

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: P367124

Luminaire Tested: **MSA-SA1D-830-U-T4FT**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P367124
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-12)
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: MSA-SA1D-830-U-T4FT
Description: MESA POST TOP DECORATIVE LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV FORWARD THROW OPTICS.
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5462 lumens
Efficiency: N/A
Efficacy: 81.5 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G2

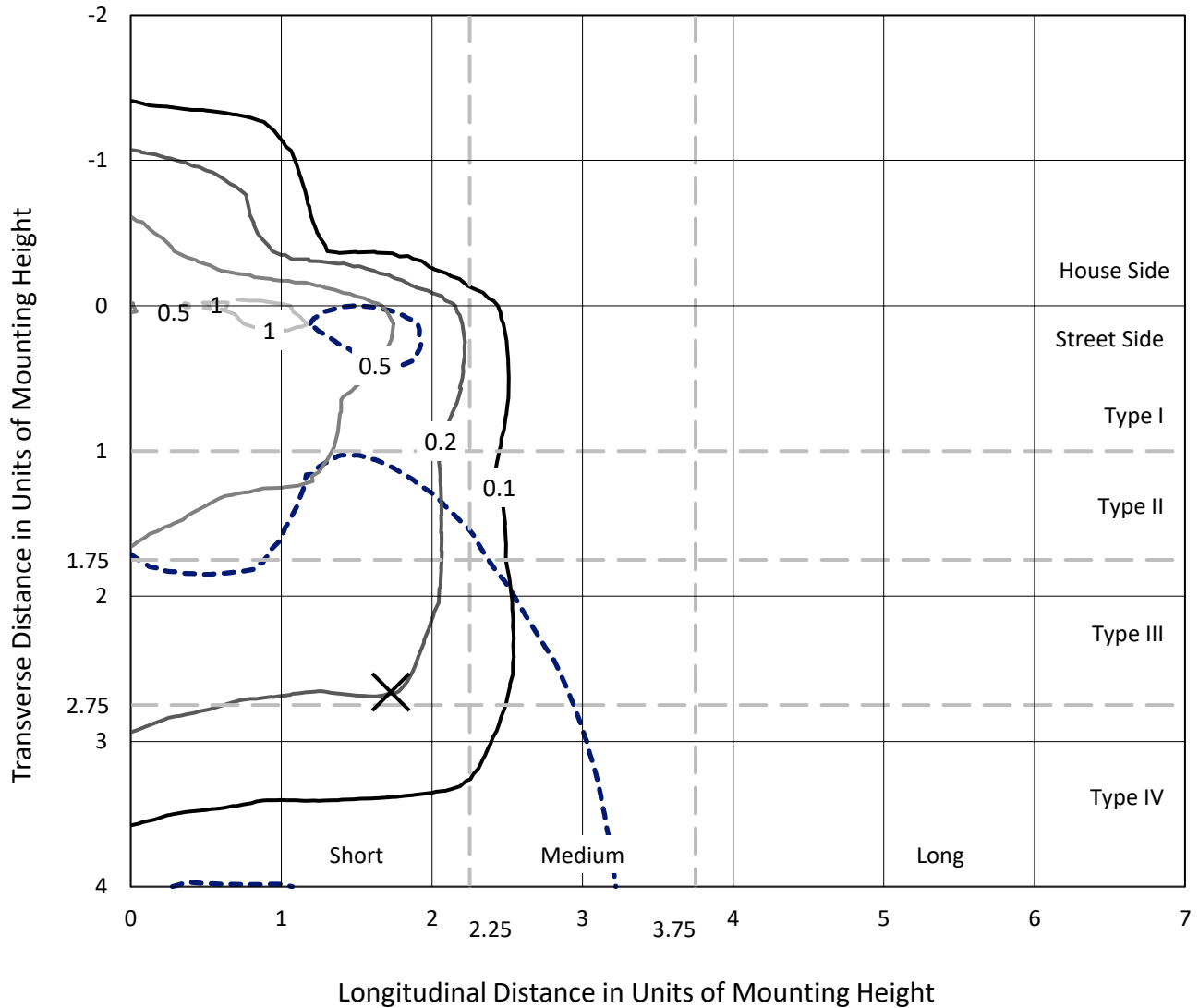
Input Watts (W): 67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

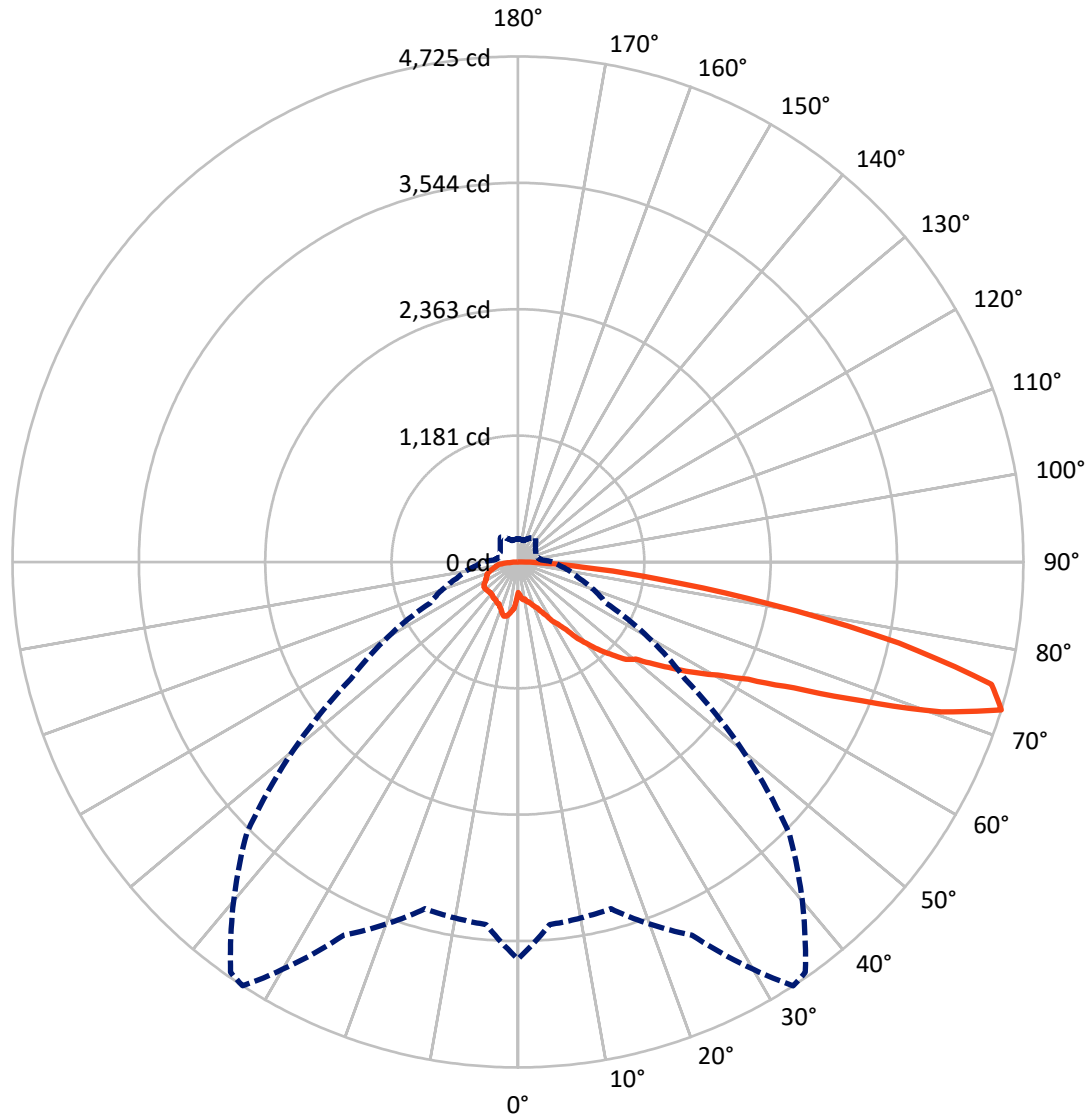
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.1 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 33-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

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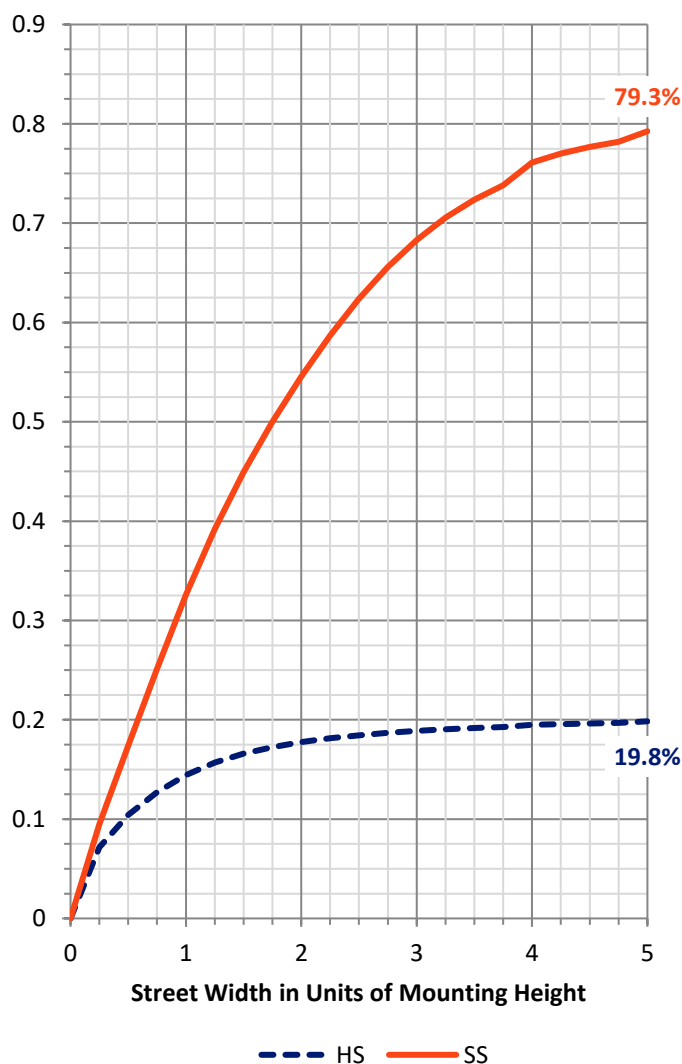
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1104.9 | 0.0 | 1104.9 |
| | % Fixture | 20.2 | 0.0 | 20.2 |
| Street Side | Lumens | 4357.0 | 0.0 | 4357.0 |
| | % Fixture | 79.8 | 0.0 | 79.8 |
| Total | Lumens | 5462.0 | 0.0 | 5462.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 39.4 | 0.7 |
| 10°-20° | 145.5 | 2.7 |
| 20°-30° | 265.4 | 4.9 |
| 30°-40° | 449.0 | 8.2 |
| 40°-50° | 746.9 | 13.7 |
| 50°-60° | 1096.1 | 20.1 |
| 60°-70° | 1402.2 | 25.7 |
| 70°-80° | 1140.8 | 20.9 |
| 80°-90° | 176.7 | 3.2 |
| 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° | 5462.0 | 100.0 |
| 0°-180° | 5462.0 | 100.0 |

Coefficient of Utilization



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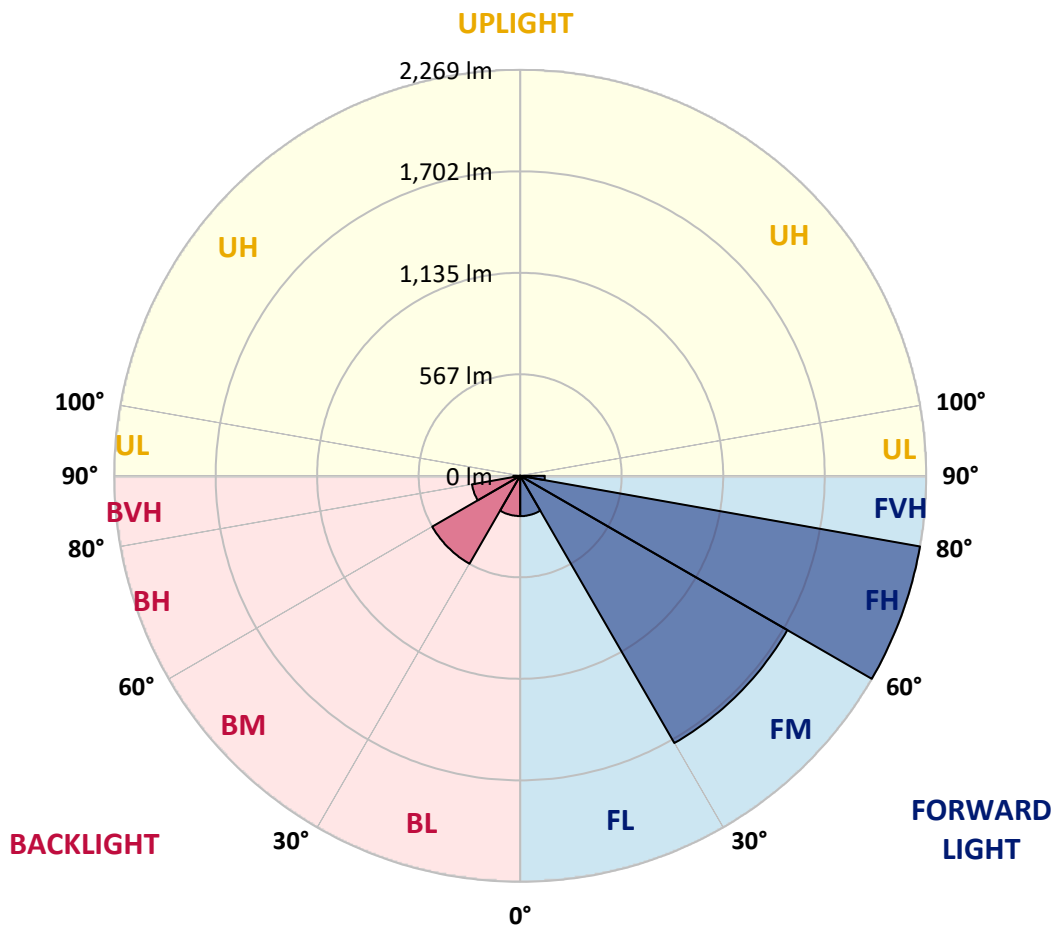
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 225.4 | 4.1 | | | |
| FM (30°-60°) | 1724.5 | 31.6 | | | |
| FH (60°-80°) | 2269.3 | 41.5 | | | G2/5000 |
| FVH (80°-90°) | 137.9 | 2.5 | | | G2/225 |
| BL (0°-30°) | 224.9 | 4.1 | B1/500 | | |
| BM (30°-60°) | 567.5 | 10.4 | B1/1000 | | |
| BH (60°-80°) | 273.8 | 5.0 | B1/500 | | G1/500 |
| BVH (80°-90°) | 38.8 | 0.7 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 33° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 |
| 2.5° | 324.7 | 314.5 | 297.7 | 297.3 | 306.6 | 308.6 | 314.7 | 315.2 | 317.4 | 313.8 | 339.7 |
| 5° | 358.2 | 347.4 | 340.8 | 343.1 | 338.7 | 344.0 | 344.0 | 358.9 | 378.9 | 402.0 | 434.8 |
| 7.5° | 366.2 | 358.2 | 350.8 | 356.4 | 357.3 | 352.3 | 357.1 | 392.2 | 428.2 | 451.4 | 503.9 |
| 10° | 350.3 | 342.4 | 348.0 | 349.9 | 349.6 | 361.0 | 385.7 | 413.7 | 453.9 | 496.5 | 524.8 |
| 12.5° | 347.4 | 353.0 | 355.7 | 358.9 | 380.4 | 383.8 | 421.2 | 450.2 | 490.6 | 527.9 | 601.6 |
| 15° | 391.1 | 398.6 | 381.8 | 380.7 | 387.7 | 390.9 | 429.6 | 458.8 | 517.8 | 580.5 | 646.7 |
| 17.5° | 453.4 | 456.1 | 426.0 | 410.6 | 415.8 | 418.3 | 435.3 | 472.0 | 508.2 | 624.2 | 706.7 |
| 20° | 513.7 | 515.5 | 458.8 | 424.4 | 442.8 | 445.5 | 461.3 | 482.4 | 511.0 | 648.7 | 747.3 |
| 22.5° | 576.9 | 565.3 | 503.2 | 459.7 | 470.4 | 471.1 | 480.4 | 491.9 | 532.5 | 644.9 | 796.7 |
| 25° | 646.0 | 638.7 | 560.6 | 518.9 | 518.4 | 509.1 | 509.6 | 526.1 | 555.4 | 686.1 | 829.1 |
| 27.5° | 737.8 | 738.7 | 625.2 | 602.7 | 567.6 | 561.5 | 530.9 | 561.7 | 595.0 | 686.6 | 899.1 |
| 30° | 856.7 | 834.7 | 715.1 | 678.9 | 644.2 | 631.3 | 589.8 | 616.1 | 630.6 | 725.8 | 975.2 |
| 32.5° | 953.5 | 947.1 | 808.9 | 754.1 | 697.4 | 712.4 | 666.6 | 643.5 | 669.6 | 793.3 | 1090.6 |
| 35° | 1046.2 | 1025.3 | 908.2 | 836.8 | 777.2 | 768.1 | 738.4 | 742.3 | 758.2 | 878.7 | 1241.2 |
| 37.5° | 1184.4 | 1173.0 | 1048.6 | 934.4 | 906.6 | 869.6 | 850.8 | 862.8 | 850.4 | 988.1 | 1467.2 |
| 40° | 1338.9 | 1273.2 | 1166.0 | 1064.3 | 1012.2 | 986.1 | 992.7 | 981.3 | 971.8 | 1111.0 | 1669.7 |
| 42.5° | 1486.9 | 1427.0 | 1244.0 | 1198.2 | 1130.2 | 1141.1 | 1105.1 | 1113.0 | 1140.0 | 1285.2 | 1857.1 |
| 45° | 1648.0 | 1518.6 | 1326.7 | 1286.3 | 1237.6 | 1251.4 | 1280.2 | 1271.6 | 1315.8 | 1490.7 | 2033.6 |
| 47.5° | 1728.4 | 1605.4 | 1428.2 | 1362.5 | 1361.8 | 1333.0 | 1508.2 | 1527.2 | 1458.1 | 1643.0 | 2212.8 |
| 50° | 1805.9 | 1684.9 | 1503.6 | 1459.2 | 1427.0 | 1488.7 | 1726.8 | 1683.1 | 1586.8 | 1817.7 | 2410.0 |
| 52.5° | 1913.8 | 1775.8 | 1590.2 | 1542.8 | 1582.7 | 1639.8 | 1901.3 | 1892.7 | 1713.0 | 1997.4 | 2581.3 |
| 55° | 1996.0 | 1856.7 | 1720.5 | 1676.5 | 1752.7 | 1808.6 | 2078.9 | 2027.0 | 1821.1 | 2129.2 | 2689.8 |
| 57.5° | 2140.1 | 1997.1 | 1912.8 | 1815.2 | 1952.0 | 1951.1 | 2250.2 | 2210.1 | 1936.6 | 2237.5 | 2733.5 |
| 60° | 2369.2 | 2201.3 | 2113.2 | 2000.5 | 2147.1 | 2199.5 | 2446.0 | 2330.4 | 2018.4 | 2306.0 | 2654.7 |
| 62.5° | 2690.7 | 2491.3 | 2348.3 | 2236.9 | 2415.6 | 2510.4 | 2687.8 | 2418.1 | 2023.6 | 2286.5 | 2447.4 |
| 65° | 3088.4 | 2845.9 | 2658.5 | 2540.7 | 2835.7 | 2971.0 | 2980.1 | 2472.3 | 1975.6 | 2085.1 | 2011.4 |
| 67.5° | 3476.3 | 3203.7 | 3008.2 | 3030.6 | 3461.3 | 3525.5 | 3296.8 | 2517.6 | 1717.5 | 1674.3 | 1396.7 |
| 70° | 3731.7 | 3436.2 | 3305.9 | 3543.8 | 4198.2 | 4132.5 | 3553.6 | 2398.2 | 1352.5 | 1085.4 | 786.5 |
| 72.5° | 3712.4 | 3403.1 | 3356.2 | 3848.8 | 4725.2 | 4684.2 | 3584.8 | 1907.2 | 905.9 | 593.4 | 392.2 |
| 75° | 3024.5 | 2784.1 | 2890.6 | 3643.5 | 4573.4 | 4571.4 | 3112.4 | 1180.5 | 464.7 | 304.8 | 247.9 |
| 77.5° | 1672.2 | 1578.9 | 1891.8 | 2758.7 | 3641.5 | 3660.1 | 2103.0 | 535.4 | 250.6 | 215.9 | 186.7 |
| 80° | 585.7 | 577.1 | 819.8 | 1488.7 | 2395.5 | 2400.0 | 977.9 | 244.9 | 182.2 | 163.4 | 137.1 |
| 82.5° | 214.1 | 212.3 | 339.9 | 691.5 | 1319.0 | 1316.0 | 370.9 | 152.5 | 135.0 | 115.6 | 90.4 |
| 85° | 85.4 | 83.6 | 155.4 | 307.0 | 605.9 | 596.2 | 144.1 | 86.6 | 88.4 | 68.9 | 44.4 |
| 87.5° | 23.6 | 24.5 | 52.8 | 96.1 | 185.6 | 172.0 | 36.3 | 29.2 | 35.8 | 28.1 | 14.0 |
| 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° | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 | 286.4 |
| 2.5° | 344.2 | 346.5 | 324.0 | 332.0 | 342.1 | 347.6 | 350.3 | 338.7 | 342.6 | 358.9 | 358.2 |
| 5° | 441.6 | 432.6 | 423.9 | 432.8 | 426.9 | 418.5 | 432.1 | 431.4 | 440.3 | 449.1 | 451.1 |
| 7.5° | 514.4 | 502.6 | 498.5 | 478.6 | 458.6 | 438.4 | 455.9 | 466.8 | 469.0 | 491.0 | 500.3 |
| 10° | 540.6 | 536.1 | 537.7 | 511.4 | 508.9 | 511.0 | 494.9 | 477.4 | 488.1 | 479.0 | 485.8 |
| 12.5° | 601.4 | 612.7 | 584.6 | 566.7 | 565.1 | 552.6 | 520.5 | 509.1 | 497.1 | 509.6 | 503.2 |
| 15° | 650.1 | 671.2 | 641.0 | 609.5 | 573.9 | 554.7 | 527.3 | 510.0 | 502.1 | 504.8 | 497.1 |
| 17.5° | 721.5 | 741.2 | 664.6 | 616.3 | 579.6 | 551.3 | 509.4 | 472.7 | 492.1 | 493.7 | 484.9 |
| 20° | 768.8 | 770.2 | 672.5 | 599.5 | 566.5 | 517.3 | 476.5 | 444.3 | 466.8 | 489.7 | 499.6 |
| 22.5° | 815.0 | 804.8 | 682.3 | 586.2 | 518.7 | 471.1 | 451.1 | 449.1 | 465.9 | 485.1 | 487.4 |
| 25° | 849.7 | 851.3 | 687.9 | 581.2 | 490.6 | 425.8 | 425.8 | 440.5 | 455.2 | 501.0 | 498.7 |
| 27.5° | 933.8 | 871.9 | 665.9 | 558.3 | 451.6 | 399.2 | 426.0 | 445.7 | 452.7 | 502.3 | 507.3 |
| 30° | 994.9 | 954.6 | 670.5 | 519.1 | 412.2 | 386.8 | 408.8 | 433.5 | 452.9 | 510.3 | 508.5 |
| 32.5° | 1097.6 | 989.1 | 681.1 | 464.1 | 382.7 | 382.0 | 401.5 | 427.6 | 450.9 | 501.7 | 504.4 |
| 35° | 1211.1 | 1090.6 | 651.4 | 422.1 | 375.7 | 379.3 | 404.5 | 414.9 | 442.3 | 498.3 | 500.8 |
| 37.5° | 1421.2 | 1143.6 | 632.6 | 389.7 | 371.1 | 381.6 | 391.1 | 407.2 | 434.8 | 481.3 | 497.6 |
| 40° | 1544.4 | 1252.8 | 562.8 | 370.9 | 361.6 | 379.8 | 384.5 | 398.1 | 413.1 | 460.9 | 471.3 |
| 42.5° | 1706.7 | 1287.2 | 503.2 | 350.1 | 356.9 | 372.3 | 386.6 | 390.0 | 399.9 | 428.7 | 447.7 |
| 45° | 1841.9 | 1313.1 | 440.0 | 333.3 | 340.8 | 388.8 | 389.7 | 388.1 | 386.3 | 397.0 | 412.6 |
| 47.5° | 1982.0 | 1382.4 | 381.8 | 314.7 | 334.7 | 402.4 | 391.3 | 376.8 | 369.3 | 370.7 | 385.2 |
| 50° | 2136.5 | 1432.7 | 340.6 | 299.5 | 336.0 | 402.4 | 399.0 | 365.3 | 350.3 | 346.5 | 361.6 |
| 52.5° | 2272.4 | 1438.6 | 309.3 | 287.3 | 330.4 | 388.6 | 404.2 | 358.0 | 332.9 | 323.6 | 337.8 |
| 55° | 2346.5 | 1364.1 | 286.6 | 276.2 | 315.9 | 376.1 | 401.5 | 353.9 | 311.8 | 304.8 | 317.4 |
| 57.5° | 2344.9 | 1240.3 | 267.4 | 260.8 | 299.3 | 358.7 | 386.3 | 331.7 | 298.9 | 294.8 | 307.3 |
| 60° | 2260.4 | 1095.3 | 252.6 | 248.1 | 282.3 | 333.3 | 359.1 | 317.2 | 286.4 | 284.4 | 298.0 |
| 62.5° | 2068.7 | 945.5 | 238.4 | 234.7 | 266.5 | 315.4 | 346.2 | 301.1 | 273.5 | 273.3 | 286.2 |
| 65° | 1694.2 | 759.1 | 225.0 | 224.1 | 251.7 | 297.7 | 334.0 | 287.5 | 260.1 | 264.7 | 277.8 |
| 67.5° | 1167.4 | 533.4 | 210.7 | 213.4 | 238.1 | 280.7 | 324.7 | 278.5 | 246.1 | 255.4 | 267.1 |
| 70° | 640.6 | 329.9 | 194.9 | 200.3 | 220.9 | 261.0 | 310.2 | 263.7 | 227.7 | 242.0 | 250.2 |
| 72.5° | 325.8 | 220.0 | 175.2 | 183.8 | 199.8 | 232.0 | 283.0 | 242.4 | 208.0 | 213.4 | 217.8 |
| 75° | 218.9 | 165.6 | 153.2 | 162.7 | 174.2 | 204.4 | 251.1 | 222.5 | 189.2 | 188.5 | 193.3 |
| 77.5° | 165.4 | 129.4 | 130.1 | 140.9 | 148.4 | 179.7 | 225.7 | 205.7 | 173.3 | 171.8 | 178.8 |
| 80° | 121.0 | 98.1 | 104.7 | 116.0 | 122.8 | 161.3 | 209.1 | 187.2 | 151.8 | 145.5 | 151.4 |
| 82.5° | 80.2 | 69.6 | 77.5 | 88.8 | 94.3 | 134.8 | 189.9 | 158.8 | 123.7 | 107.6 | 108.5 |
| 85° | 37.8 | 36.5 | 46.2 | 51.7 | 58.7 | 83.6 | 142.1 | 109.9 | 78.9 | 65.3 | 68.2 |
| 87.5° | 8.6 | 11.6 | 15.2 | 15.0 | 17.4 | 22.4 | 44.2 | 30.8 | 22.9 | 15.6 | 10.4 |
| 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)