

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: P368705

Luminaire Tested: **MSA-SA4D-830-U-T3-HSS**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P368705  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-11)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2019  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: MSA-SA4D-830-U-T3-HSS  
Description: MESA POST TOP DECORATIVE LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 15438 lumens  
Efficiency: N/A  
Efficacy: 59.6 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B1 - U0 - G3

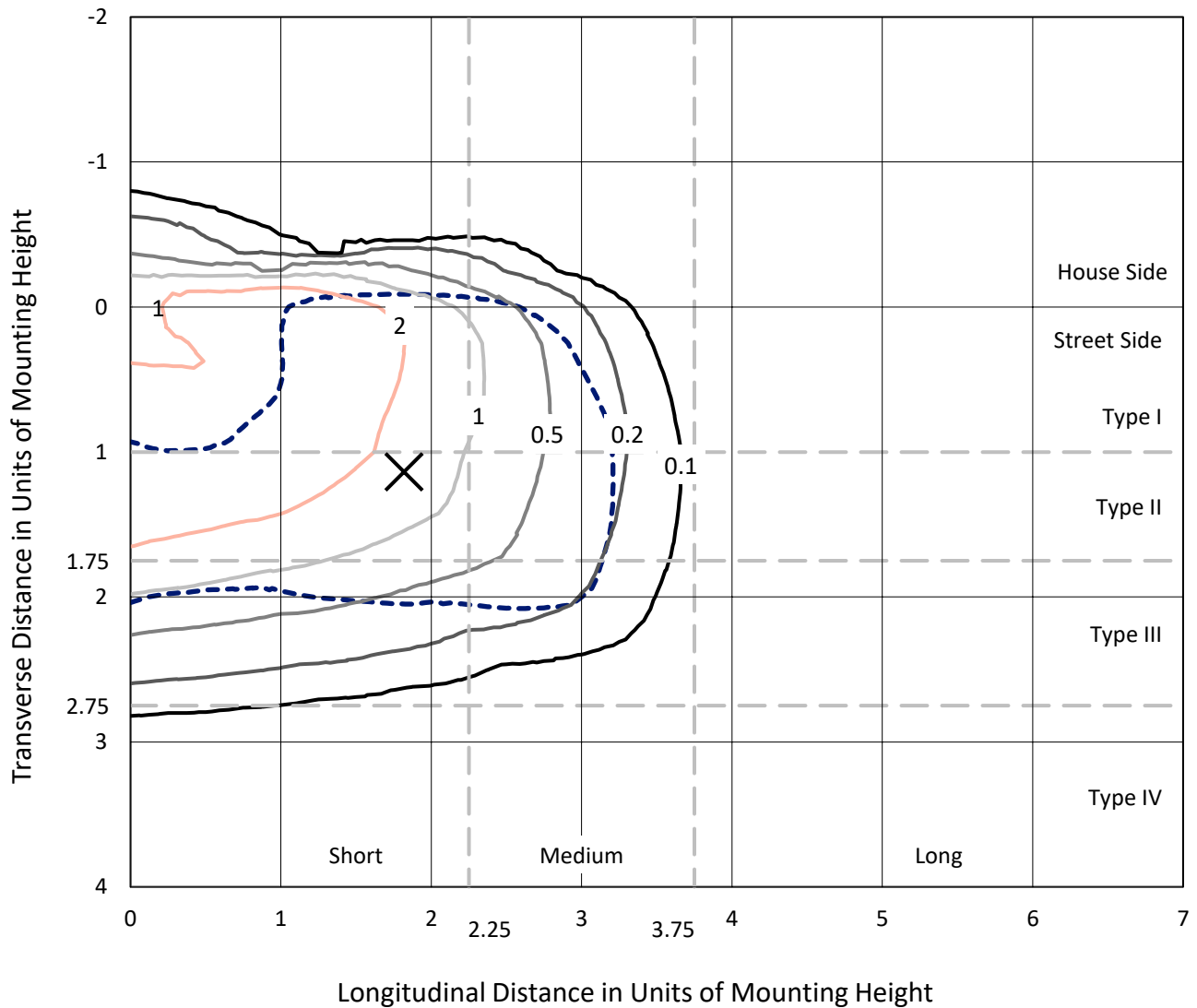
Input Watts (W): 259  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



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### Iso-Footcandle Lines of Horizontal Illumination

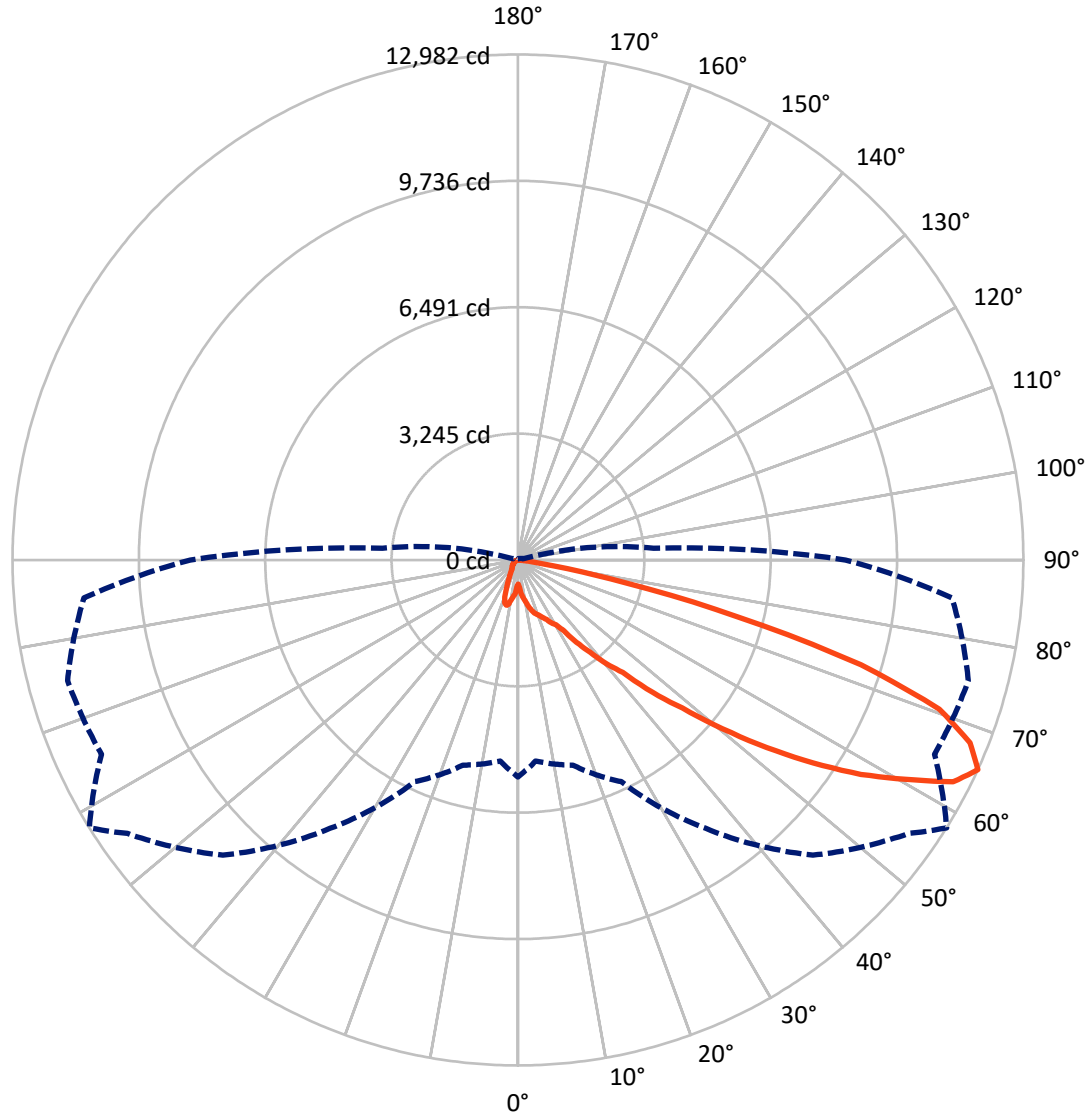
✕ Max cd  
 - - - 1/2 Max cd



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   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 1523.3   | 0.0    | 1523.3  |
|                    | % Fixture | 9.9      | 0.0    | 9.9     |
| <b>Street Side</b> | Lumens    | 13914.7  | 0.0    | 13914.7 |
|                    | % Fixture | 90.1     | 0.0    | 90.1    |
| <b>Total</b>       | Lumens    | 15438.0  | 0.0    | 15438.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 86.8    | 0.6       |
| 10°-20°   | 316.9   | 2.1       |
| 20°-30°   | 613.4   | 4.0       |
| 30°-40°   | 1223.8  | 7.9       |
| 40°-50°   | 2501.9  | 16.2      |
| 50°-60°   | 4437.7  | 28.7      |
| 60°-70°   | 4678.5  | 30.3      |
| 70°-80°   | 1516.8  | 9.8       |
| 80°-90°   | 62.0    | 0.4       |
| 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°    | 15438.0 | 100.0     |
| 0°-180°   | 15438.0 | 100.0     |

**Coefficient of Utilization**



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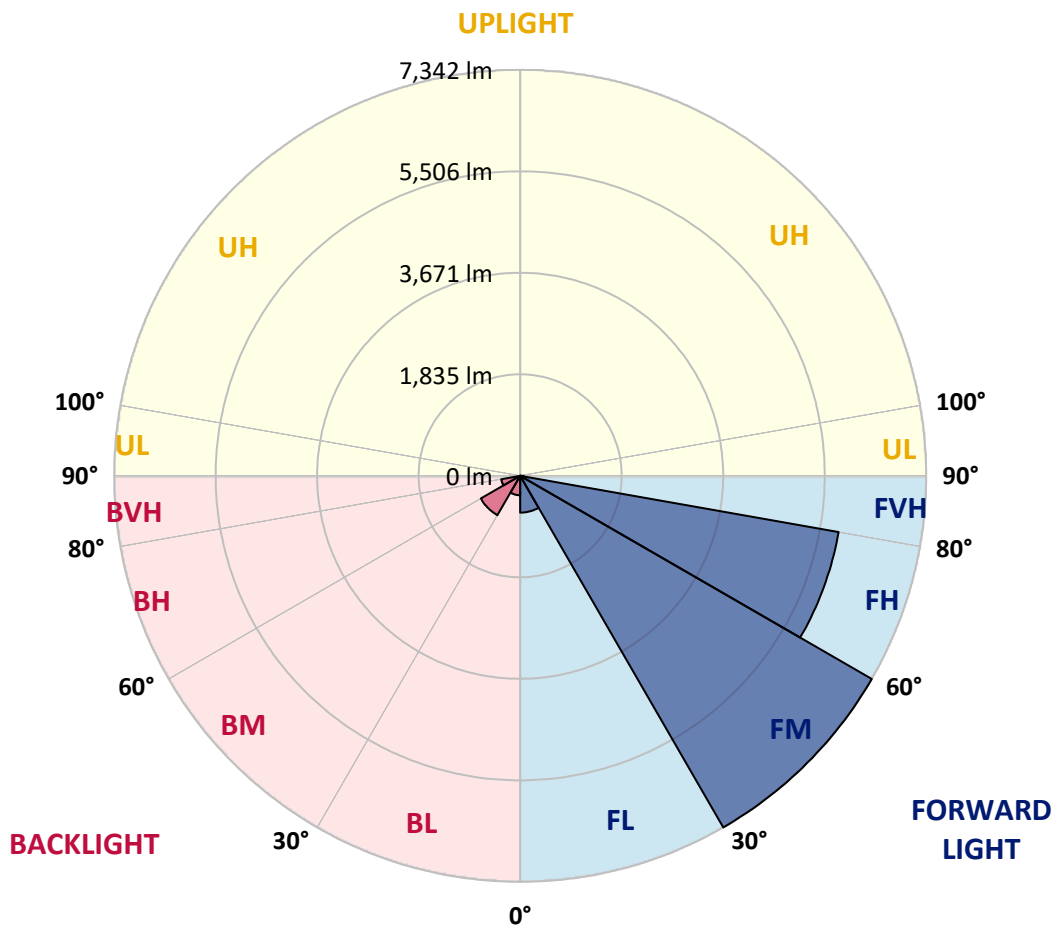
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 666.0  | 4.3       |                         |      |         |
| FM (30°-60°)   | 7341.6 | 47.6      |                         |      |         |
| FH (60°-80°)   | 5847.7 | 37.9      |                         |      | G3/7500 |
| FVH (80°-90°)  | 59.4   | 0.4       |                         |      | G1/100  |
| BL (0°-30°)    | 351.1  | 2.3       | B1/500                  |      |         |
| BM (30°-60°)   | 821.9  | 5.3       | B1/1000                 |      |         |
| BH (60°-80°)   | 347.7  | 2.3       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 2.6    | 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 III Short





REPORT NUMBER: P368705

CATALOG NUMBER: MSA-SA4D-830-U-T3-HSS

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°     | 45°     | 55°     | 58°     | 65°     | 75°     | 85°     |
|-------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 618.0  | 618.0  | 618.0  | 618.0  | 618.0   | 618.0   | 618.0   | 618.0   | 618.0   | 618.0   | 618.0   |
| 2.5°  | 754.5  | 731.9  | 696.2  | 702.3  | 709.3   | 723.2   | 711.9   | 701.5   | 690.2   | 675.4   | 731.9   |
| 5°    | 910.9  | 873.6  | 870.1  | 862.3  | 856.2   | 855.3   | 869.2   | 864.9   | 870.9   | 898.8   | 927.4   |
| 7.5°  | 968.3  | 952.7  | 923.1  | 935.3  | 916.1   | 901.4   | 963.1   | 983.1   | 1021.3  | 1034.4  | 1109.1  |
| 10°   | 962.2  | 939.6  | 951.8  | 957.9  | 970.9   | 1024.8  | 1063.9  | 1085.6  | 1118.7  | 1189.9  | 1175.2  |
| 12.5° | 990.0  | 1010.0 | 1023.1 | 1023.9 | 1090.9  | 1189.9  | 1217.8  | 1236.0  | 1295.1  | 1322.9  | 1395.9  |
| 15°   | 1083.0 | 1116.1 | 1095.2 | 1103.9 | 1125.6  | 1246.4  | 1311.6  | 1351.6  | 1435.1  | 1525.5  | 1543.7  |
| 17.5° | 1216.0 | 1236.9 | 1193.4 | 1162.1 | 1222.1  | 1288.2  | 1406.4  | 1448.1  | 1501.1  | 1712.3  | 1751.5  |
| 20°   | 1383.8 | 1419.4 | 1325.5 | 1201.2 | 1280.3  | 1358.6  | 1487.2  | 1507.2  | 1563.7  | 1839.2  | 1901.0  |
| 22.5° | 1775.8 | 1722.8 | 1579.4 | 1385.5 | 1362.0  | 1396.8  | 1519.4  | 1597.6  | 1693.2  | 1910.5  | 2053.9  |
| 25°   | 2162.6 | 2144.3 | 1933.1 | 1716.7 | 1560.2  | 1482.0  | 1644.5  | 1688.0  | 1844.5  | 2080.0  | 2159.1  |
| 27.5° | 2592.8 | 2629.4 | 2276.5 | 2145.2 | 1838.4  | 1582.8  | 1722.8  | 1831.4  | 2016.6  | 2141.7  | 2332.1  |
| 30°   | 3160.4 | 3102.2 | 2688.5 | 2557.2 | 2206.9  | 1860.1  | 1925.3  | 1932.2  | 2204.3  | 2345.1  | 2525.9  |
| 32.5° | 3605.5 | 3642.9 | 3123.1 | 2921.4 | 2641.5  | 2286.9  | 2077.4  | 2167.8  | 2362.5  | 2676.3  | 2847.5  |
| 35°   | 4087.0 | 4083.5 | 3576.8 | 3305.6 | 2939.7  | 2635.4  | 2528.5  | 2594.6  | 2838.8  | 3194.3  | 3239.5  |
| 37.5° | 4806.7 | 4745.0 | 4147.0 | 3749.8 | 3438.6  | 3178.7  | 3097.0  | 3009.2  | 3261.3  | 3600.3  | 3769.8  |
| 40°   | 5485.6 | 5272.6 | 4719.8 | 4248.7 | 3850.6  | 3744.5  | 3449.0  | 3502.9  | 3577.7  | 4025.3  | 4493.8  |
| 42.5° | 6171.4 | 6039.3 | 5300.4 | 4905.8 | 4416.4  | 4164.4  | 3971.4  | 3946.2  | 4301.7  | 4831.9  | 5316.1  |
| 45°   | 7076.2 | 6672.0 | 6081.0 | 5734.2 | 5167.4  | 4914.5  | 4758.9  | 4851.9  | 5171.8  | 5946.3  | 6268.7  |
| 47.5° | 7835.9 | 7463.9 | 6956.3 | 6429.5 | 5835.0  | 6119.2  | 5827.2  | 5680.3  | 6119.2  | 6919.8  | 7348.3  |
| 50°   | 8488.7 | 8074.1 | 7560.4 | 7170.1 | 7073.6  | 7346.5  | 6755.5  | 6809.4  | 7094.5  | 8035.0  | 8276.6  |
| 52.5° | 8963.3 | 8526.9 | 8078.4 | 7889.8 | 8285.3  | 8422.6  | 8126.2  | 8007.1  | 8266.2  | 8985.9  | 9103.2  |
| 55°   | 9320.5 | 8873.7 | 8523.5 | 8783.3 | 9548.3  | 9503.1  | 9607.4  | 9200.6  | 9448.3  | 9977.6  | 9922.0  |
| 57.5° | 9342.3 | 8812.9 | 8607.8 | 9025.9 | 10075.9 | 10775.6 | 11080.7 | 10388.8 | 10529.6 | 10753.0 | 10627.8 |
| 60°   | 8659.1 | 8132.3 | 8115.8 | 8709.5 | 10228.8 | 11105.0 | 11772.6 | 11435.3 | 11246.7 | 11412.7 | 11175.4 |
| 62.5° | 7297.9 | 6929.3 | 7101.4 | 7757.7 | 9659.5  | 10923.3 | 12141.1 | 12547.0 | 11812.5 | 11849.9 | 11512.7 |
| 65°   | 5572.5 | 5185.7 | 5455.2 | 6281.8 | 8414.8  | 10719.9 | 12245.4 | 12981.6 | 11802.1 | 11974.2 | 11189.3 |
| 67.5° | 3690.7 | 3466.4 | 3771.5 | 4682.4 | 6690.3  | 9463.1  | 12191.5 | 12525.3 | 11427.5 | 11488.3 | 9988.9  |
| 70°   | 1905.3 | 1850.5 | 2097.4 | 2816.2 | 4498.2  | 7270.1  | 11662.2 | 11479.6 | 10666.9 | 9896.8  | 7704.7  |
| 72.5° | 610.2  | 612.8  | 850.1  | 1286.4 | 2425.1  | 4426.0  | 8964.1  | 9214.5  | 8535.6  | 7239.6  | 4704.2  |
| 75°   | 270.3  | 266.0  | 355.5  | 539.8  | 1010.9  | 1984.4  | 5569.0  | 5839.3  | 5314.3  | 3982.7  | 1977.4  |
| 77.5° | 194.7  | 188.6  | 227.7  | 315.5  | 500.7   | 672.8   | 2611.1  | 2818.0  | 2409.4  | 1380.3  | 452.9   |
| 80°   | 137.3  | 136.5  | 165.1  | 221.6  | 312.9   | 299.0   | 824.9   | 924.8   | 740.6   | 334.6   | 133.0   |
| 82.5° | 77.4   | 80.0   | 114.7  | 156.5  | 190.4   | 149.5   | 232.1   | 255.5   | 249.5   | 178.2   | 58.2    |
| 85°   | 37.4   | 41.7   | 74.8   | 113.0  | 100.0   | 58.2    | 82.6    | 89.5    | 104.3   | 103.4   | 29.6    |
| 87.5° | 0.0    | 0.0    | 30.4   | 51.3   | 26.9    | 8.7     | 25.2    | 28.7    | 27.8    | 33.0    | 7.0     |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |



REPORT NUMBER: P368705  
 CATALOG NUMBER: MSA-SA4D-830-U-T3-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°  | 155°  | 165°  | 175°  | 180°   |
|-------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|--------|
| 0°    | 618.0  | 618.0  | 618.0  | 618.0  | 618.0  | 618.0  | 618.0 | 618.0 | 618.0 | 618.0 | 618.0  |
| 2.5°  | 743.2  | 738.0  | 671.9  | 677.1  | 691.9  | 685.8  | 691.0 | 678.9 | 664.9 | 721.4 | 720.6  |
| 5°    | 939.6  | 900.5  | 879.6  | 860.5  | 864.0  | 824.9  | 847.5 | 857.9 | 856.2 | 888.3 | 897.0  |
| 7.5°  | 1111.7 | 1059.6 | 1017.8 | 977.9  | 917.0  | 862.3  | 896.2 | 917.9 | 932.7 | 988.3 | 1010.0 |
| 10°   | 1192.6 | 1150.0 | 1133.4 | 1055.2 | 1011.8 | 977.9  | 937.0 | 907.5 | 919.6 | 904.8 | 919.6  |
| 12.5° | 1369.9 | 1341.2 | 1277.7 | 1198.6 | 1146.5 | 1076.9 | 924.8 | 797.9 | 719.7 | 720.6 | 715.4  |
| 15°   | 1531.5 | 1529.8 | 1435.1 | 1303.8 | 1152.6 | 954.4  | 717.1 | 557.2 | 483.3 | 462.4 | 455.5  |
| 17.5° | 1742.8 | 1716.7 | 1543.7 | 1349.9 | 1077.8 | 738.8  | 488.5 | 381.6 | 374.6 | 386.8 | 381.6  |
| 20°   | 1877.5 | 1839.2 | 1597.6 | 1283.0 | 888.3  | 499.8  | 368.5 | 338.1 | 359.0 | 376.4 | 372.0  |
| 22.5° | 2012.2 | 1954.8 | 1638.5 | 1201.2 | 631.9  | 365.9  | 332.9 | 327.7 | 340.7 | 362.5 | 365.9  |
| 25°   | 2086.1 | 2074.8 | 1718.4 | 1048.3 | 432.9  | 320.7  | 320.7 | 319.0 | 323.3 | 339.0 | 336.4  |
| 27.5° | 2300.8 | 2147.8 | 1658.4 | 817.9  | 334.6  | 294.7  | 299.0 | 297.3 | 281.6 | 297.3 | 298.1  |
| 30°   | 2434.7 | 2364.2 | 1662.8 | 582.4  | 294.7  | 260.8  | 272.1 | 258.2 | 234.7 | 247.7 | 245.1  |
| 32.5° | 2704.1 | 2528.5 | 1649.8 | 392.9  | 268.6  | 248.6  | 231.2 | 211.2 | 193.8 | 199.0 | 194.7  |
| 35°   | 3017.9 | 2884.0 | 1473.3 | 315.5  | 250.3  | 219.9  | 192.1 | 172.1 | 153.8 | 158.2 | 157.3  |
| 37.5° | 3642.0 | 3216.9 | 1327.3 | 284.2  | 238.2  | 201.7  | 169.5 | 141.7 | 132.1 | 134.7 | 137.3  |
| 40°   | 4220.0 | 3772.4 | 1055.2 | 270.3  | 217.3  | 179.9  | 139.9 | 120.0 | 113.9 | 115.6 | 118.2  |
| 42.5° | 5084.0 | 4213.9 | 797.1  | 256.4  | 196.4  | 152.1  | 116.5 | 103.4 | 97.4  | 100.8 | 102.6  |
| 45°   | 5920.2 | 4589.4 | 595.4  | 244.2  | 179.1  | 131.3  | 98.2  | 89.5  | 82.6  | 85.2  | 88.7   |
| 47.5° | 6755.5 | 5006.6 | 444.2  | 225.1  | 159.9  | 113.0  | 84.3  | 78.2  | 73.9  | 74.8  | 79.1   |
| 50°   | 7503.0 | 5201.3 | 349.4  | 201.7  | 144.3  | 98.2   | 76.5  | 70.4  | 68.7  | 69.5  | 73.0   |
| 52.5° | 8052.3 | 5203.1 | 294.7  | 180.8  | 129.5  | 86.9   | 72.1  | 65.2  | 64.3  | 66.1  | 69.5   |
| 55°   | 8548.7 | 5064.0 | 255.5  | 162.5  | 116.5  | 79.1   | 68.7  | 62.6  | 62.6  | 64.3  | 67.8   |
| 57.5° | 8878.1 | 4808.5 | 221.6  | 143.4  | 105.2  | 74.8   | 66.1  | 60.0  | 59.1  | 58.2  | 60.8   |
| 60°   | 9038.9 | 4459.9 | 187.7  | 126.0  | 94.7   | 72.1   | 64.3  | 53.0  | 52.2  | 50.4  | 52.2   |
| 62.5° | 8937.2 | 4023.6 | 157.3  | 108.7  | 84.3   | 68.7   | 56.5  | 46.1  | 44.3  | 40.9  | 43.5   |
| 65°   | 8417.4 | 3493.3 | 133.0  | 93.0   | 73.0   | 58.2   | 47.8  | 39.1  | 34.8  | 30.4  | 29.6   |
| 67.5° | 7354.4 | 2838.0 | 111.3  | 80.0   | 62.6   | 47.8   | 39.1  | 34.8  | 26.9  | 23.5  | 22.6   |
| 70°   | 5511.6 | 1937.5 | 92.1   | 68.7   | 52.2   | 40.9   | 33.0  | 31.3  | 25.2  | 22.6  | 20.9   |
| 72.5° | 3233.5 | 1045.7 | 77.4   | 60.0   | 44.3   | 33.9   | 26.9  | 28.7  | 25.2  | 20.9  | 19.1   |
| 75°   | 1291.6 | 347.7  | 61.7   | 47.8   | 35.6   | 24.3   | 22.6  | 23.5  | 22.6  | 19.1  | 15.6   |
| 77.5° | 294.7  | 109.5  | 47.8   | 37.4   | 27.8   | 15.6   | 18.3  | 20.0  | 20.0  | 15.6  | 11.3   |
| 80°   | 92.1   | 43.5   | 27.8   | 23.5   | 20.0   | 8.7    | 13.0  | 13.9  | 9.6   | 4.3   | 0.0    |
| 82.5° | 29.6   | 12.2   | 9.6    | 9.6    | 8.7    | 1.7    | 2.6   | 1.7   | 0.0   | 0.0   | 0.0    |
| 85°   | 11.3   | 7.8    | 6.1    | 6.1    | 3.5    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0    |
| 87.5° | 4.3    | 3.5    | 2.6    | 3.5    | 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)