

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: P368574

Luminaire Tested: **MSA-SA4C-830-U-T3**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P368574
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-10)
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: MSA-SA4C-830-U-T3
Description: MESA POST TOP DECORATIVE LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS.
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19093 lumens
Efficiency: N/A
Efficacy: 84.9 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type III - Short
BUG Rating: B3 - U0 - G3

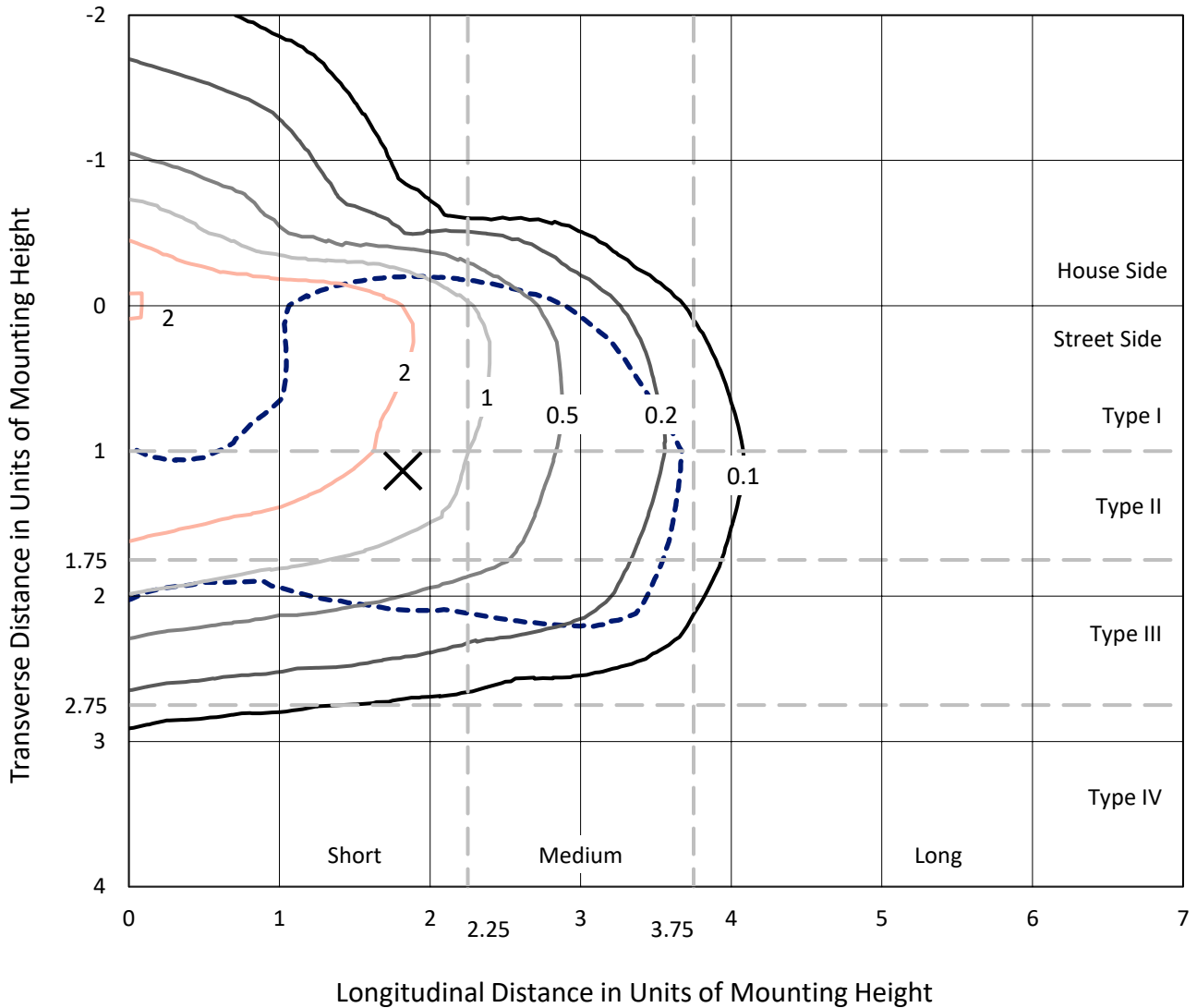
Input Watts (W): 225
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

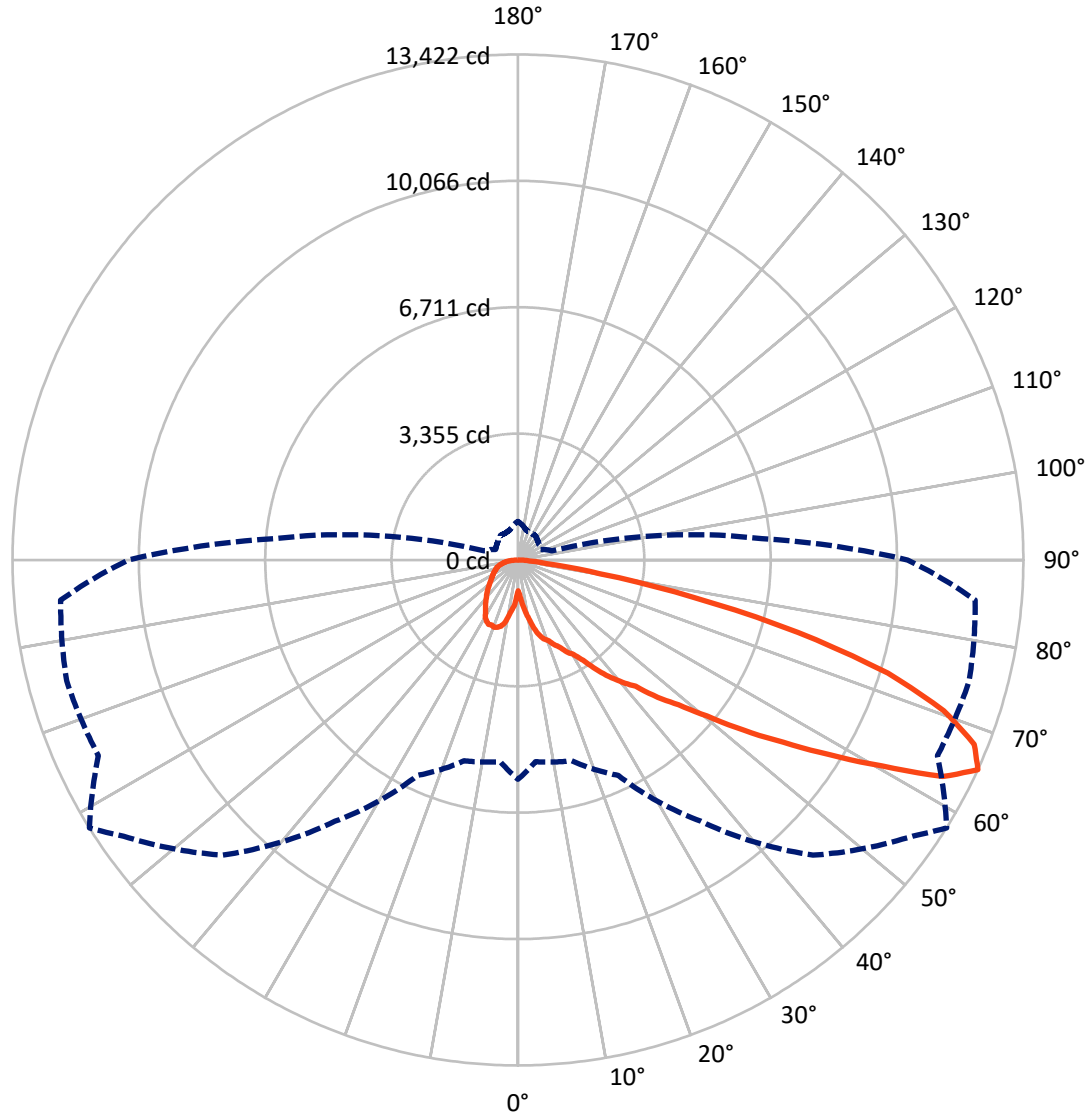
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 4 fc
 Type III - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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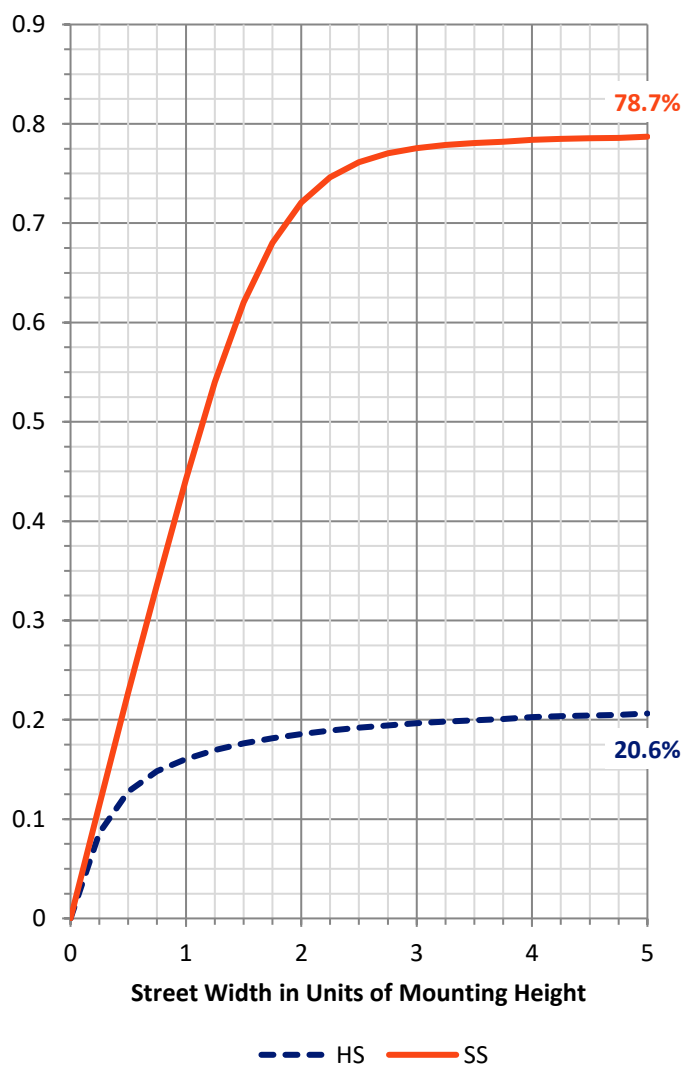
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4021.6 | 0.0 | 4021.6 |
| | % Fixture | 21.1 | 0.0 | 21.1 |
| Street Side | Lumens | 15071.4 | 0.0 | 15071.4 |
| | % Fixture | 78.9 | 0.0 | 78.9 |
| Total | Lumens | 19093.0 | 0.0 | 19093.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 124.9 | 0.7 |
| 10°-20° | 544.9 | 2.9 |
| 20°-30° | 1045.6 | 5.5 |
| 30°-40° | 1726.2 | 9.0 |
| 40°-50° | 2869.1 | 15.0 |
| 50°-60° | 4738.3 | 24.8 |
| 60°-70° | 5315.5 | 27.8 |
| 70°-80° | 2416.8 | 12.7 |
| 80°-90° | 311.7 | 1.6 |
| 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° | 19093.0 | 100.0 |
| 0°-180° | 19093.0 | 100.0 |

Coefficient of Utilization

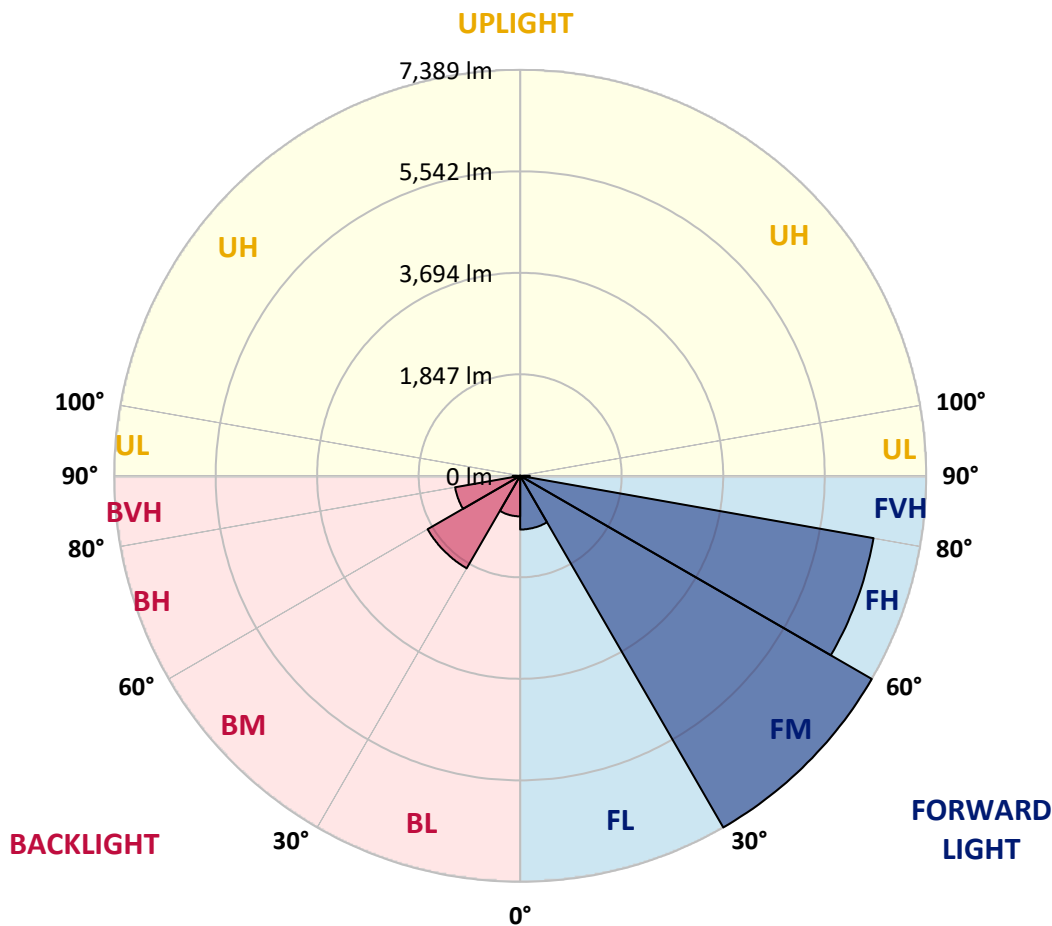


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 977.0 | 5.1 | | | |
| FM (30°-60°) | 7388.7 | 38.7 | | | |
| FH (60°-80°) | 6530.2 | 34.2 | | | G3/7500 |
| FVH (80°-90°) | 175.5 | 0.9 | | | G2/225 |
| BL (0°-30°) | 738.3 | 3.9 | B2/1000 | | |
| BM (30°-60°) | 1944.9 | 10.2 | B2/2500 | | |
| BH (60°-80°) | 1202.1 | 6.3 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 136.2 | 0.7 | | | G2/225 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G3
 Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|
| 0° | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 |
| 2.5° | 978.8 | 949.4 | 900.1 | 912.0 | 940.6 | 956.5 | 947.0 | 934.3 | 917.6 | 914.4 | 987.5 |
| 5° | 1267.4 | 1211.0 | 1187.9 | 1178.4 | 1143.4 | 1122.7 | 1158.5 | 1153.7 | 1172.8 | 1207.8 | 1279.3 |
| 7.5° | 1478.1 | 1438.4 | 1400.2 | 1396.2 | 1328.6 | 1304.8 | 1352.5 | 1377.9 | 1412.1 | 1412.9 | 1509.9 |
| 10° | 1591.0 | 1556.8 | 1556.0 | 1520.3 | 1514.7 | 1560.0 | 1560.8 | 1579.9 | 1583.9 | 1624.4 | 1605.3 |
| 12.5° | 1713.5 | 1711.1 | 1754.8 | 1754.0 | 1804.9 | 1879.7 | 1842.3 | 1842.3 | 1853.4 | 1804.1 | 1864.6 |
| 15° | 2005.3 | 2030.7 | 1948.8 | 1962.4 | 1962.4 | 2035.5 | 2033.1 | 2047.4 | 2081.6 | 2068.9 | 2041.9 |
| 17.5° | 2309.0 | 2324.9 | 2234.3 | 2150.0 | 2156.4 | 2140.5 | 2197.7 | 2203.3 | 2170.7 | 2318.6 | 2286.0 |
| 20° | 2504.6 | 2566.6 | 2375.8 | 2270.1 | 2290.7 | 2309.0 | 2311.4 | 2277.2 | 2260.5 | 2487.9 | 2443.4 |
| 22.5° | 2746.3 | 2693.9 | 2518.9 | 2402.1 | 2433.1 | 2408.4 | 2403.6 | 2429.9 | 2452.9 | 2538.8 | 2611.2 |
| 25° | 2907.7 | 2903.8 | 2693.9 | 2565.8 | 2531.7 | 2524.5 | 2573.0 | 2562.7 | 2617.5 | 2773.4 | 2728.0 |
| 27.5° | 3142.3 | 3215.5 | 2843.3 | 2875.1 | 2724.9 | 2566.6 | 2722.5 | 2769.4 | 2868.0 | 2842.5 | 2943.5 |
| 30° | 3597.1 | 3542.2 | 3153.4 | 3144.7 | 2974.5 | 2841.8 | 2949.9 | 2910.1 | 3087.4 | 3081.9 | 3156.6 |
| 32.5° | 3968.4 | 4006.6 | 3517.6 | 3426.2 | 3299.7 | 3139.9 | 3068.4 | 3178.9 | 3274.3 | 3430.9 | 3473.1 |
| 35° | 4361.2 | 4352.5 | 3890.5 | 3706.0 | 3496.9 | 3430.9 | 3519.2 | 3565.3 | 3768.1 | 3912.0 | 3811.8 |
| 37.5° | 4971.9 | 4902.7 | 4373.9 | 4024.9 | 3868.2 | 3844.4 | 3995.5 | 3928.7 | 4148.1 | 4182.3 | 4238.8 |
| 40° | 5539.6 | 5331.3 | 4816.0 | 4416.1 | 4167.2 | 4256.3 | 4261.0 | 4269.8 | 4387.5 | 4480.5 | 4759.6 |
| 42.5° | 6079.5 | 5933.2 | 5265.3 | 4964.7 | 4598.2 | 4511.5 | 4565.6 | 4583.9 | 4881.2 | 5071.3 | 5457.7 |
| 45° | 6817.3 | 6425.3 | 5910.9 | 5602.4 | 5192.1 | 5081.6 | 5043.4 | 5200.9 | 5487.9 | 5920.4 | 6252.0 |
| 47.5° | 7441.5 | 7087.7 | 6597.1 | 6190.8 | 5732.0 | 6047.7 | 5831.4 | 5743.1 | 6128.8 | 6664.7 | 7192.6 |
| 50° | 7959.1 | 7569.5 | 7088.5 | 6853.9 | 6780.8 | 7062.2 | 6500.9 | 6511.2 | 6864.3 | 7620.4 | 8225.5 |
| 52.5° | 8359.9 | 7944.0 | 7517.8 | 7398.6 | 7807.3 | 7969.5 | 7564.0 | 7502.7 | 7760.3 | 8654.1 | 9380.8 |
| 55° | 8734.4 | 8293.1 | 7963.9 | 8207.2 | 8895.8 | 8914.1 | 8885.4 | 8545.9 | 8856.0 | 9761.7 | 10576.7 |
| 57.5° | 8830.6 | 8355.1 | 8136.4 | 8485.5 | 9416.6 | 10140.9 | 10425.6 | 9759.3 | 10074.9 | 10769.1 | 11600.8 |
| 60° | 8335.2 | 7928.1 | 7840.7 | 8314.5 | 9698.1 | 10757.1 | 11500.6 | 11102.2 | 10983.8 | 11577.7 | 12318.0 |
| 62.5° | 7320.6 | 6848.3 | 6919.1 | 7577.5 | 9401.5 | 11001.2 | 12349.8 | 12660.7 | 11943.5 | 12221.0 | 12631.2 |
| 65° | 5826.6 | 5375.8 | 5518.9 | 6310.8 | 8470.4 | 11082.4 | 12783.9 | 13421.6 | 12290.1 | 12403.0 | 12187.6 |
| 67.5° | 4109.2 | 3699.7 | 3880.2 | 4904.3 | 7046.3 | 10043.9 | 12858.6 | 13067.0 | 11921.2 | 11883.8 | 10975.8 |
| 70° | 2328.1 | 2071.3 | 2266.9 | 3120.8 | 4973.5 | 8001.3 | 12272.6 | 11998.3 | 11259.7 | 10730.1 | 9183.6 |
| 72.5° | 1067.8 | 979.6 | 1073.4 | 1588.6 | 2863.2 | 5324.1 | 10019.3 | 10268.2 | 9702.0 | 9039.7 | 6986.7 |
| 75° | 567.7 | 536.7 | 576.5 | 793.5 | 1339.8 | 2896.6 | 7118.7 | 7678.5 | 7377.1 | 6856.3 | 4557.6 |
| 77.5° | 422.2 | 398.4 | 417.4 | 514.4 | 715.6 | 1133.0 | 4044.8 | 4750.8 | 4865.3 | 4385.9 | 2530.9 |
| 80° | 323.6 | 304.5 | 323.6 | 388.8 | 495.4 | 538.3 | 1729.4 | 2214.4 | 2522.1 | 2037.9 | 1005.8 |
| 82.5° | 240.1 | 227.4 | 256.8 | 291.8 | 348.3 | 336.3 | 613.8 | 764.1 | 985.2 | 673.5 | 392.0 |
| 85° | 190.8 | 174.9 | 186.1 | 198.0 | 222.6 | 184.5 | 280.7 | 314.1 | 332.4 | 278.3 | 144.7 |
| 87.5° | 74.7 | 69.2 | 135.2 | 106.5 | 90.6 | 55.7 | 84.3 | 95.4 | 97.8 | 93.8 | 42.1 |
| 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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CATALOG NUMBER: MSA-SA4C-830-U-T3

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 | 819.8 |
| 2.5° | 995.5 | 987.5 | 940.6 | 955.7 | 980.4 | 985.2 | 995.5 | 966.9 | 952.6 | 1005.0 | 1007.4 |
| 5° | 1285.7 | 1242.8 | 1220.5 | 1222.9 | 1207.0 | 1182.3 | 1219.7 | 1244.4 | 1253.9 | 1292.9 | 1307.2 |
| 7.5° | 1510.7 | 1459.0 | 1421.7 | 1378.7 | 1318.3 | 1279.3 | 1344.5 | 1392.3 | 1417.7 | 1498.8 | 1530.6 |
| 10° | 1610.9 | 1569.6 | 1561.6 | 1507.5 | 1506.0 | 1505.2 | 1502.0 | 1485.3 | 1540.1 | 1532.2 | 1554.5 |
| 12.5° | 1817.6 | 1808.9 | 1733.4 | 1711.9 | 1714.3 | 1711.9 | 1645.1 | 1641.9 | 1642.7 | 1715.9 | 1689.6 |
| 15° | 2010.1 | 2011.6 | 1942.5 | 1864.6 | 1794.6 | 1773.1 | 1746.9 | 1734.9 | 1752.4 | 1793.8 | 1768.3 |
| 17.5° | 2247.8 | 2255.7 | 2057.8 | 1934.5 | 1842.3 | 1839.9 | 1777.1 | 1703.1 | 1809.7 | 1835.1 | 1807.3 |
| 20° | 2401.3 | 2367.9 | 2124.6 | 1917.8 | 1891.6 | 1820.0 | 1742.1 | 1640.3 | 1732.6 | 1794.6 | 1812.1 |
| 22.5° | 2546.8 | 2488.7 | 2186.6 | 1947.2 | 1821.6 | 1736.5 | 1661.0 | 1595.0 | 1624.4 | 1693.6 | 1682.5 |
| 25° | 2645.4 | 2629.5 | 2272.4 | 2018.0 | 1819.2 | 1630.0 | 1528.2 | 1486.1 | 1501.2 | 1608.5 | 1598.2 |
| 27.5° | 2880.7 | 2709.0 | 2257.3 | 2036.3 | 1742.9 | 1484.5 | 1433.6 | 1388.3 | 1373.2 | 1489.3 | 1521.1 |
| 30° | 3038.1 | 2967.4 | 2358.3 | 2007.7 | 1646.7 | 1365.2 | 1290.5 | 1280.9 | 1285.7 | 1417.7 | 1426.4 |
| 32.5° | 3305.3 | 3121.6 | 2523.7 | 1897.9 | 1506.7 | 1277.0 | 1191.1 | 1195.1 | 1216.5 | 1312.7 | 1332.6 |
| 35° | 3583.6 | 3473.9 | 2546.0 | 1819.2 | 1393.0 | 1183.1 | 1148.1 | 1120.3 | 1132.2 | 1216.5 | 1220.5 |
| 37.5° | 4100.4 | 3721.2 | 2682.7 | 1697.6 | 1309.6 | 1147.4 | 1080.6 | 1055.9 | 1062.3 | 1110.0 | 1144.2 |
| 40° | 4555.2 | 4218.1 | 2619.1 | 1579.9 | 1206.2 | 1099.6 | 1016.2 | 997.9 | 978.8 | 1025.7 | 1047.2 |
| 42.5° | 5284.4 | 4572.7 | 2597.6 | 1450.3 | 1157.7 | 1035.2 | 978.0 | 929.5 | 911.2 | 951.0 | 989.9 |
| 45° | 6013.5 | 4948.8 | 2480.8 | 1319.1 | 1089.3 | 1030.5 | 922.3 | 876.2 | 881.0 | 916.8 | 956.5 |
| 47.5° | 6826.1 | 5453.7 | 2282.8 | 1191.9 | 1014.6 | 1007.4 | 866.7 | 846.8 | 861.1 | 900.9 | 940.6 |
| 50° | 7786.6 | 5989.6 | 2119.0 | 1077.4 | 961.3 | 938.2 | 859.5 | 835.7 | 849.2 | 896.1 | 935.1 |
| 52.5° | 8836.9 | 6577.2 | 1999.7 | 971.6 | 900.9 | 883.4 | 869.1 | 846.0 | 861.9 | 902.5 | 943.0 |
| 55° | 9880.9 | 7113.9 | 1918.6 | 899.3 | 849.2 | 860.3 | 888.9 | 872.2 | 880.2 | 910.4 | 951.0 |
| 57.5° | 10655.4 | 7397.0 | 1755.6 | 822.2 | 807.0 | 846.8 | 891.3 | 863.5 | 868.3 | 910.4 | 954.1 |
| 60° | 11105.4 | 7451.0 | 1487.7 | 759.3 | 773.6 | 819.8 | 866.7 | 830.9 | 827.7 | 896.9 | 951.8 |
| 62.5° | 11056.1 | 7137.0 | 1180.0 | 702.1 | 735.5 | 779.2 | 829.3 | 795.1 | 803.9 | 898.5 | 956.5 |
| 65° | 10350.0 | 6495.3 | 938.2 | 653.6 | 689.4 | 734.7 | 798.3 | 784.8 | 826.9 | 962.1 | 1024.9 |
| 67.5° | 9109.7 | 5557.9 | 753.8 | 608.3 | 646.4 | 704.5 | 819.8 | 855.5 | 873.8 | 1027.3 | 1091.7 |
| 70° | 7382.7 | 4318.3 | 628.1 | 568.5 | 612.2 | 718.8 | 881.8 | 874.6 | 859.5 | 996.3 | 1047.2 |
| 72.5° | 5333.6 | 2960.2 | 552.6 | 529.5 | 570.1 | 675.9 | 883.4 | 845.2 | 826.1 | 909.6 | 946.2 |
| 75° | 3337.1 | 1766.0 | 482.6 | 480.3 | 505.7 | 605.9 | 843.6 | 809.4 | 757.7 | 799.1 | 846.8 |
| 77.5° | 1905.9 | 904.0 | 406.3 | 427.8 | 442.9 | 525.6 | 755.4 | 724.4 | 678.2 | 695.7 | 742.6 |
| 80° | 727.5 | 437.3 | 342.7 | 380.1 | 376.1 | 445.3 | 640.1 | 632.9 | 580.4 | 586.0 | 614.6 |
| 82.5° | 342.7 | 244.9 | 284.7 | 326.8 | 305.3 | 354.6 | 520.0 | 517.6 | 471.5 | 427.0 | 450.0 |
| 85° | 127.2 | 130.4 | 208.3 | 248.9 | 212.3 | 229.0 | 376.1 | 365.8 | 321.2 | 271.1 | 299.8 |
| 87.5° | 28.6 | 46.9 | 102.6 | 129.6 | 73.9 | 70.8 | 151.9 | 132.0 | 127.2 | 75.5 | 79.5 |
| 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)