

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: P368648

Luminaire Tested: **MSA-SA4D-750-U-RW**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P368648
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-7)
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: MSA-SA4D-750-U-RW
Description: MESA POST TOP DECORATIVE LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND RECTANGULAR WIDE OPTICS.
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 27017 lumens
Efficiency: N/A
Efficacy: 104.3 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type III - Short
BUG Rating: B4 - U0 - G4

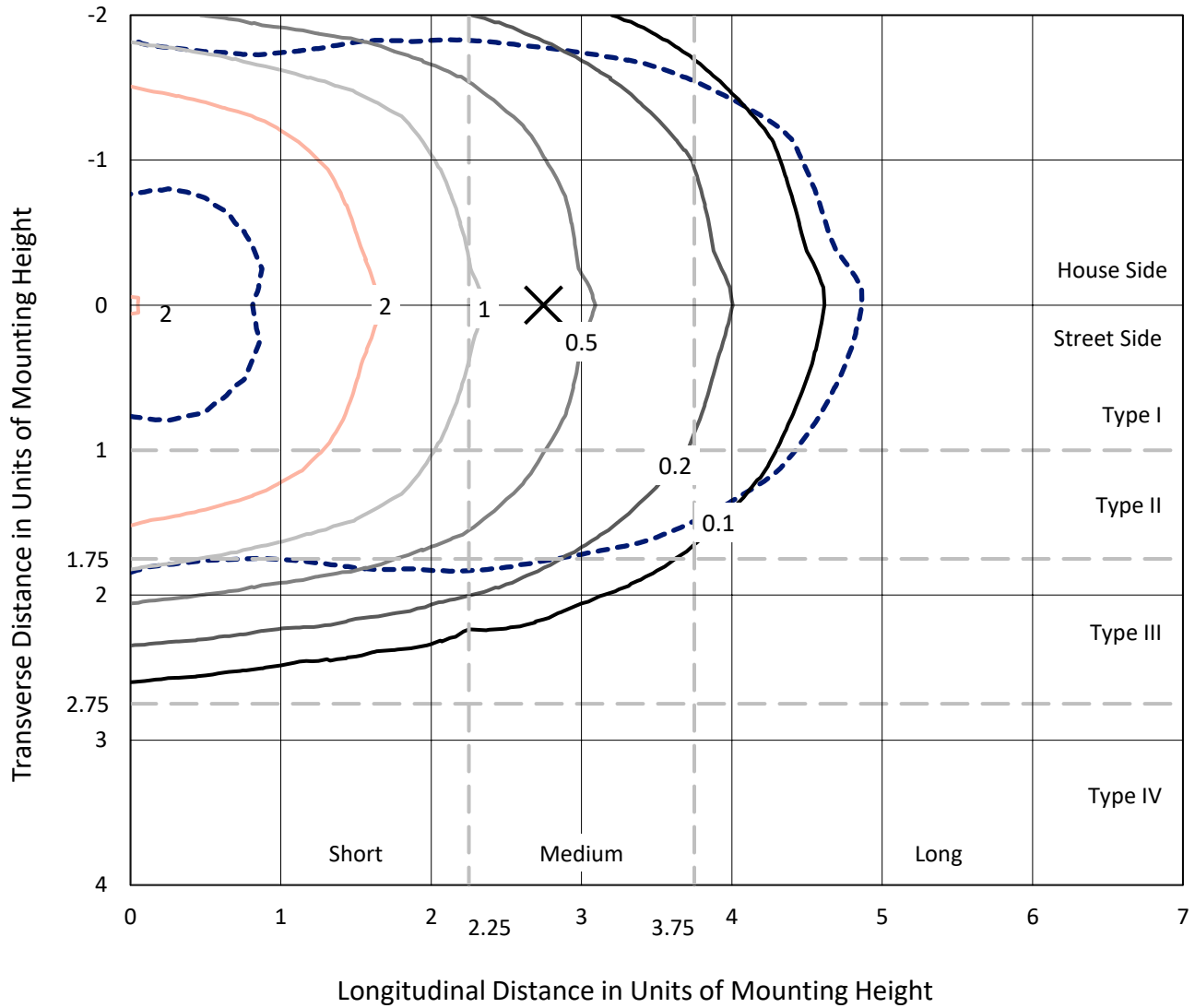
Input Watts (W): 259
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P368648
 CATALOG NUMBER: MSA-SA4D-750-U-RW

Iso-Footcandle Lines of Horizontal Illumination

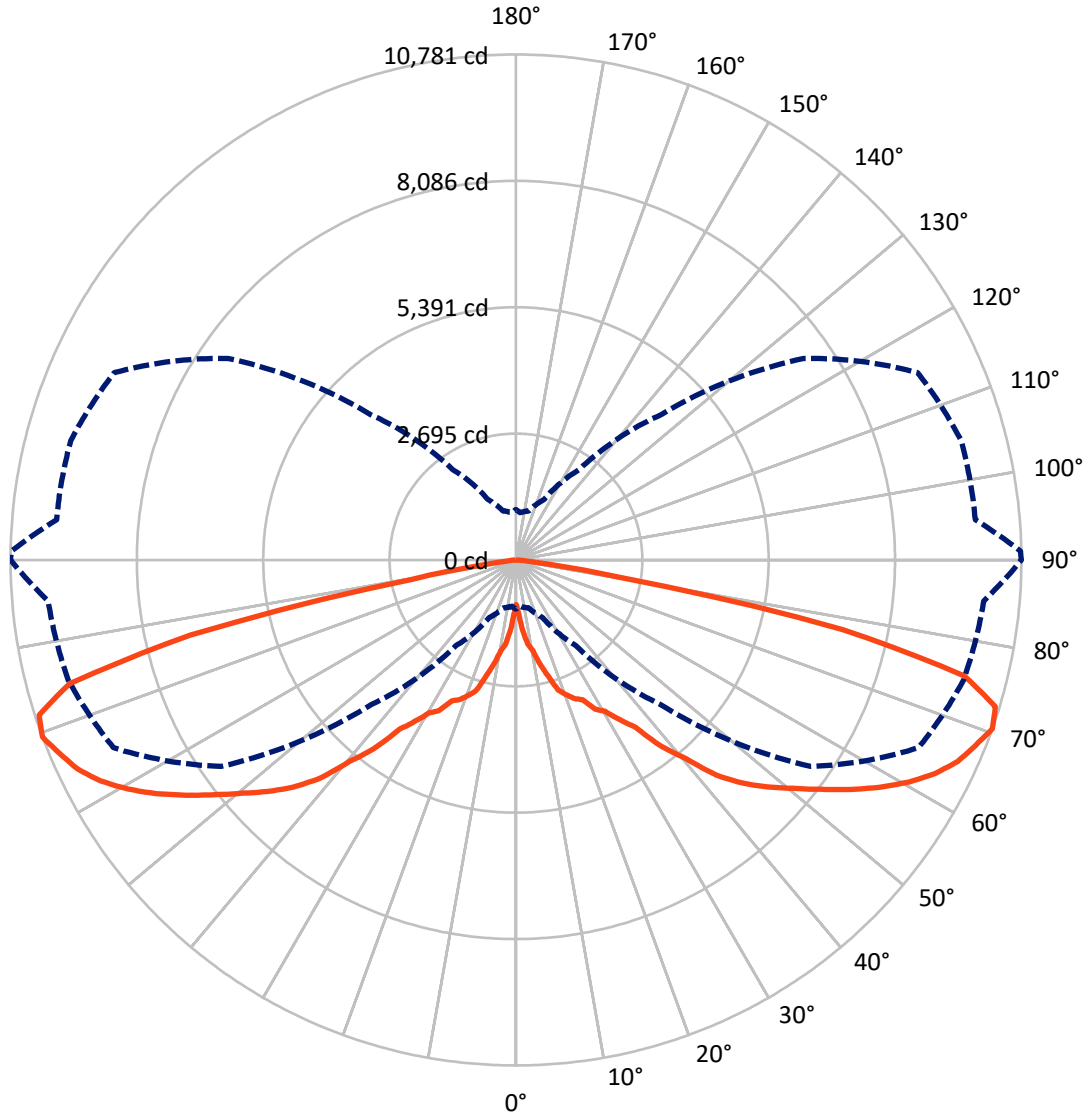
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 4.4 fc
 Type III - Short - N/A

REPORT NUMBER: P368648
CATALOG NUMBER: MSA-SA4D-750-U-RW

Luminous Intensity Polar Plot



— Vertical Plane Through 90-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

REPORT NUMBER: P368648

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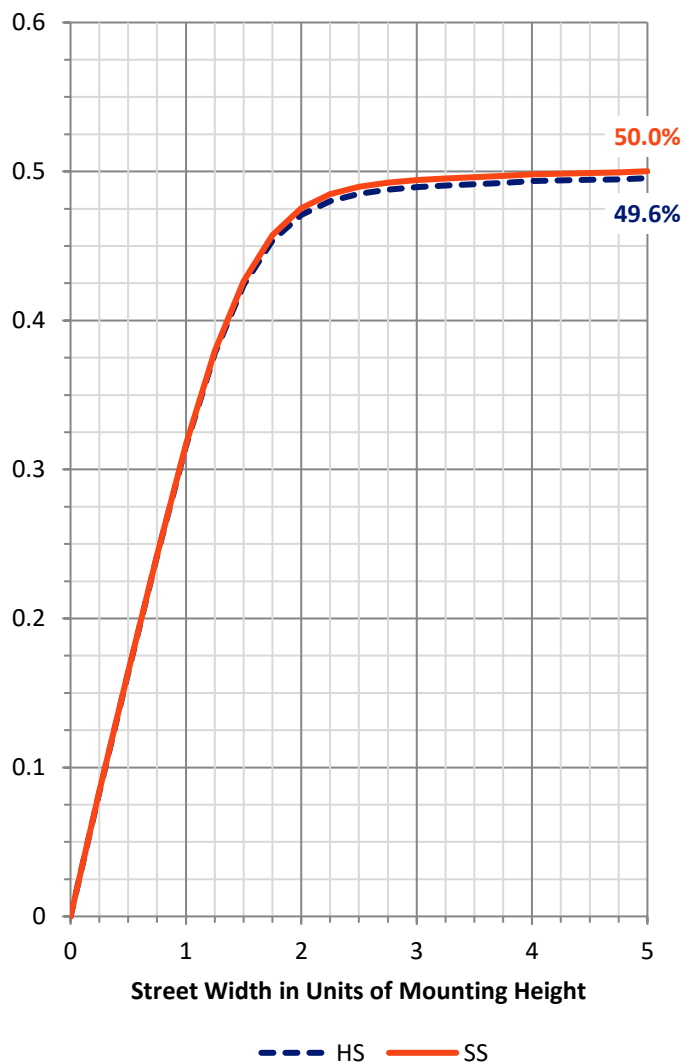
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 13458.5 | 0.0 | 13458.5 |
| | % Fixture | 49.8 | 0.0 | 49.8 |
| Street Side | Lumens | 13558.5 | 0.0 | 13558.5 |
| | % Fixture | 50.2 | 0.0 | 50.2 |
| Total | Lumens | 27017.0 | 0.0 | 27017.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 143.0 | 0.5 |
| 10°-20° | 655.6 | 2.4 |
| 20°-30° | 1417.5 | 5.2 |
| 30°-40° | 2704.4 | 10.0 |
| 40°-50° | 4913.1 | 18.2 |
| 50°-60° | 6901.7 | 25.5 |
| 60°-70° | 6589.7 | 24.4 |
| 70°-80° | 3381.9 | 12.5 |
| 80°-90° | 310.1 | 1.1 |
| 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° | 27017.0 | 100.0 |
| 0°-180° | 27017.0 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P368648

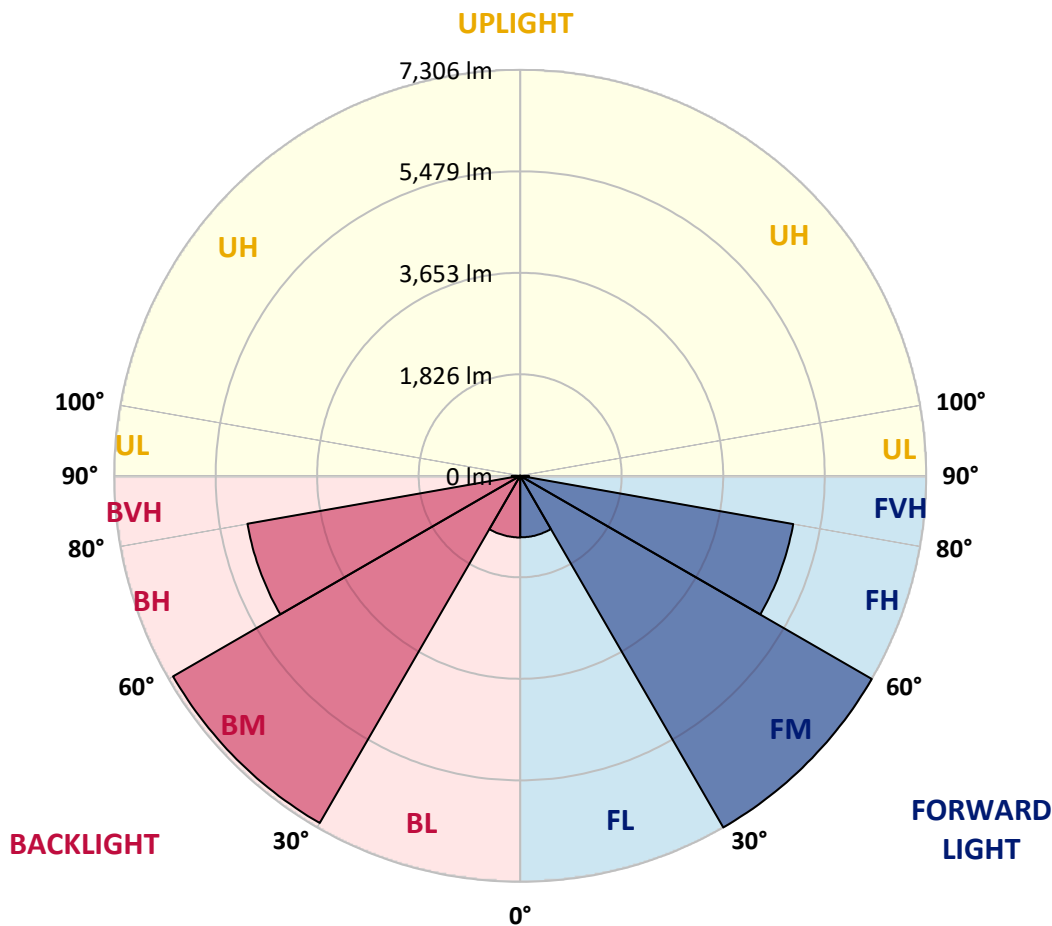
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1107.0 | 4.1 | | | |
| FM (30°-60°) | 7305.7 | 27.0 | | | |
| FH (60°-80°) | 4988.5 | 18.5 | | | G2/5000 |
| FVH (80°-90°) | 157.3 | 0.6 | | | G2/225 |
| BL (0°-30°) | 1109.1 | 4.1 | B3/2500 | | |
| BM (30°-60°) | 7213.5 | 26.7 | B4/8500 | | |
| BH (60°-80°) | 4983.1 | 18.4 | B4/5000 | | G4/5000 |
| BVH (80°-90°) | 152.7 | 0.6 | | | G2/225 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B4-U0-G4

Type III Short





REPORT NUMBER: P368648

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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| 0° | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 |
| 2.5° | 1148.6 | 1105.9 | 1052.3 | 1084.0 | 1097.2 | 1120.1 | 1116.9 | 1105.9 | 1058.8 | 1137.7 | 1146.4 |
| 5° | 1437.7 | 1369.8 | 1344.6 | 1340.2 | 1346.8 | 1324.9 | 1396.1 | 1375.3 | 1413.6 | 1484.8 | 1501.2 |
| 7.5° | 1637.0 | 1586.6 | 1532.9 | 1549.4 | 1481.5 | 1471.6 | 1563.6 | 1645.7 | 1666.5 | 1796.8 | 1805.6 |
| 10° | 1731.1 | 1681.9 | 1696.1 | 1686.2 | 1678.6 | 1742.1 | 1784.8 | 1845.0 | 1931.5 | 1943.6 | 1962.2 |
| 12.5° | 1811.1 | 1830.8 | 1893.2 | 1891.0 | 1993.9 | 2106.7 | 2090.3 | 2152.7 | 2166.9 | 2318.0 | 2272.0 |
| 15° | 2013.6 | 2054.1 | 2049.8 | 2088.1 | 2133.0 | 2318.0 | 2319.1 | 2425.3 | 2522.8 | 2581.9 | 2566.6 |
| 17.5° | 2310.4 | 2324.6 | 2265.5 | 2267.7 | 2398.0 | 2473.5 | 2557.8 | 2539.2 | 2793.2 | 2909.3 | 2917.0 |
| 20° | 2487.7 | 2523.9 | 2456.0 | 2366.2 | 2597.2 | 2701.3 | 2748.4 | 2639.9 | 2911.5 | 3068.1 | 3068.1 |
| 22.5° | 2797.6 | 2704.6 | 2601.6 | 2541.4 | 2745.1 | 2855.7 | 2850.2 | 2819.5 | 2964.1 | 3241.1 | 3214.8 |
| 25° | 2968.4 | 2915.9 | 2864.4 | 2879.7 | 2982.7 | 3039.6 | 3115.2 | 3044.0 | 3179.8 | 3385.6 | 3299.1 |
| 27.5° | 3292.5 | 3195.1 | 2942.2 | 3143.6 | 3143.6 | 3100.9 | 3260.8 | 3294.7 | 3206.0 | 3541.1 | 3605.7 |
| 30° | 3659.4 | 3625.4 | 3267.4 | 3480.9 | 3415.2 | 3294.7 | 3601.3 | 3579.4 | 3430.5 | 3772.1 | 3742.6 |
| 32.5° | 4006.5 | 4118.1 | 3778.7 | 3661.5 | 3760.1 | 3806.1 | 3645.1 | 3710.8 | 3739.3 | 4068.9 | 4054.6 |
| 35° | 4538.6 | 4632.8 | 4182.7 | 4153.2 | 3988.9 | 3946.2 | 4068.9 | 4090.8 | 4093.0 | 4440.1 | 4376.6 |
| 37.5° | 5459.5 | 5323.7 | 4879.1 | 4670.0 | 4688.6 | 4637.2 | 4661.2 | 4488.2 | 4512.3 | 5016.0 | 5047.8 |
| 40° | 6132.9 | 5979.6 | 5484.7 | 5334.6 | 4966.7 | 5186.8 | 4991.9 | 4974.4 | 4926.2 | 5578.8 | 5561.3 |
| 42.5° | 6876.3 | 6666.1 | 6118.6 | 5918.3 | 5527.4 | 5437.6 | 5347.8 | 5550.4 | 5537.2 | 6141.6 | 6275.2 |
| 45° | 7438.1 | 7013.2 | 6727.4 | 6602.6 | 6368.3 | 6148.2 | 6062.8 | 6153.7 | 6112.1 | 6561.0 | 6794.2 |
| 47.5° | 7792.8 | 7423.8 | 7095.3 | 6832.6 | 6608.1 | 7147.9 | 6715.4 | 6593.9 | 6509.5 | 7012.1 | 7236.6 |
| 50° | 8075.3 | 7649.4 | 7261.8 | 7174.2 | 7351.6 | 7829.0 | 7146.8 | 6878.5 | 6981.5 | 7351.6 | 7657.1 |
| 52.5° | 8152.0 | 7700.9 | 7352.7 | 7296.8 | 7776.4 | 7862.9 | 7752.3 | 7301.2 | 7273.8 | 7758.9 | 8127.9 |
| 55° | 7917.7 | 7485.1 | 7319.8 | 7625.3 | 8155.3 | 8083.0 | 8251.6 | 7963.6 | 7769.8 | 8175.0 | 8639.2 |
| 57.5° | 7314.3 | 6885.1 | 6845.7 | 7285.9 | 7953.8 | 8569.2 | 8652.4 | 8424.6 | 8170.6 | 8599.8 | 9147.3 |
| 60° | 6323.4 | 5931.4 | 6031.0 | 6517.2 | 7524.6 | 8400.5 | 8842.9 | 8634.9 | 8556.0 | 8983.1 | 9618.1 |
| 62.5° | 4780.6 | 4475.1 | 4741.2 | 5419.0 | 6740.6 | 8182.6 | 9105.7 | 9072.8 | 8959.0 | 9390.4 | 10034.2 |
| 65° | 3048.4 | 2887.4 | 3159.0 | 3847.7 | 5524.1 | 7786.3 | 9231.6 | 9275.4 | 9380.5 | 9704.6 | 10356.1 |
| 67.5° | 1771.6 | 1686.2 | 1851.6 | 2415.5 | 3934.2 | 6393.5 | 8997.3 | 9625.8 | 9680.5 | 9866.7 | 10567.5 |
| 70° | 1047.9 | 992.0 | 1059.9 | 1356.7 | 2227.1 | 4355.8 | 7674.6 | 9472.5 | 9886.4 | 10015.6 | 10781.0 |
| 72.5° | 799.3 | 746.8 | 717.2 | 802.6 | 1162.8 | 2250.1 | 5189.0 | 8029.3 | 9721.1 | 9917.1 | 10691.2 |
| 75° | 690.9 | 640.6 | 605.5 | 613.2 | 692.0 | 1068.7 | 2813.0 | 5743.1 | 8283.4 | 9030.1 | 9875.4 |
| 77.5° | 593.5 | 548.6 | 523.4 | 521.2 | 531.1 | 586.9 | 1176.0 | 3114.1 | 5187.9 | 6490.9 | 7119.4 |
| 80° | 475.2 | 440.2 | 434.7 | 434.7 | 420.5 | 416.1 | 584.7 | 1184.7 | 1974.2 | 2341.0 | 2244.7 |
| 82.5° | 347.1 | 312.1 | 347.1 | 342.7 | 320.8 | 303.3 | 372.3 | 512.4 | 608.8 | 480.7 | 380.0 |
| 85° | 234.3 | 202.6 | 228.8 | 233.2 | 212.4 | 157.7 | 223.4 | 256.2 | 262.8 | 164.2 | 135.8 |
| 87.5° | 82.1 | 79.9 | 129.2 | 112.8 | 92.0 | 53.7 | 82.1 | 88.7 | 93.1 | 58.0 | 39.4 |
| 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-SA4D-750-U-RW

CANDELA DISTRIBUTION (continued):

| | 91° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 | 948.2 |
| 2.5° | 1149.7 | 1136.6 | 1070.9 | 1080.7 | 1105.9 | 1118.0 | 1130.0 | 1080.7 | 1056.6 | 1133.3 | 1125.6 |
| 5° | 1505.6 | 1457.4 | 1403.7 | 1396.1 | 1399.4 | 1352.3 | 1379.6 | 1367.6 | 1373.1 | 1422.4 | 1432.2 |
| 7.5° | 1803.4 | 1745.4 | 1674.2 | 1618.4 | 1522.0 | 1445.3 | 1510.0 | 1542.8 | 1552.7 | 1640.3 | 1673.1 |
| 10° | 1964.4 | 1915.1 | 1894.3 | 1789.2 | 1757.4 | 1747.6 | 1732.2 | 1679.7 | 1737.7 | 1716.9 | 1733.3 |
| 12.5° | 2279.7 | 2269.9 | 2161.5 | 2092.5 | 2099.0 | 2117.7 | 2021.3 | 1968.7 | 1893.2 | 2011.4 | 1968.7 |
| 15° | 2548.0 | 2590.7 | 2482.3 | 2356.4 | 2293.9 | 2325.7 | 2252.3 | 2175.7 | 2107.8 | 2143.9 | 2097.9 |
| 17.5° | 2890.7 | 2889.6 | 2678.3 | 2543.6 | 2538.1 | 2535.9 | 2427.5 | 2258.9 | 2339.9 | 2314.7 | 2316.9 |
| 20° | 3072.5 | 3042.9 | 2780.1 | 2624.6 | 2757.1 | 2710.0 | 2612.6 | 2395.8 | 2489.9 | 2520.6 | 2540.3 |
| 22.5° | 3224.7 | 3208.2 | 2889.6 | 2775.7 | 2861.1 | 2862.2 | 2764.8 | 2650.9 | 2638.9 | 2734.1 | 2682.7 |
| 25° | 3330.9 | 3396.6 | 3096.5 | 3069.2 | 3106.4 | 3069.2 | 2973.9 | 2899.5 | 2851.3 | 2993.6 | 2851.3 |
| 27.5° | 3582.7 | 3489.6 | 3128.3 | 3283.8 | 3306.8 | 3119.5 | 3238.9 | 3151.3 | 3017.7 | 3194.0 | 3252.0 |
| 30° | 3762.3 | 3817.0 | 3351.7 | 3586.0 | 3558.6 | 3385.6 | 3434.9 | 3431.6 | 3271.7 | 3615.6 | 3575.0 |
| 32.5° | 4071.1 | 4005.4 | 3716.3 | 3697.7 | 3763.4 | 3755.7 | 3672.5 | 3713.0 | 3752.4 | 4002.1 | 4062.3 |
| 35° | 4387.5 | 4457.6 | 3949.5 | 4075.4 | 4056.8 | 3938.6 | 4156.5 | 4131.3 | 4248.4 | 4760.9 | 4591.2 |
| 37.5° | 5101.4 | 4767.5 | 4472.9 | 4456.5 | 4581.3 | 4599.9 | 4529.9 | 4640.4 | 4893.4 | 5287.6 | 5469.3 |
| 40° | 5569.0 | 5416.8 | 4916.4 | 4936.1 | 4763.1 | 5060.9 | 4863.8 | 5219.7 | 5412.4 | 6077.0 | 6012.4 |
| 42.5° | 6276.3 | 5905.1 | 5424.4 | 5490.1 | 5455.1 | 5311.7 | 5571.2 | 5754.0 | 6029.9 | 6536.9 | 6864.3 |
| 45° | 6803.0 | 6293.8 | 6066.1 | 6025.6 | 6021.2 | 6270.8 | 6238.0 | 6530.3 | 6628.9 | 7009.9 | 7281.5 |
| 47.5° | 7202.6 | 6770.1 | 6432.9 | 6478.9 | 6345.3 | 7058.1 | 6678.2 | 6769.0 | 6968.3 | 7327.5 | 7643.9 |
| 50° | 7676.8 | 7195.0 | 6811.7 | 6925.6 | 7250.8 | 7524.6 | 7180.7 | 7025.3 | 7122.7 | 7546.5 | 7899.0 |
| 52.5° | 8115.8 | 7608.9 | 7187.3 | 7282.6 | 7813.6 | 7688.8 | 7651.6 | 7258.5 | 7246.4 | 7587.0 | 7987.7 |
| 55° | 8629.4 | 8057.8 | 7685.5 | 7987.7 | 8176.1 | 8021.7 | 7962.6 | 7484.1 | 7188.4 | 7377.8 | 7755.6 |
| 57.5° | 9133.1 | 8502.4 | 8132.3 | 8194.7 | 8433.4 | 8280.1 | 7836.6 | 7099.7 | 6730.7 | 6767.9 | 7150.1 |
| 60° | 9605.0 | 8910.8 | 8605.3 | 8545.1 | 8735.6 | 8134.5 | 7358.1 | 6395.7 | 5906.2 | 5816.4 | 6147.1 |
| 62.5° | 10009.0 | 9252.4 | 8963.3 | 8799.1 | 8980.9 | 8139.9 | 6612.5 | 5265.7 | 4728.0 | 4423.6 | 4681.0 |
| 65° | 10329.9 | 9536.0 | 9330.2 | 9244.7 | 9310.4 | 7645.0 | 5450.7 | 3866.3 | 3207.1 | 2869.9 | 3019.9 |
| 67.5° | 10543.4 | 9694.8 | 9600.6 | 9712.3 | 8836.3 | 6367.2 | 4038.2 | 2474.6 | 1864.7 | 1680.8 | 1774.9 |
| 70° | 10764.6 | 9834.9 | 9831.6 | 9451.7 | 7492.8 | 4389.7 | 2358.5 | 1426.7 | 1085.1 | 1013.9 | 1073.1 |
| 72.5° | 10690.1 | 9668.5 | 9717.8 | 8265.9 | 5192.3 | 2346.5 | 1245.0 | 807.0 | 734.7 | 759.9 | 812.5 |
| 75° | 9899.5 | 8790.3 | 8552.7 | 5942.3 | 2945.4 | 1090.6 | 717.2 | 611.0 | 606.6 | 644.9 | 696.4 |
| 77.5° | 7180.7 | 6121.9 | 5493.4 | 3368.1 | 1262.5 | 590.2 | 527.8 | 510.3 | 510.3 | 540.9 | 586.9 |
| 80° | 2367.3 | 2048.7 | 2135.2 | 1303.0 | 596.8 | 407.3 | 411.7 | 419.4 | 417.2 | 424.8 | 463.2 |
| 82.5° | 388.7 | 402.9 | 623.0 | 532.2 | 360.2 | 278.1 | 311.0 | 326.3 | 330.7 | 295.6 | 336.2 |
| 85° | 138.0 | 155.5 | 265.0 | 246.4 | 208.0 | 140.2 | 204.8 | 228.8 | 225.6 | 197.1 | 217.9 |
| 87.5° | 42.7 | 54.7 | 96.4 | 74.5 | 62.4 | 38.3 | 76.6 | 89.8 | 112.8 | 46.0 | 41.6 |
| 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)