

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: P368421

Luminaire Tested: **MSA-SA4B-760-U-T4FT-HSS**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P368421
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-SA4B-760-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: 14549 lumens
Efficiency: N/A
Efficacy: 85.1 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G3

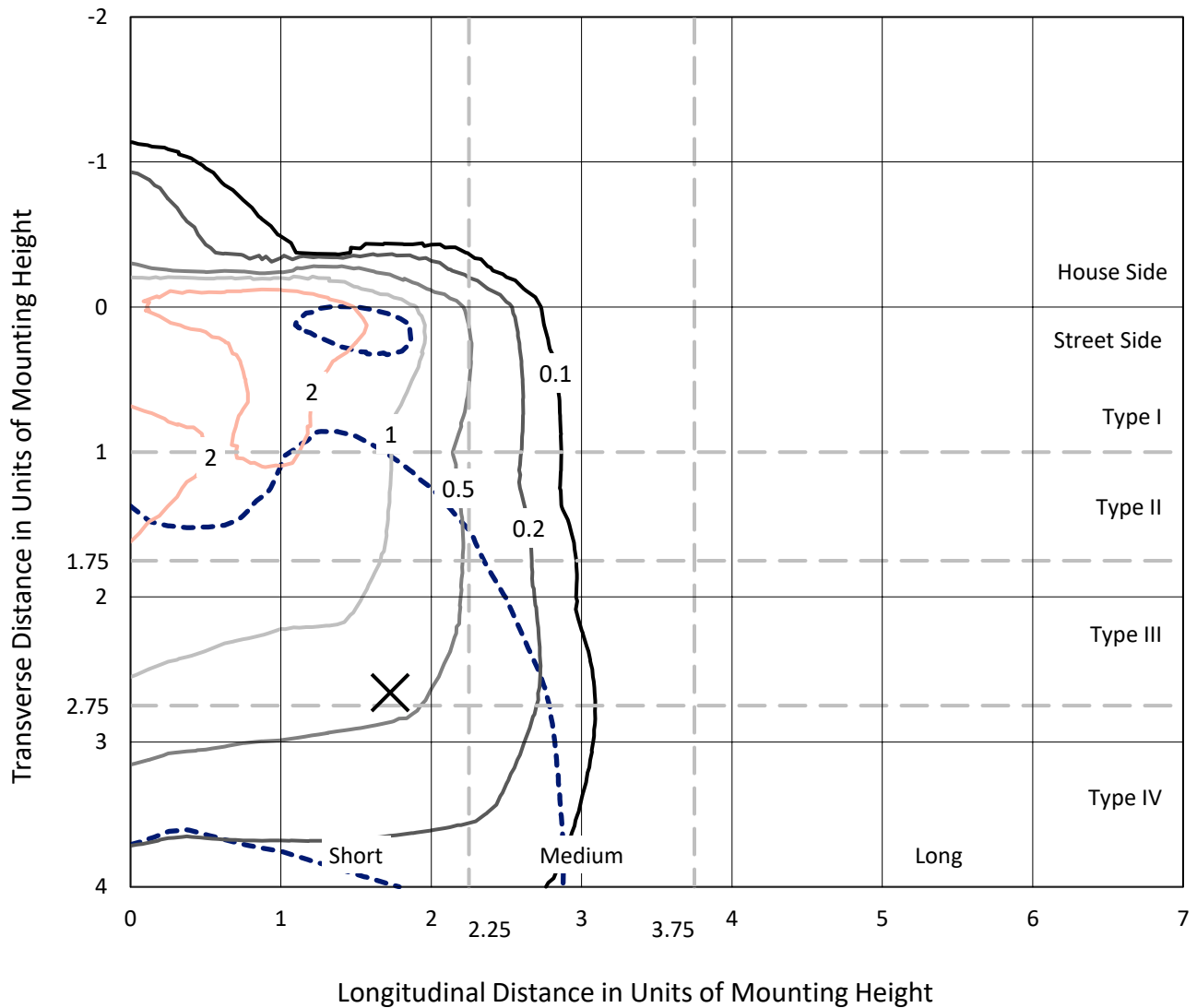
Input Watts (W): 171
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

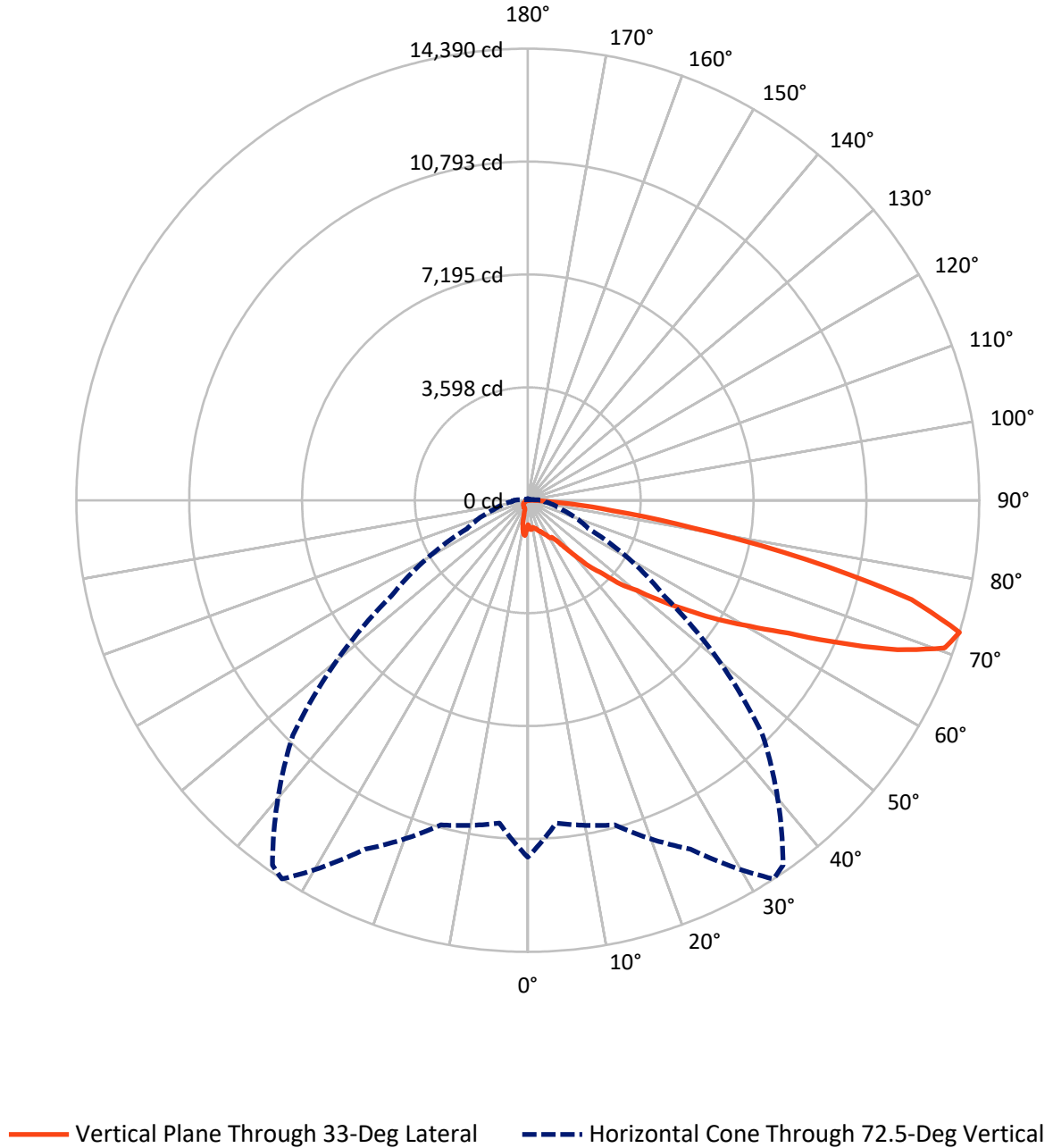
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 3.6 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1345.3 | 0.0 | 1345.3 |
| | % Fixture | 9.2 | 0.0 | 9.2 |
| Street Side | Lumens | 13203.7 | 0.0 | 13203.7 |
| | % Fixture | 90.8 | 0.0 | 90.8 |
| Total | Lumens | 14549.0 | 0.0 | 14549.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 100.2 | 0.7 |
| 10°-20° | 298.5 | 2.1 |
| 20°-30° | 506.1 | 3.5 |
| 30°-40° | 926.3 | 6.4 |
| 40°-50° | 1955.1 | 13.4 |
| 50°-60° | 3271.0 | 22.5 |
| 60°-70° | 4378.4 | 30.1 |
| 70°-80° | 2860.0 | 19.7 |
| 80°-90° | 253.6 | 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° | 14549.0 | 100.0 |
| 0°-180° | 14549.0 | 100.0 |

Coefficient of Utilization

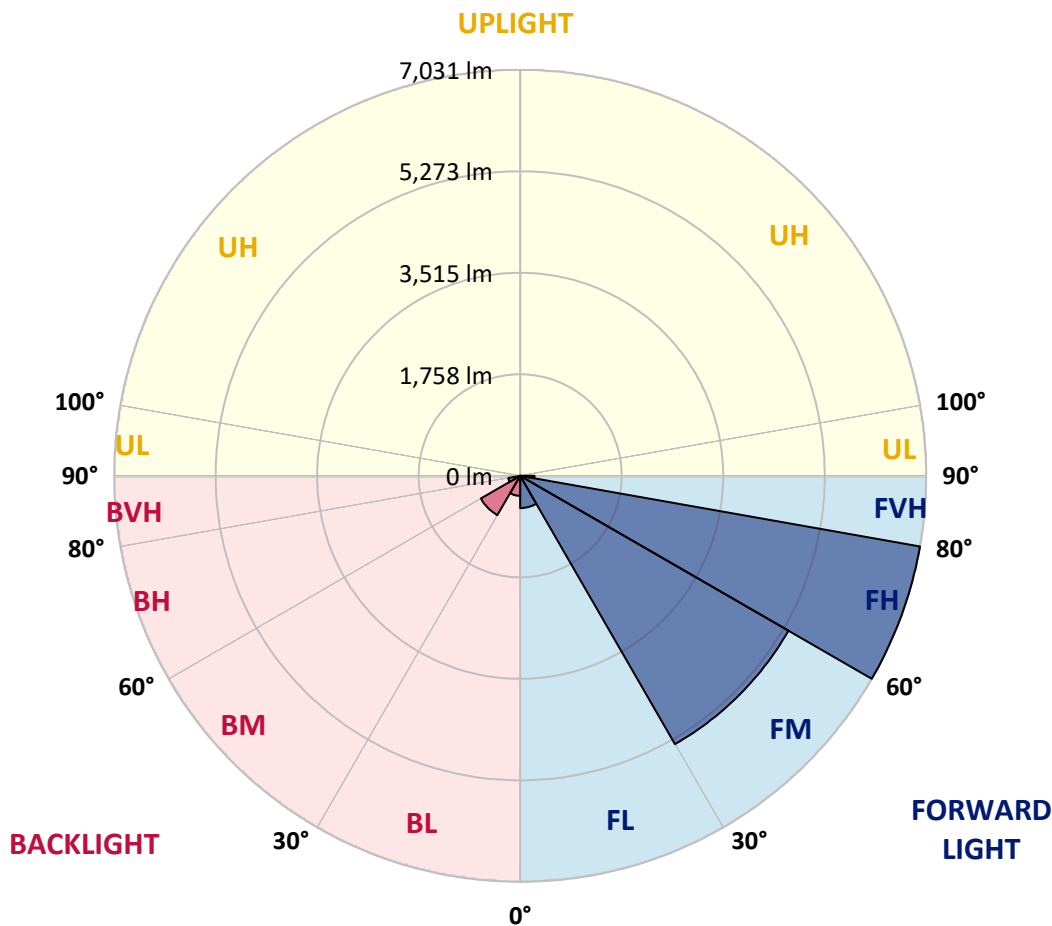


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 558.5 | 3.8 | | | |
| FM (30°-60°) | 5365.9 | 36.9 | | | |
| FH (60°-80°) | 7030.7 | 48.3 | | | G3/7500 |
| FVH (80°-90°) | 248.7 | 1.7 | | | G3/500 |
| BL (0°-30°) | 346.3 | 2.4 | B1/500 | | |
| BM (30°-60°) | 786.5 | 5.4 | B1/1000 | | |
| BH (60°-80°) | 207.6 | 1.4 | B1/500 | | G1/500 |
| BVH (80°-90°) | 4.9 | 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° | 33° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| 0° | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 |
| 2.5° | 922.5 | 886.9 | 835.2 | 838.5 | 847.3 | 854.6 | 874.0 | 865.9 | 850.6 | 849.8 | 922.5 |
| 5° | 977.4 | 937.8 | 934.6 | 939.4 | 937.0 | 949.9 | 933.8 | 986.3 | 1030.7 | 1084.0 | 1169.6 |
| 7.5° | 950.7 | 932.2 | 908.7 | 933.0 | 932.2 | 925.7 | 936.2 | 1042.8 | 1150.3 | 1218.1 | 1359.5 |
| 10° | 874.0 | 853.0 | 870.8 | 878.8 | 873.2 | 901.5 | 971.7 | 1059.0 | 1187.4 | 1329.6 | 1398.2 |
| 12.5° | 852.2 | 865.1 | 871.6 | 871.6 | 925.7 | 940.2 | 1047.7 | 1130.1 | 1282.7 | 1395.0 | 1594.5 |
| 15° | 937.0 | 962.0 | 917.6 | 907.9 | 924.9 | 933.0 | 1052.5 | 1151.9 | 1347.4 | 1552.5 | 1719.7 |
| 17.5° | 1071.9 | 1070.3 | 1001.6 | 963.7 | 990.3 | 1009.7 | 1075.9 | 1192.3 | 1307.0 | 1676.1 | 1918.4 |
| 20° | 1164.8 | 1166.4 | 1042.8 | 963.7 | 1051.7 | 1063.0 | 1136.5 | 1229.4 | 1319.9 | 1738.3 | 2048.5 |
| 22.5° | 1284.3 | 1241.5 | 1105.0 | 1028.3 | 1088.1 | 1098.6 | 1179.3 | 1252.8 | 1386.1 | 1731.0 | 2214.9 |
| 25° | 1382.1 | 1354.6 | 1182.6 | 1129.3 | 1182.6 | 1168.0 | 1241.5 | 1352.2 | 1457.2 | 1846.5 | 2312.6 |
| 27.5° | 1533.9 | 1487.1 | 1237.5 | 1247.2 | 1244.0 | 1254.5 | 1271.4 | 1441.1 | 1582.4 | 1852.2 | 2538.8 |
| 30° | 1675.3 | 1647.8 | 1360.3 | 1360.3 | 1391.8 | 1371.6 | 1383.7 | 1588.9 | 1703.6 | 1983.1 | 2793.2 |
| 32.5° | 1821.5 | 1823.1 | 1504.9 | 1428.1 | 1403.1 | 1486.3 | 1567.9 | 1660.8 | 1849.8 | 2207.6 | 3182.6 |
| 35° | 2208.4 | 2176.1 | 1781.9 | 1590.5 | 1570.3 | 1565.4 | 1696.3 | 1947.5 | 2109.1 | 2500.0 | 3706.8 |
| 37.5° | 2987.9 | 2875.6 | 2378.1 | 1958.8 | 1882.9 | 1857.0 | 2005.7 | 2263.4 | 2424.1 | 2929.8 | 4573.6 |
| 40° | 3787.6 | 3581.6 | 3029.1 | 2556.6 | 2310.2 | 2198.7 | 2371.6 | 2590.5 | 2876.4 | 3404.7 | 5375.7 |
| 42.5° | 4489.6 | 4235.1 | 3519.4 | 3201.2 | 2880.5 | 2832.0 | 2669.7 | 3025.9 | 3522.7 | 4096.2 | 6161.6 |
| 45° | 5173.7 | 4672.9 | 3955.6 | 3703.6 | 3314.3 | 3341.7 | 3286.8 | 3595.4 | 4193.9 | 4853.9 | 6858.7 |
| 47.5° | 5644.7 | 5194.7 | 4490.4 | 4163.2 | 4007.3 | 3846.6 | 4282.8 | 4603.4 | 4791.7 | 5335.3 | 7461.3 |
| 50° | 6151.9 | 5696.4 | 4950.0 | 4721.4 | 4516.2 | 4678.6 | 5244.8 | 5287.6 | 5272.3 | 5784.4 | 7871.7 |
| 52.5° | 6807.0 | 6269.9 | 5477.4 | 5219.0 | 5335.3 | 5496.8 | 6150.3 | 6158.4 | 5699.6 | 6162.4 | 8167.3 |
| 55° | 7412.8 | 6817.5 | 6180.2 | 5936.3 | 6179.4 | 6315.9 | 7040.5 | 6774.7 | 5948.4 | 6419.3 | 8312.7 |
| 57.5° | 8266.7 | 7577.6 | 7114.8 | 6685.1 | 7177.8 | 7046.9 | 7823.2 | 7428.2 | 6227.9 | 6589.7 | 8259.4 |
| 60° | 9345.8 | 8534.8 | 8071.2 | 7616.4 | 8144.7 | 8233.5 | 8587.3 | 7754.5 | 6336.1 | 6645.5 | 7938.7 |
| 62.5° | 10443.6 | 9627.7 | 9017.9 | 8709.3 | 9308.7 | 9601.1 | 9294.9 | 7916.9 | 6206.1 | 6536.4 | 7212.5 |
| 65° | 11805.5 | 10761.0 | 10048.6 | 9867.6 | 10978.3 | 11408.0 | 10131.8 | 7956.5 | 5954.8 | 5936.3 | 5798.9 |
| 67.5° | 12738.4 | 11721.5 | 11068.0 | 11370.9 | 12712.6 | 12747.3 | 10883.0 | 7968.6 | 5109.1 | 4647.9 | 3806.2 |
| 70° | 12959.8 | 11870.9 | 11578.5 | 12470.3 | 14096.3 | 13659.3 | 11125.3 | 7354.7 | 3789.2 | 2758.5 | 1739.9 |
| 72.5° | 11376.5 | 10328.1 | 10708.5 | 12262.7 | 14390.3 | 14190.0 | 10589.8 | 5306.2 | 2133.3 | 1103.4 | 533.9 |
| 75° | 6978.3 | 6344.2 | 8033.2 | 10396.7 | 12631.8 | 12502.6 | 8261.8 | 2741.6 | 859.5 | 441.0 | 199.5 |
| 77.5° | 3034.8 | 2818.3 | 4192.3 | 6898.3 | 9076.8 | 8961.3 | 4840.9 | 1009.7 | 444.3 | 310.2 | 101.0 |
| 80° | 1004.1 | 974.2 | 1588.1 | 3266.6 | 5316.7 | 5214.9 | 2039.6 | 420.0 | 316.6 | 248.8 | 56.5 |
| 82.5° | 238.3 | 236.7 | 554.1 | 1503.2 | 2708.4 | 2623.6 | 626.0 | 231.8 | 229.4 | 196.3 | 29.9 |
| 85° | 59.8 | 61.4 | 153.5 | 614.7 | 1100.2 | 970.1 | 163.2 | 115.5 | 161.6 | 133.3 | 15.3 |
| 87.5° | 0.0 | 0.0 | 39.6 | 88.0 | 166.4 | 104.2 | 17.8 | 30.7 | 45.2 | 47.7 | 8.1 |
| 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° | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 | 773.8 |
| 2.5° | 938.6 | 929.7 | 857.0 | 874.8 | 902.3 | 899.8 | 917.6 | 903.9 | 891.8 | 951.5 | 945.9 |
| 5° | 1193.9 | 1145.4 | 1122.8 | 1154.3 | 1137.3 | 1097.8 | 1130.9 | 1125.2 | 1115.5 | 1135.7 | 1151.1 |
| 7.5° | 1385.3 | 1340.9 | 1320.7 | 1254.5 | 1158.3 | 1082.4 | 1094.5 | 1066.2 | 1039.6 | 1071.1 | 1103.4 |
| 10° | 1448.3 | 1424.1 | 1421.7 | 1292.4 | 1202.0 | 1092.1 | 962.0 | 849.8 | 819.9 | 780.3 | 798.1 |
| 12.5° | 1619.6 | 1634.1 | 1542.8 | 1391.8 | 1217.3 | 1006.5 | 775.5 | 616.3 | 551.7 | 509.7 | 512.1 |
| 15° | 1760.1 | 1811.0 | 1678.5 | 1407.1 | 1071.1 | 767.4 | 516.2 | 373.2 | 332.8 | 322.3 | 319.1 |
| 17.5° | 1969.3 | 2018.6 | 1720.5 | 1298.1 | 863.5 | 520.2 | 332.0 | 290.8 | 293.2 | 300.5 | 298.9 |
| 20° | 2124.4 | 2117.1 | 1684.2 | 1105.0 | 636.5 | 340.9 | 277.9 | 272.2 | 285.1 | 306.1 | 301.3 |
| 22.5° | 2273.9 | 2223.8 | 1661.6 | 926.5 | 412.0 | 273.8 | 268.2 | 267.4 | 279.5 | 299.7 | 305.3 |
| 25° | 2380.5 | 2388.6 | 1623.6 | 725.4 | 299.7 | 254.4 | 259.3 | 266.6 | 278.7 | 300.5 | 297.3 |
| 27.5° | 2685.8 | 2459.6 | 1465.3 | 526.7 | 252.8 | 243.9 | 256.1 | 270.6 | 274.6 | 302.1 | 302.9 |
| 30° | 2883.7 | 2727.8 | 1361.9 | 354.6 | 233.4 | 225.4 | 249.6 | 269.0 | 273.8 | 309.4 | 311.8 |
| 32.5° | 3228.6 | 2843.3 | 1242.3 | 263.3 | 217.3 | 219.7 | 235.1 | 260.9 | 283.5 | 321.5 | 323.1 |
| 35° | 3657.6 | 3214.1 | 1025.9 | 236.7 | 211.6 | 207.6 | 214.9 | 244.8 | 281.9 | 323.1 | 331.2 |
| 37.5° | 4474.2 | 3436.2 | 813.4 | 229.4 | 211.6 | 204.4 | 211.6 | 229.4 | 277.1 | 339.3 | 356.2 |
| 40° | 5021.1 | 3888.6 | 586.4 | 227.8 | 207.6 | 201.1 | 203.6 | 221.3 | 263.3 | 329.6 | 354.6 |
| 42.5° | 5694.7 | 4079.2 | 432.2 | 223.8 | 203.6 | 193.9 | 195.5 | 218.1 | 249.6 | 309.4 | 328.0 |
| 45° | 6246.4 | 4218.1 | 340.1 | 222.1 | 193.9 | 190.6 | 193.9 | 215.7 | 236.7 | 265.8 | 282.7 |
| 47.5° | 6665.7 | 4379.7 | 273.0 | 211.6 | 191.4 | 190.6 | 186.6 | 201.9 | 214.9 | 222.1 | 233.4 |
| 50° | 6972.6 | 4343.3 | 226.2 | 195.5 | 183.4 | 188.2 | 180.9 | 183.4 | 186.6 | 182.6 | 195.5 |
| 52.5° | 7160.8 | 4212.5 | 188.2 | 176.1 | 173.7 | 177.7 | 168.8 | 161.6 | 155.9 | 152.7 | 160.7 |
| 55° | 7229.5 | 3950.0 | 159.9 | 151.1 | 156.7 | 158.3 | 151.1 | 138.1 | 128.4 | 123.6 | 130.0 |
| 57.5° | 7099.4 | 3550.1 | 138.9 | 125.2 | 138.1 | 138.1 | 128.4 | 114.7 | 103.4 | 95.3 | 101.8 |
| 60° | 6769.9 | 3108.3 | 123.6 | 104.2 | 117.9 | 118.7 | 107.4 | 92.9 | 84.0 | 75.9 | 80.0 |
| 62.5° | 6156.0 | 2626.8 | 108.2 | 90.5 | 101.8 | 102.6 | 88.9 | 75.1 | 68.7 | 59.8 | 63.0 |
| 65° | 4928.2 | 2008.9 | 92.1 | 80.0 | 88.0 | 85.6 | 73.5 | 63.8 | 55.7 | 47.7 | 49.3 |
| 67.5° | 3198.7 | 1239.9 | 80.0 | 72.7 | 74.3 | 71.9 | 62.2 | 55.7 | 46.9 | 40.4 | 41.2 |
| 70° | 1432.2 | 533.9 | 70.3 | 65.4 | 64.6 | 60.6 | 52.5 | 51.7 | 46.0 | 40.4 | 40.4 |
| 72.5° | 441.8 | 201.1 | 60.6 | 59.0 | 55.7 | 50.9 | 46.0 | 49.3 | 45.2 | 38.8 | 38.0 |
| 75° | 174.5 | 92.1 | 50.1 | 50.1 | 48.5 | 42.0 | 41.2 | 44.4 | 42.0 | 35.5 | 33.9 |
| 77.5° | 91.3 | 58.2 | 41.2 | 42.8 | 42.0 | 32.3 | 37.2 | 40.4 | 38.8 | 29.9 | 25.0 |
| 80° | 54.1 | 35.5 | 30.7 | 34.7 | 33.9 | 22.6 | 28.3 | 25.8 | 18.6 | 8.9 | 2.4 |
| 82.5° | 29.9 | 16.2 | 13.7 | 20.2 | 20.2 | 8.1 | 14.5 | 12.9 | 7.3 | 0.0 | 0.0 |
| 85° | 14.5 | 11.3 | 10.5 | 11.3 | 8.1 | 2.4 | 7.3 | 7.3 | 4.0 | 0.0 | 0.0 |
| 87.5° | 7.3 | 6.5 | 4.8 | 4.0 | 3.2 | 0.0 | 2.4 | 3.2 | 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)