 425.9 | 426.5 | 453.8 | 453.8 |
| 5° | 652.8 | 610.2 | 567.6 | 529.9 | 504.3 | 467.8 | 454.4 | 449.0 | 444.1 | 455.1 | 461.7 |
| 7.5° | 766.5 | 703.9 | 627.2 | 545.1 | 469.0 | 416.7 | 409.4 | 396.0 | 391.2 | 402.1 | 410.6 |
| 10° | 817.0 | 739.2 | 633.9 | 514.1 | 442.9 | 400.3 | 365.0 | 346.2 | 342.5 | 341.9 | 344.9 |
| 12.5° | 924.1 | 827.4 | 641.2 | 502.5 | 425.2 | 378.4 | 338.2 | 306.6 | 277.4 | 280.5 | 277.4 |
| 15° | 1009.9 | 895.5 | 641.2 | 474.5 | 382.7 | 335.8 | 265.2 | 249.4 | 245.2 | 251.9 | 246.4 |
| 17.5° | 1139.5 | 963.0 | 609.0 | 424.6 | 346.2 | 261.0 | 234.2 | 233.0 | 241.5 | 251.3 | 245.2 |
| 20° | 1217.3 | 972.2 | 554.8 | 367.5 | 284.1 | 226.3 | 216.6 | 206.8 | 219.0 | 226.9 | 223.9 |
| 22.5° | 1298.2 | 972.8 | 500.7 | 337.0 | 228.7 | 206.2 | 190.4 | 182.5 | 184.3 | 191.6 | 192.9 |
| 25° | 1332.9 | 949.0 | 450.2 | 296.9 | 207.5 | 184.3 | 167.9 | 159.4 | 156.3 | 160.0 | 158.8 |
| 27.5° | 1427.2 | 903.4 | 395.4 | 253.1 | 197.1 | 163.6 | 148.4 | 138.1 | 129.0 | 135.1 | 136.3 |
| 30° | 1440.6 | 888.8 | 365.6 | 225.1 | 183.7 | 144.8 | 131.4 | 120.5 | 113.8 | 122.3 | 122.3 |
| 32.5° | 1483.2 | 808.5 | 350.4 | 213.5 | 169.7 | 133.8 | 115.6 | 107.7 | 106.5 | 111.9 | 112.5 |
| 35° | 1548.9 | 773.2 | 327.9 | 204.4 | 157.0 | 121.1 | 104.0 | 100.4 | 99.2 | 103.4 | 103.4 |
| 37.5° | 1771.6 | 729.4 | 303.0 | 196.5 | 146.0 | 114.4 | 101.0 | 94.9 | 95.5 | 99.2 | 101.6 |
| 40° | 1919.4 | 734.9 | 265.9 | 186.8 | 133.2 | 108.3 | 94.9 | 90.6 | 90.0 | 91.9 | 93.7 |
| 42.5° | 2193.8 | 739.2 | 249.4 | 176.4 | 123.5 | 101.0 | 88.8 | 85.8 | 83.3 | 85.2 | 87.0 |
| 45° | 2500.4 | 761.7 | 240.9 | 167.9 | 118.0 | 96.7 | 83.3 | 81.5 | 76.0 | 77.3 | 79.7 |
| 47.5° | 2796.0 | 843.8 | 230.6 | 155.7 | 113.2 | 94.3 | 77.9 | 73.6 | 70.0 | 69.4 | 71.8 |
| 50° | 3131.9 | 923.5 | 219.0 | 142.4 | 108.3 | 90.6 | 72.4 | 65.7 | 63.3 | 63.3 | 65.1 |
| 52.5° | 3432.4 | 999.5 | 208.1 | 133.2 | 104.6 | 84.0 | 67.5 | 60.8 | 59.0 | 59.0 | 61.4 |
| 55° | 3748.7 | 1079.2 | 198.3 | 124.7 | 99.8 | 77.3 | 63.3 | 57.2 | 56.6 | 55.4 | 57.2 |
| 57.5° | 4307.2 | 1253.2 | 186.2 | 117.4 | 93.1 | 71.8 | 59.6 | 53.5 | 52.3 | 50.5 | 52.3 |
| 60° | 5120.6 | 1520.3 | 170.3 | 110.1 | 85.2 | 68.1 | 56.6 | 49.3 | 47.5 | 44.4 | 45.0 |
| 62.5° | 5915.7 | 1736.3 | 152.1 | 101.0 | 77.9 | 64.5 | 51.7 | 44.4 | 41.4 | 37.7 | 38.3 |
| 65° | 6597.1 | 1821.4 | 132.6 | 90.0 | 70.6 | 56.0 | 45.0 | 38.9 | 34.7 | 29.8 | 29.2 |
| 67.5° | 6677.4 | 1608.5 | 113.8 | 79.7 | 63.3 | 47.5 | 38.3 | 34.7 | 28.0 | 23.7 | 22.5 |
| 70° | 6009.4 | 1198.5 | 94.9 | 70.6 | 54.8 | 40.2 | 32.9 | 30.4 | 26.2 | 22.5 | 20.7 |
| 72.5° | 4785.4 | 884.6 | 79.7 | 62.7 | 48.1 | 34.1 | 28.0 | 28.6 | 26.2 | 21.9 | 19.5 |
| 75° | 3164.7 | 506.2 | 65.1 | 52.3 | 40.2 | 27.4 | 25.6 | 25.6 | 24.9 | 20.7 | 18.3 |
| 77.5° | 1522.7 | 218.4 | 49.9 | 41.4 | 32.2 | 20.7 | 23.1 | 23.1 | 23.7 | 18.9 | 15.2 |
| 80° | 431.9 | 65.7 | 31.0 | 28.0 | 23.7 | 14.0 | 18.3 | 17.6 | 15.8 | 11.0 | 6.7 |
| 82.5° | 77.3 | 25.6 | 14.0 | 14.6 | 13.4 | 5.5 | 10.3 | 9.7 | 7.9 | 4.3 | 0.6 |
| 85° | 21.3 | 9.7 | 7.9 | 8.5 | 6.7 | 1.8 | 4.3 | 5.5 | 4.3 | 2.4 | 0.0 |
| 87.5° | 5.5 | 4.3 | 5.5 | 6.1 | 4.9 | 0.6 | 1.8 | 0.6 | 1.8 | 0.6 | 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)