

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: P367644

Luminaire Tested: **MSA-SA2D-830-U-SLL**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P367644
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-24)
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: MSA-SA2D-830-U-SLL
Description: MESA POST TOP DECORATIVE LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND SPILL LIGHT ELIMINATOR LEFT OPTICS.
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9181 lumens
Efficiency: N/A
Efficacy: 71.2 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B2 - U0 - G3

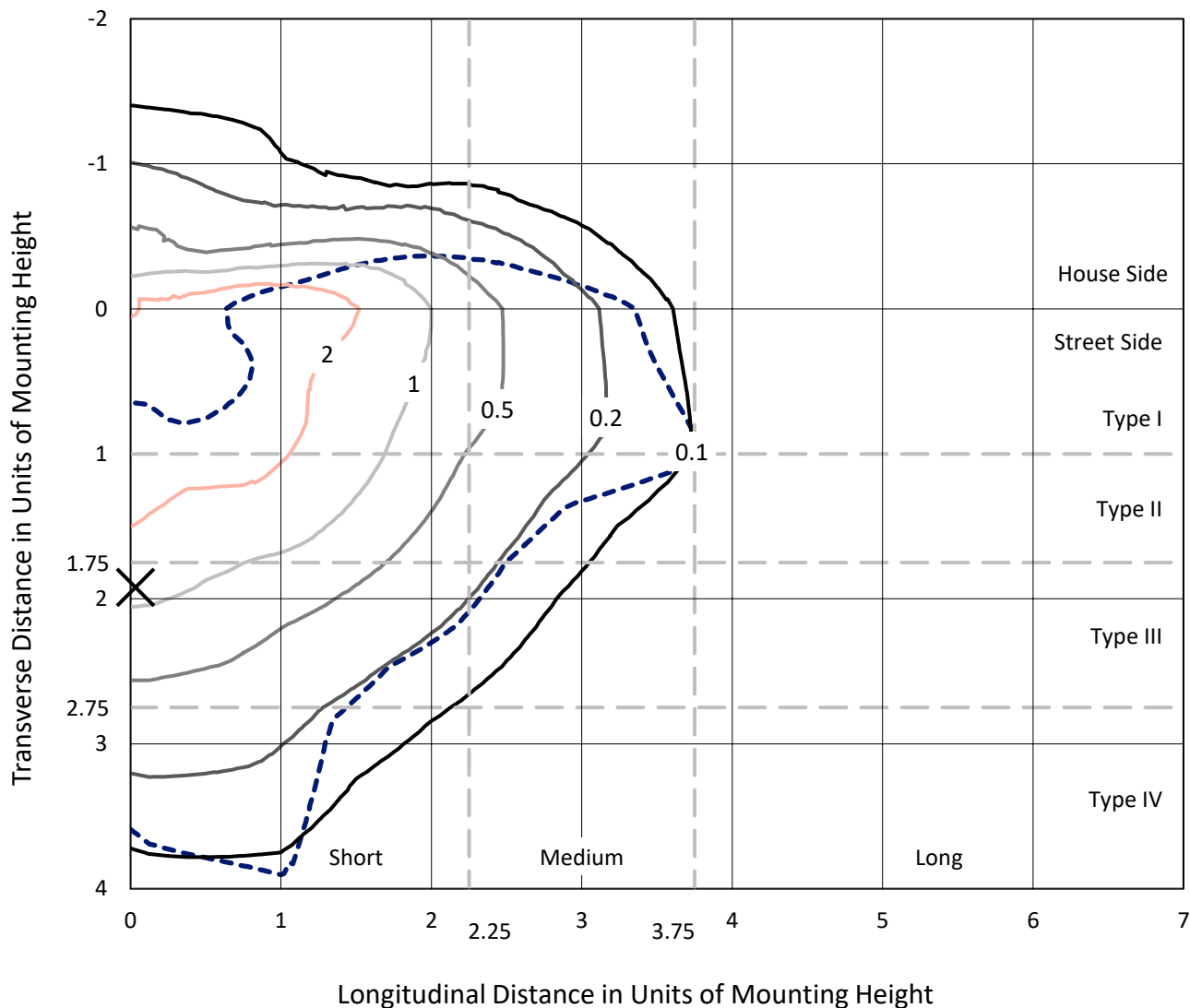
Input Watts (W): 129
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P367644
 CATALOG NUMBER: MSA-SA2D-830-U-SLL

Iso-Footcandle Lines of Horizontal Illumination

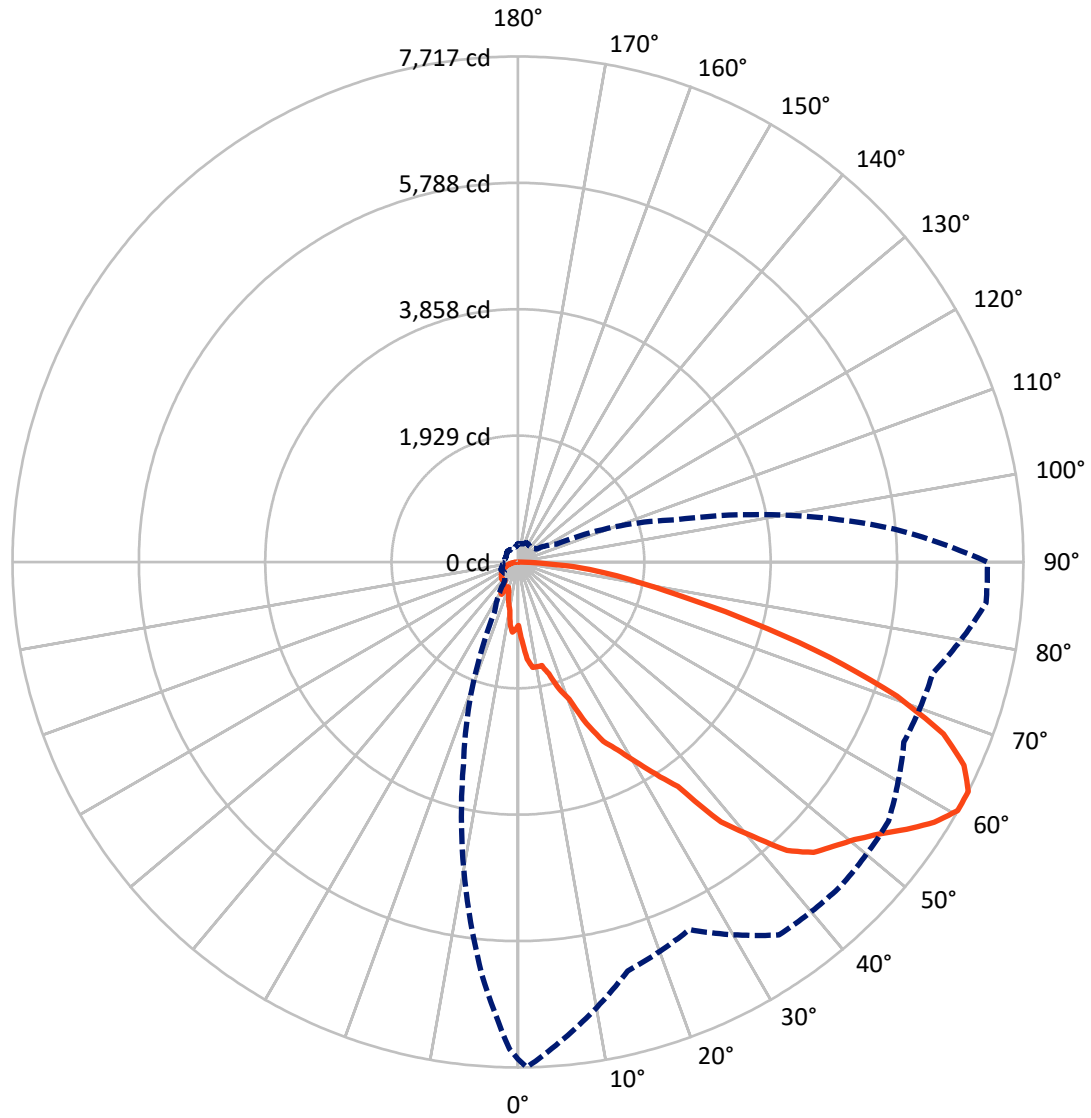
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 3.9 fc
 Type IV - Short - N/A

REPORT NUMBER: P367644
CATALOG NUMBER: MSA-SA2D-830-U-SLL

Luminous Intensity Polar Plot



— Vertical Plane Through 1-Deg Lateral - - - Horizontal Cone Through 62.5-Deg Vertical

REPORT NUMBER: P367644

CATALOG NUMBER: MSA-SA2D-830-U-SLL

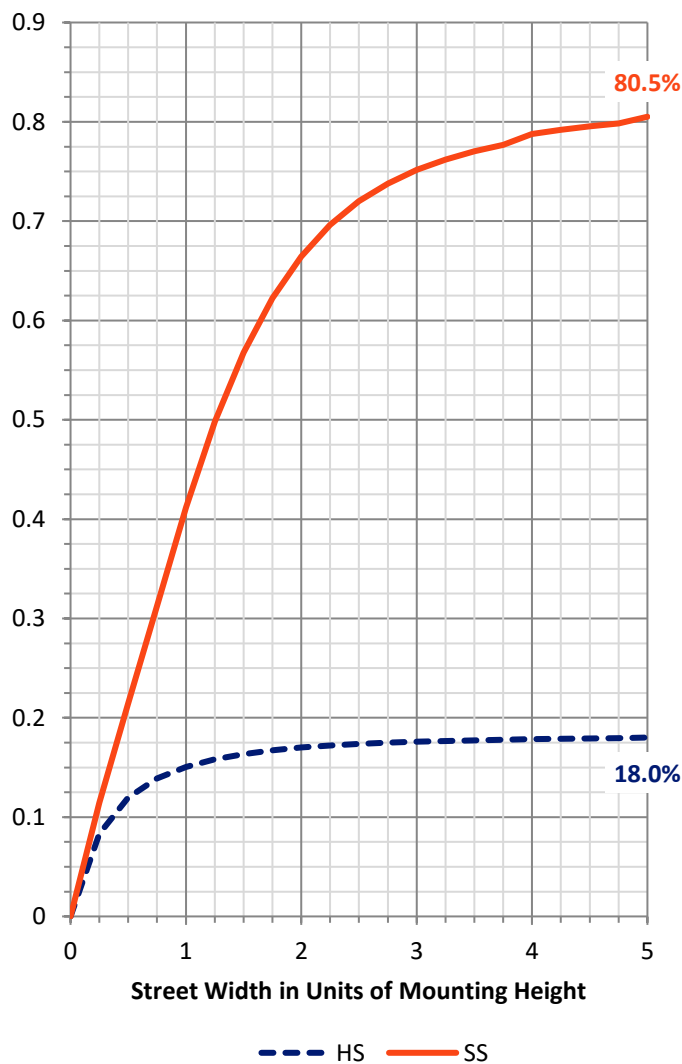
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1671.8	0.0	1671.8
	% Fixture	18.2	0.0	18.2
Street Side	Lumens	7509.2	0.0	7509.2
	% Fixture	81.8	0.0	81.8
Total	Lumens	9181.0	0.0	9181.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	111.0	1.2
10°-20°	322.5	3.5
20°-30°	569.4	6.2
30°-40°	886.9	9.7
40°-50°	1460.3	15.9
50°-60°	2084.3	22.7
60°-70°	2210.1	24.1
70°-80°	1220.8	13.3
80°-90°	315.8	3.4
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°	9181.0	100.0
0°-180°	9181.0	100.0

Coefficient of Utilization



REPORT NUMBER: P367644

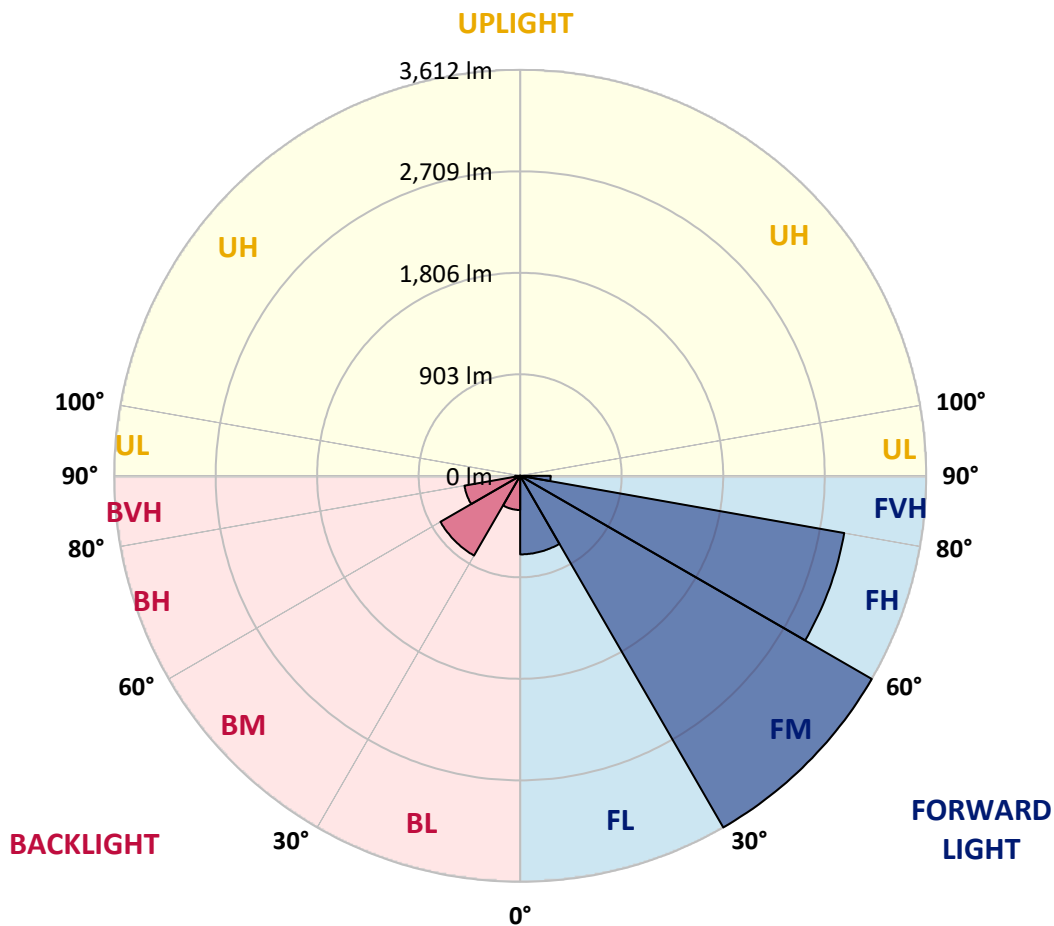
CATALOG NUMBER: MSA-SA2D-830-U-SLL

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	698.8	7.6			
FM (30°-60°)	3611.9	39.3			
FH (60°-80°)	2927.3	31.9			G2/5000
FVH (80°-90°)	271.2	3.0			G3/500
BL (0°-30°)	304.1	3.3	B1/500		
BM (30°-60°)	819.6	8.9	B1/1000		
BH (60°-80°)	503.7	5.5	B2/1000		G2/1000
BVH (80°-90°)	44.5	0.5			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G3

Type IV Short





REPORT NUMBER: P367644

CATALOG NUMBER: MSA-SA2D-830-U-SLL

CANDELA DISTRIBUTION (FULL):

	0°	1°	5°	15°	25°	35°	45°	55°	65°	75°	85°
0°	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1
2.5°	1190.4	1200.7	1179.8	1156.1	1058.6	1152.6	1124.5	1176.6	1159.7	1046.5	1253.7
5°	1471.1	1489.8	1469.3	1540.2	1544.6	1562.9	1394.0	1499.2	1462.7	1453.3	1558.0
7.5°	1606.6	1625.7	1677.8	1803.9	1902.4	1813.3	1714.8	1693.0	1664.5	1590.1	1653.3
10°	1615.0	1625.7	1695.7	1963.0	2010.7	2073.9	2010.2	1860.1	1798.1	1636.4	1588.3
12.5°	1589.6	1623.0	1713.5	2039.2	2180.8	2249.9	2265.5	2098.4	1946.5	1762.1	1737.5
15°	1760.3	1772.3	1901.9	2093.5	2191.1	2249.5	2300.2	2197.3	2149.7	2003.5	1807.1
17.5°	2004.9	2038.3	2144.3	2215.2	2281.1	2292.2	2250.4	2210.3	2134.5	2329.7	2120.7
20°	2170.6	2235.2	2365.3	2378.7	2240.1	2264.6	2258.8	2261.5	2218.3	2579.1	2464.2
22.5°	2609.0	2678.9	2696.8	2619.2	2358.2	2246.3	2268.6	2333.2	2503.4	2812.6	2942.7
25°	3006.0	3033.1	3195.8	2996.2	2580.0	2336.3	2299.8	2466.9	2744.4	3205.6	3298.2
27.5°	3213.1	3248.3	3356.6	2922.2	2607.7	2220.5	2135.0	2389.4	2672.3	3020.7	3427.4
30°	3478.2	3534.4	3681.8	2996.2	2691.0	2296.2	2106.9	2350.1	2662.9	3141.8	3701.0
32.5°	3751.3	3860.5	3970.1	3256.8	2679.4	2412.1	2286.4	2306.0	2747.6	3395.8	3984.3
35°	4113.1	4209.3	4303.8	3407.4	2912.8	2508.8	2384.0	2591.6	2965.0	3690.3	4379.5
37.5°	4886.5	5038.9	4789.8	3836.0	3166.8	2944.5	2719.5	2842.5	3194.9	3935.8	5025.1
40°	5379.3	5493.8	5253.2	4127.8	3614.1	3238.1	3201.1	3211.3	3511.6	4146.1	5459.5
42.5°	5868.9	6024.0	5641.2	4528.3	4155.0	3844.4	3653.8	3640.8	3866.3	4523.9	5953.6
45°	6234.2	6325.6	5774.5	4866.0	4735.0	4504.7	4361.7	4134.9	4332.3	4785.4	6259.2
47.5°	6408.0	6482.4	5988.8	5062.5	5111.1	5123.1	5381.1	4994.3	4739.5	4962.3	6419.6
50°	6625.0	6660.2	6114.8	5235.4	5468.4	5996.8	6058.7	5403.3	5136.0	5155.2	6514.5
52.5°	6884.3	6899.0	6298.8	5435.0	5829.7	6571.5	6475.7	6096.6	5513.4	5507.6	6693.1
55°	7210.4	7201.5	6529.6	5703.6	6087.7	6913.2	6840.6	6564.4	5924.6	5799.4	6971.1
57.5°	7500.4	7495.1	6835.7	5950.9	6304.6	7088.8	7110.1	7037.1	6204.4	6008.4	7272.3
60°	7642.5	7710.7	7184.1	6221.3	6318.4	7168.1	7176.1	7059.8	6517.1	6276.6	7352.5
62.5°	7587.3	7716.9	7355.2	6464.6	6191.5	6951.5	6985.0	6904.8	6502.9	6558.1	7173.4
65°	7336.0	7485.7	7206.8	6594.2	6113.5	6588.9	6597.3	6394.6	6299.3	6744.8	6753.7
67.5°	6864.7	7005.0	6734.6	6387.5	5579.8	5611.4	5800.3	5816.8	5677.8	6604.0	6164.3
70°	6039.5	6138.5	5969.2	5876.9	4663.8	4478.4	4683.4	4771.1	4834.4	6095.7	5456.8
72.5°	4781.4	4972.5	4999.2	5059.4	3754.9	3446.1	3598.1	3468.0	3880.1	5188.1	4458.4
75°	3537.5	3698.8	3872.1	4207.5	2959.6	2580.0	2561.3	2494.9	2879.9	4172.3	3306.7
77.5°	2499.8	2602.8	2736.0	3361.0	2233.4	1987.0	1998.6	1931.4	2079.7	3153.4	2284.2
80°	1791.9	1845.8	1907.7	2214.3	1647.6	1714.4	1716.2	1652.5	1546.4	2141.6	1524.6
82.5°	1276.9	1318.8	1389.6	1460.4	1228.3	1405.2	1403.9	1399.8	1226.1	1447.5	953.9
85°	711.1	767.2	890.2	1144.1	887.0	1004.7	883.5	973.0	900.0	963.7	482.9
87.5°	49.9	44.6	199.1	662.9	413.9	302.5	158.6	314.1	402.8	503.4	67.3
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: P367644
 CATALOG NUMBER: MSA-SA2D-830-U-SLL

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1
2.5°	1296.5	1312.1	1251.0	1159.3	1184.2	1157.0	1122.7	1069.3	959.2	1027.4	1027.8
5°	1557.1	1497.9	1450.2	1405.2	1329.4	1214.9	1199.8	1108.0	1056.3	1083.5	1079.5
7.5°	1638.6	1554.4	1482.7	1321.9	1181.5	1003.8	950.3	896.0	873.2	939.2	965.5
10°	1549.1	1461.3	1390.9	1195.3	1100.0	989.1	842.0	766.7	722.2	739.6	749.8
12.5°	1621.3	1531.7	1310.3	1201.1	1043.9	976.1	847.4	736.9	671.0	687.0	667.8
15°	1690.8	1570.0	1348.6	1131.2	1003.8	905.8	801.5	687.4	609.9	582.3	567.6
17.5°	1944.7	1744.2	1344.2	1092.0	945.9	833.1	707.5	582.7	531.1	502.6	478.0
20°	2254.4	1975.0	1368.2	1051.4	884.4	742.2	605.5	489.6	453.5	434.8	428.2
22.5°	2622.8	2270.8	1505.9	1045.6	826.5	675.9	549.3	477.2	436.6	416.1	407.7
25°	2915.5	2576.9	1607.5	1084.9	823.3	621.1	515.5	530.2	511.5	517.7	468.2
27.5°	3199.8	2660.2	1550.4	1067.5	740.5	523.9	507.5	538.2	554.2	559.1	557.4
30°	3439.9	3012.2	1562.9	969.5	625.5	426.8	388.5	403.6	447.8	517.7	531.1
32.5°	3791.4	3180.6	1669.4	910.2	559.1	381.8	339.0	333.3	343.5	368.9	390.7
35°	4202.6	3568.2	1699.2	894.6	513.2	361.8	331.9	318.6	323.9	343.1	347.5
37.5°	4969.4	3850.7	1809.7	875.5	496.3	349.7	326.6	321.7	333.3	348.8	357.8
40°	5392.2	4358.6	1815.1	859.0	474.5	344.8	330.1	327.9	335.0	356.4	361.8
42.5°	5955.8	4648.2	1898.8	839.8	466.9	351.5	337.3	336.4	342.6	355.1	364.9
45°	6299.3	4842.0	1903.3	828.7	465.1	380.9	346.6	343.5	342.2	349.7	358.6
47.5°	6520.7	5121.3	1957.6	816.2	475.8	388.5	357.8	344.4	339.9	343.1	349.7
50°	6730.6	5344.5	2060.6	814.4	487.0	380.9	377.4	343.9	335.0	333.7	338.6
52.5°	6988.1	5711.6	2187.5	831.4	484.3	369.8	392.1	342.2	326.1	323.0	327.9
55°	7362.8	6105.0	2322.5	817.1	456.7	348.4	377.8	340.8	316.8	311.0	315.4
57.5°	7605.6	6330.5	2473.6	805.1	414.8	332.4	364.9	341.7	317.7	304.7	307.4
60°	7524.9	6209.3	2532.8	731.6	375.1	319.9	334.1	334.6	309.6	297.6	299.8
62.5°	7168.5	5770.4	2477.6	646.0	345.7	302.1	302.5	321.2	286.5	278.0	281.6
65°	6670.4	5224.7	2253.9	590.3	331.9	283.4	276.2	282.0	255.3	249.0	256.2
67.5°	6059.1	4551.9	1921.1	531.5	327.0	258.0	249.5	247.3	230.3	223.2	230.3
70°	5292.4	3811.5	1535.7	490.1	308.3	230.3	223.7	221.4	207.2	201.8	208.1
72.5°	4253.9	2976.1	1185.1	458.4	287.8	204.9	199.1	196.5	184.4	176.9	184.4
75°	3025.6	2274.4	880.4	409.9	258.9	179.1	172.4	168.9	157.7	150.6	157.3
77.5°	2150.1	1707.3	614.8	339.0	213.4	151.5	147.5	141.7	131.9	123.4	130.1
80°	1589.6	1219.8	396.5	261.5	163.1	121.2	119.0	114.9	105.6	95.3	100.2
82.5°	1046.5	879.5	227.2	177.3	118.5	87.3	89.1	86.4	77.5	66.8	69.5
85°	468.7	520.8	120.7	97.6	77.1	52.6	57.5	55.7	49.0	38.8	39.7
87.5°	45.0	87.8	37.0	35.6	28.5	16.5	20.5	17.4	14.7	9.4	7.1
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: P367644
 CATALOG NUMBER: MSA-SA2D-830-U-SLL

CANDELA DISTRIBUTION (continued):

	185°	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°
0°	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1
2.5°	1043.4	980.6	917.8	956.1	957.0	967.2	968.6	930.7	961.0	984.2	1008.2
5°	1059.9	1018.9	1021.1	984.2	964.1	990.0	984.6	974.4	992.6	1018.0	1048.8
7.5°	940.5	913.8	909.3	873.7	787.2	768.1	784.1	790.8	815.3	854.5	887.5
10°	734.2	787.2	727.5	713.7	691.0	646.5	620.6	617.5	669.6	701.3	728.9
12.5°	661.6	648.2	641.1	603.2	603.2	556.0	540.9	554.7	634.9	657.6	693.2
15°	563.6	553.8	520.8	502.1	493.2	474.0	490.1	503.4	578.3	580.1	617.5
17.5°	467.8	462.0	430.8	427.3	418.3	409.9	424.6	456.7	497.2	490.1	507.5
20°	418.3	398.3	369.8	380.0	370.7	364.0	357.8	403.2	431.7	441.1	451.3
22.5°	405.9	369.3	352.4	343.1	343.5	332.8	334.1	372.0	415.2	421.0	414.8
25°	463.8	398.7	343.9	316.8	306.5	303.0	313.2	346.6	398.7	411.2	416.1
27.5°	542.7	433.1	354.2	307.9	287.4	289.1	303.8	327.0	388.5	410.8	416.6
30°	520.8	407.2	354.6	301.2	275.8	285.1	290.5	312.8	380.5	413.9	442.9
32.5°	401.9	366.2	356.9	306.5	296.3	281.6	289.1	310.5	356.9	377.8	379.1
35°	340.4	313.2	307.0	294.5	280.2	274.0	282.5	301.2	331.5	344.4	342.6
37.5°	337.7	307.9	283.4	278.0	272.2	270.4	275.3	292.7	323.5	346.2	341.3
40°	342.2	305.2	280.2	270.9	273.1	265.1	270.0	291.4	324.8	346.2	341.7
42.5°	336.8	302.1	276.2	269.1	271.3	260.2	266.0	288.3	321.2	346.6	338.2
45°	326.1	294.9	274.0	262.0	272.2	255.7	262.9	280.2	310.5	338.2	328.4
47.5°	315.4	286.5	264.6	257.1	267.3	251.3	254.4	269.5	299.8	327.0	318.6
50°	303.8	275.8	257.1	254.8	262.0	250.4	245.5	258.0	286.9	314.1	307.0
52.5°	291.4	266.9	251.7	250.8	257.5	244.6	237.5	247.3	273.1	300.3	294.5
55°	279.3	257.1	245.0	247.3	254.8	239.7	230.8	237.0	258.4	285.1	277.1
57.5°	267.3	245.9	236.1	242.4	248.2	233.5	222.3	225.9	243.3	269.5	260.2
60°	256.6	236.1	226.3	233.9	239.2	224.1	211.2	213.4	229.0	252.6	244.1
62.5°	242.8	225.4	212.5	222.3	226.3	211.6	197.8	200.5	213.0	235.2	229.0
65°	223.2	212.1	200.0	206.7	212.1	196.9	184.0	187.1	196.5	217.4	213.0
67.5°	206.3	195.6	187.6	192.9	193.8	182.2	170.6	172.4	180.0	199.6	194.7
70°	187.6	177.3	171.1	175.1	174.6	164.8	155.9	156.4	162.6	180.4	173.8
72.5°	167.1	157.3	154.2	156.4	154.6	145.7	137.2	140.3	144.4	157.7	152.4
75°	145.2	136.3	134.5	136.8	134.1	125.6	118.1	121.2	124.7	135.9	129.2
77.5°	122.5	114.5	114.9	115.4	111.8	106.0	98.5	101.6	103.8	111.4	104.7
80°	97.6	91.3	93.1	93.1	89.1	85.1	78.0	78.9	80.2	82.9	78.0
82.5°	71.3	71.3	71.3	71.7	63.3	64.6	58.4	57.9	56.6	56.1	53.0
85°	42.3	44.1	45.0	46.3	34.3	40.1	34.8	33.4	30.7	28.1	27.2
87.5°	9.4	12.0	12.0	11.6	0.0	4.5	2.2	3.6	0.9	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



REPORT NUMBER: P367644
 CATALOG NUMBER: MSA-SA2D-830-U-SLL

CANDELA DISTRIBUTION (continued):

	285°	295°	305°	315°	325°	335°	345°	355°	359°	360°
0°	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1	968.1
2.5°	980.6	953.9	1003.8	1048.3	1041.2	1067.0	1006.9	1096.0	1190.4	1190.4
5°	1040.7	1018.0	1030.9	1056.8	1076.4	1166.4	1241.2	1315.6	1469.3	1471.1
7.5°	877.7	926.7	938.3	930.7	1014.9	1130.7	1254.2	1466.2	1596.3	1606.6
10°	820.7	842.9	878.1	897.7	932.0	1046.1	1199.4	1451.1	1589.2	1615.0
12.5°	743.6	826.0	879.5	989.1	1016.2	1039.0	1282.7	1500.5	1595.9	1589.6
15°	659.4	721.8	798.8	920.0	989.1	1162.8	1332.1	1659.1	1713.0	1760.3
17.5°	525.7	571.6	674.1	812.2	983.3	1143.2	1454.2	1855.2	1955.9	2004.9
20°	432.6	433.1	535.5	718.6	904.9	1061.2	1500.5	2017.8	2145.7	2170.6
22.5°	409.0	388.5	442.4	591.2	818.4	1109.8	1594.1	2279.3	2546.2	2609.0
25°	396.1	371.1	405.0	521.7	756.5	1135.2	1782.5	2638.8	2981.5	3006.0
27.5°	401.4	413.0	423.7	465.1	678.1	1087.5	1738.9	2799.7	3166.8	3213.1
30°	437.5	456.2	431.7	446.0	613.5	1018.5	1816.9	3060.8	3400.3	3478.2
32.5°	364.0	356.9	354.6	385.8	548.9	956.1	1980.4	3428.3	3653.3	3751.3
35°	328.4	317.2	321.7	357.3	517.3	947.2	2072.1	3732.6	4052.9	4113.1
37.5°	327.0	314.1	319.9	346.6	528.4	963.2	2219.2	4220.9	4757.8	4886.5
40°	323.9	316.8	319.9	339.9	516.8	972.1	2303.8	4631.2	5248.7	5379.3
42.5°	323.5	319.9	323.0	345.3	504.8	976.1	2421.0	5001.9	5766.0	5868.9
45°	322.1	325.7	325.7	349.7	499.4	1002.9	2490.0	5183.7	6107.3	6234.2
47.5°	315.9	326.6	343.9	348.4	477.6	990.4	2587.6	5459.5	6288.6	6408.0
50°	307.9	325.2	367.1	339.5	474.0	960.1	2701.7	5678.2	6521.2	6625.0
52.5°	297.2	323.0	361.8	322.1	467.8	954.8	2861.6	5962.5	6792.5	6884.3
55°	282.0	315.0	345.3	304.7	452.7	937.8	3106.2	6314.9	7147.6	7210.4
57.5°	268.2	303.0	321.2	294.9	416.6	941.4	3276.4	6602.2	7445.6	7500.4
60°	255.7	301.6	286.9	284.7	379.6	893.7	3331.6	6599.1	7556.6	7642.5
62.5°	242.4	284.7	262.9	270.9	347.1	844.7	3214.5	6316.2	7436.7	7587.3
65°	225.0	244.1	242.8	261.1	348.0	765.0	2945.8	5817.2	7137.8	7336.0
67.5°	204.5	216.1	223.7	245.0	359.1	703.0	2513.7	5217.1	6629.0	6864.7
70°	183.6	195.1	203.6	224.1	369.3	674.5	2000.9	4374.2	5800.3	6039.5
72.5°	162.2	174.2	180.9	198.7	355.5	613.5	1480.9	3403.4	4655.7	4781.4
75°	139.9	151.5	156.8	173.3	308.7	507.5	1022.5	2577.8	3410.1	3537.5
77.5°	117.2	129.6	131.4	144.8	235.7	388.1	655.4	1977.2	2414.7	2499.8
80°	93.6	106.0	106.0	113.2	165.7	266.9	392.5	1491.6	1758.5	1791.9
82.5°	67.3	80.6	79.7	80.2	114.5	165.3	227.2	1117.8	1270.6	1276.9
85°	39.7	49.0	48.6	44.6	67.7	89.1	123.0	694.1	709.3	711.1
87.5°	7.6	11.6	10.2	4.5	18.7	26.3	35.6	128.8	51.2	49.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)