

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: P368612

Luminaire Tested: **MSA-SA4D-730-U-SLL**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P368612  
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-SA4D-730-U-SLL  
Description: MESA POST TOP DECORATIVE LUMINAIRE. (4) 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: 20524 lumens  
Efficiency: N/A  
Efficacy: 79.2 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B3 - U0 - G4

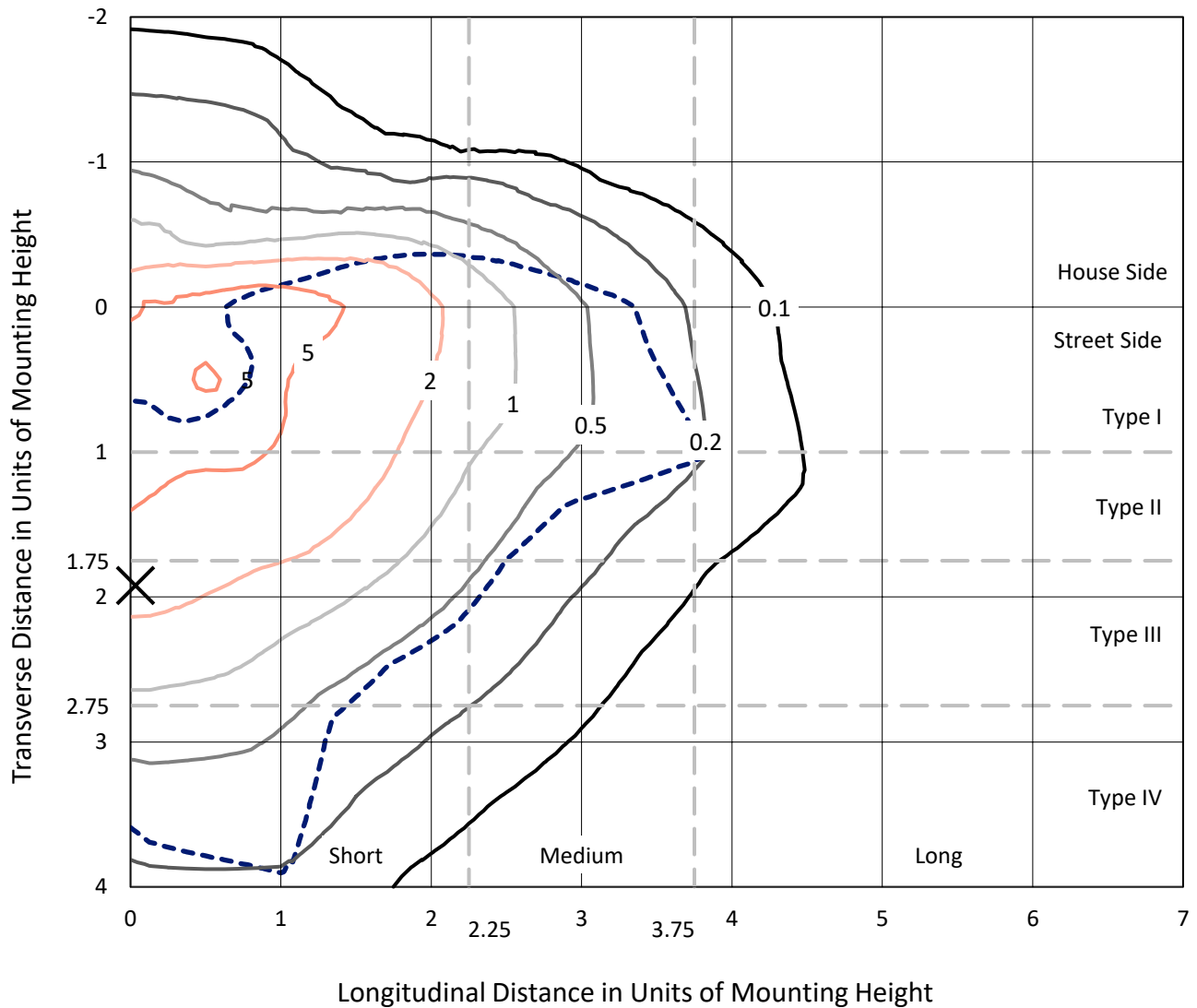
Input Watts (W): 259  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



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### Iso-Footcandle Lines of Horizontal Illumination

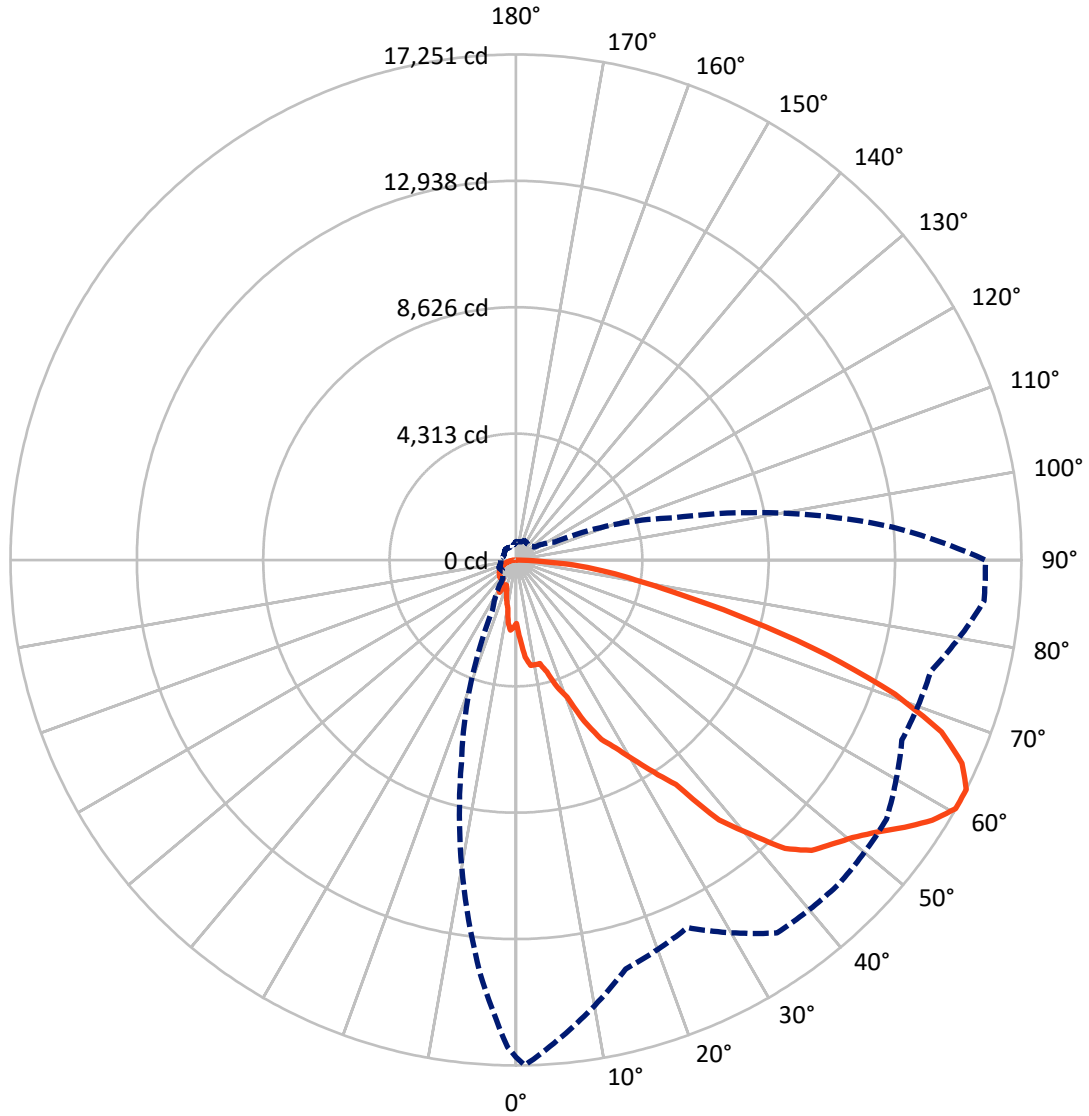
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8.7 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



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

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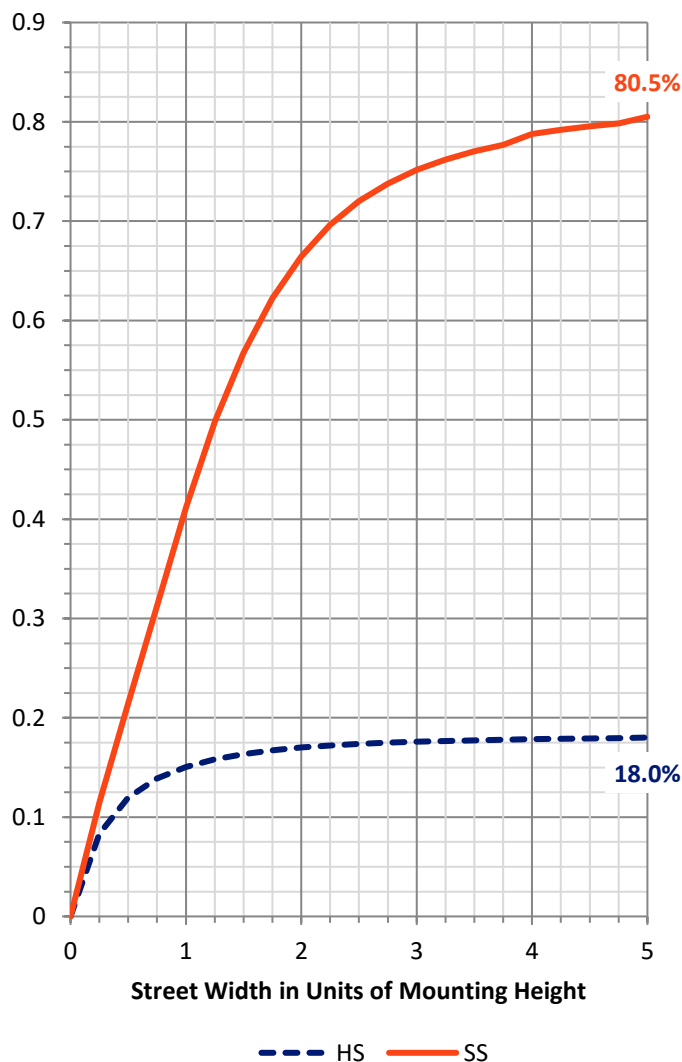
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	3737.3	0.0	3737.3
	% Fixture	18.2	0.0	18.2
<b>Street Side</b>	Lumens	16786.7	0.0	16786.7
	% Fixture	81.8	0.0	81.8
<b>Total</b>	Lumens	20524.0	0.0	20524.0
	% Fixture	100.0	0.0	100.0

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	248.1	1.2
10°-20°	720.9	3.5
20°-30°	1272.8	6.2
30°-40°	1982.6	9.7
40°-50°	3264.5	15.9
50°-60°	4659.3	22.7
60°-70°	4940.8	24.1
70°-80°	2729.1	13.3
80°-90°	705.9	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°	20524.0	100.0
0°-180°	20524.0	100.0

**Coefficient of Utilization**

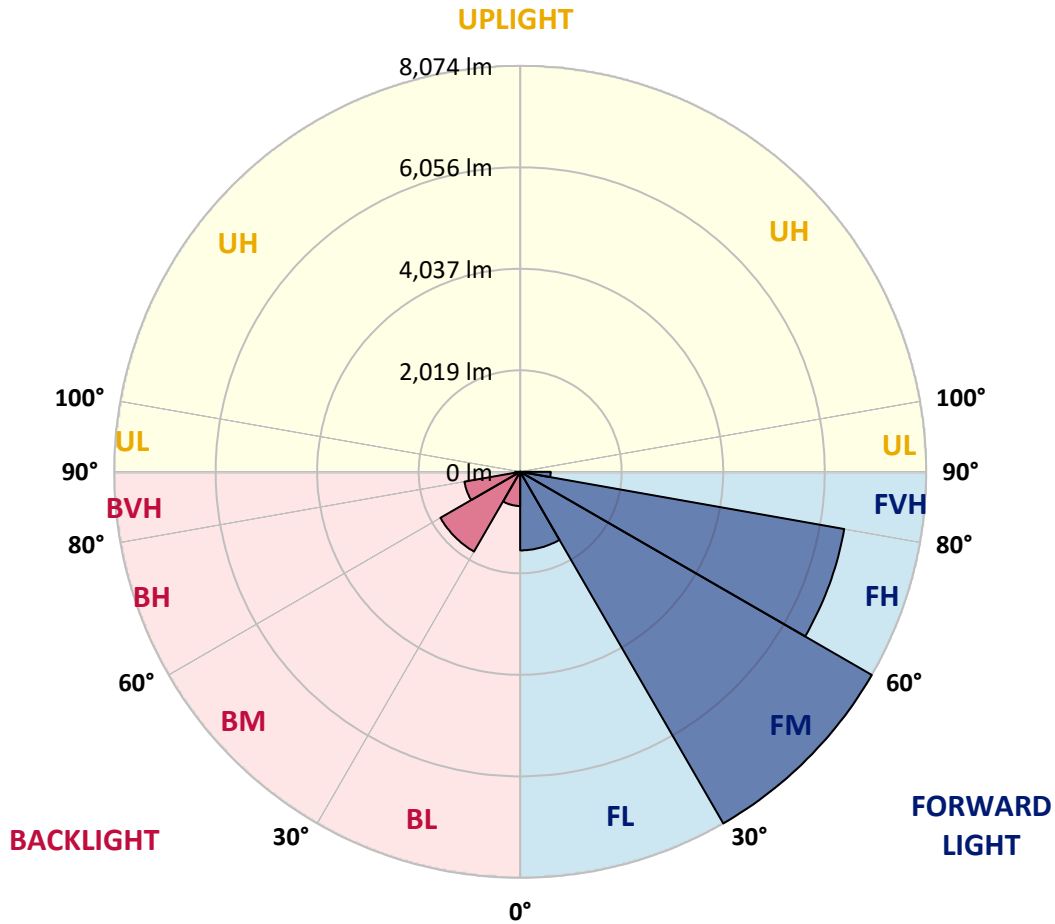


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	1562.2	7.6			
FM (30°-60°)	8074.3	39.3			
FH (60°-80°)	6543.9	31.9			G3/7500
FVH (80°-90°)	606.3	3.0			G4/750
BL (0°-30°)	679.7	3.3	B2/1000		
BM (30°-60°)	1832.1	8.9	B2/2500		
BH (60°-80°)	1125.9	5.5	B3/2500		G3/2500
BVH (80°-90°)	99.5	0.5			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B3-U0-G4**  
 Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	1°	5°	15°	25°	35°	45°	55°	65°	75°	85°
0°	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2
2.5°	2661.2	2684.1	2637.3	2584.5	2366.4	2576.6	2513.8	2630.3	2592.5	2339.5	2802.6
5°	3288.7	3330.5	3284.7	3443.1	3453.0	3493.9	3116.4	3351.4	3269.8	3248.8	3482.9
7.5°	3591.5	3634.3	3750.8	4032.7	4252.8	4053.6	3833.5	3784.7	3720.9	3554.6	3696.0
10°	3610.4	3634.3	3790.6	4388.2	4494.8	4636.2	4493.8	4158.2	4019.7	3658.2	3550.6
12.5°	3553.6	3628.3	3830.5	4558.5	4875.3	5029.6	5064.5	4691.0	4351.4	3939.0	3884.3
15°	3935.1	3962.0	4251.8	4680.0	4898.2	5028.6	5142.2	4912.1	4805.5	4478.9	4039.6
17.5°	4481.8	4556.5	4793.6	4951.9	5099.3	5124.2	5030.6	4941.0	4771.7	5207.9	4740.8
20°	4852.3	4996.8	5287.6	5317.5	5007.7	5062.5	5049.6	5055.5	4958.9	5765.6	5508.7
22.5°	5832.4	5988.7	6028.6	5855.3	5271.7	5021.7	5071.5	5215.9	5596.3	6287.5	6578.4
25°	6719.8	6780.5	7144.1	6697.9	5767.6	5222.8	5141.2	5514.7	6135.2	7166.0	7373.1
27.5°	7182.9	7261.6	7503.6	6532.5	5829.4	4963.9	4772.7	5341.4	5973.8	6752.7	7662.0
30°	7775.5	7901.0	8230.7	6697.9	6015.6	5133.2	4709.9	5253.7	5952.9	7023.6	8273.5
32.5°	8386.0	8630.0	8875.1	7280.5	5989.7	5392.2	5111.3	5155.1	6142.1	7591.3	8906.9
35°	9194.8	9409.9	9621.0	7617.2	6511.6	5608.3	5329.4	5793.5	6628.2	8249.6	9790.4
37.5°	10923.8	11264.4	10707.6	8575.3	7079.3	6582.3	6079.4	6354.3	7142.1	8798.4	11233.5
40°	12025.3	12281.3	11743.4	9227.6	8079.3	7238.7	7156.0	7178.9	7850.2	9268.5	12204.6
42.5°	13119.9	13466.5	12610.9	10123.0	9288.4	8594.2	8167.9	8139.0	8643.0	10113.0	13309.1
45°	13936.6	14140.7	12908.7	10877.9	10585.1	10070.2	9750.5	9243.6	9684.8	10697.7	13992.3
47.5°	14325.0	14491.3	13387.8	11317.2	11425.7	11452.6	12029.3	11164.8	10595.1	11093.1	14350.9
50°	14810.0	14888.7	13669.6	11703.6	12224.5	13405.7	13544.1	12079.1	11481.5	11524.3	14563.0
52.5°	15389.7	15422.5	14081.0	12149.8	13032.2	14690.5	14476.4	13628.8	12325.1	12312.1	14962.4
55°	16118.7	16098.8	14596.9	12750.4	13608.9	15454.4	15292.1	14674.6	13244.4	12964.5	15583.9
57.5°	16767.1	16755.1	15281.1	13303.1	14093.9	15846.8	15894.6	15731.3	13869.8	13431.6	16257.2
60°	17084.8	17237.2	16060.0	13907.7	14124.8	16024.1	16042.0	15782.1	14569.0	14031.2	16436.4
62.5°	16961.3	17251.1	16442.4	14451.5	13840.9	15540.1	15614.8	15435.5	14537.1	14660.6	16036.1
65°	16399.6	16734.2	16110.8	14741.3	13666.7	14729.3	14748.3	14295.1	14082.0	15077.9	15097.9
67.5°	15345.9	15659.6	15055.0	14279.2	12473.5	12544.2	12966.5	13003.3	12692.6	14763.2	13780.2
70°	13501.3	13722.4	13344.0	13137.8	10425.8	10011.5	10469.6	10665.8	10807.2	13626.8	12198.6
72.5°	10688.7	11116.0	11175.7	11310.2	8394.0	7703.8	8043.4	7752.6	8673.9	11598.0	9966.6
75°	7908.0	8268.5	8655.9	9405.9	6616.2	5767.6	5725.8	5577.4	6437.9	9327.2	7392.1
77.5°	5588.4	5818.4	6116.2	7513.6	4992.8	4442.0	4467.9	4317.5	4649.2	7049.5	5106.3
80°	4005.8	4126.3	4264.7	4950.0	3683.1	3832.5	3836.5	3694.0	3457.0	4787.6	3408.2
82.5°	2854.4	2948.1	3106.4	3264.8	2745.9	3141.3	3138.3	3129.3	2740.9	3235.9	2132.4
85°	1589.6	1715.1	1989.9	2557.6	1983.0	2245.9	1975.0	2175.2	2011.9	2154.3	1079.6
87.5°	111.5	99.6	445.2	1482.0	925.3	676.3	354.6	702.2	900.4	1125.4	150.4
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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**CANDELA DISTRIBUTION (continued):**

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2
2.5°	2898.3	2933.1	2796.7	2591.5	2647.3	2586.5	2509.8	2390.3	2144.3	2296.7	2297.7
5°	3480.9	3348.4	3241.9	3141.3	2972.0	2716.0	2682.1	2477.0	2361.4	2422.2	2413.2
7.5°	3663.2	3474.9	3314.6	2955.0	2641.3	2243.9	2124.4	2002.9	1952.1	2099.5	2158.3
10°	3463.0	3266.8	3109.4	2672.2	2459.0	2211.0	1882.4	1714.1	1614.5	1653.3	1676.2
12.5°	3624.3	3424.1	2929.1	2685.1	2333.5	2182.2	1894.3	1647.3	1499.9	1535.8	1493.0
15°	3779.7	3509.8	3014.8	2528.8	2243.9	2024.8	1791.7	1536.8	1363.5	1301.7	1268.9
17.5°	4347.4	3899.2	3004.8	2441.1	2114.4	1862.5	1581.6	1302.7	1187.2	1123.5	1068.7
20°	5039.6	4415.1	3058.6	2350.5	1977.0	1659.3	1353.5	1094.6	1013.9	972.1	957.1
22.5°	5863.3	5076.4	3366.4	2337.5	1847.5	1510.9	1228.0	1066.7	976.0	930.2	911.3
25°	6517.6	5760.7	3593.4	2425.2	1840.5	1388.4	1152.3	1185.2	1143.4	1157.3	1046.8
27.5°	7153.0	5946.9	3466.0	2386.3	1655.3	1171.3	1134.4	1203.1	1239.0	1249.9	1246.0
30°	7689.9	6733.7	3493.9	2167.2	1398.3	954.1	868.5	902.3	1000.9	1157.3	1187.2
32.5°	8475.7	7110.2	3731.9	2034.8	1249.9	853.5	757.9	745.0	767.9	824.7	873.5
35°	9395.0	7976.7	3798.6	1999.9	1147.4	808.7	742.0	712.1	724.1	766.9	776.9
37.5°	11109.0	8608.1	4045.6	1957.1	1109.5	781.8	730.0	719.1	745.0	779.8	799.8
40°	12054.2	9743.5	4057.6	1920.2	1060.7	770.9	738.0	733.0	749.0	796.8	808.7
42.5°	13314.1	10390.9	4244.8	1877.4	1043.8	785.8	753.9	752.0	765.9	793.8	815.7
45°	14082.0	10824.2	4254.8	1852.5	1039.8	851.6	774.9	767.9	764.9	781.8	801.8
47.5°	14577.0	11448.6	4376.3	1824.6	1063.7	868.5	799.8	769.9	759.9	766.9	781.8
50°	15046.1	11947.6	4606.3	1820.6	1088.6	851.6	843.6	768.9	749.0	746.0	756.9
52.5°	15621.7	12768.3	4890.2	1858.5	1082.6	826.7	876.5	764.9	729.0	722.1	733.0
55°	16459.3	13647.7	5192.0	1826.6	1020.9	778.8	844.6	761.9	708.1	695.2	705.1
57.5°	17002.1	14151.7	5529.6	1799.7	927.2	743.0	815.7	763.9	710.1	681.2	687.2
60°	16821.9	13880.8	5662.1	1635.4	838.6	715.1	747.0	748.0	692.2	665.3	670.3
62.5°	16025.1	12899.8	5538.6	1444.2	772.9	675.3	676.3	718.1	640.4	621.5	629.5
65°	14911.6	11679.7	5038.6	1319.7	742.0	633.4	617.5	630.4	570.7	556.7	572.7
67.5°	13545.1	10175.8	4294.6	1188.2	731.0	576.7	557.7	552.8	514.9	499.0	514.9
70°	11831.1	8520.5	3433.1	1095.6	689.2	514.9	500.0	495.0	463.1	451.2	465.1
72.5°	9509.5	6653.1	2649.3	1024.8	643.4	458.1	445.2	439.2	412.3	395.4	412.3
75°	6763.6	5084.4	1968.0	916.3	578.7	400.4	385.4	377.5	352.6	336.6	351.6
77.5°	4806.5	3816.5	1374.4	757.9	477.1	338.6	329.7	316.7	294.8	275.9	290.8
80°	3553.6	2727.0	886.4	584.6	364.5	270.9	265.9	257.0	236.0	213.1	224.1
82.5°	2339.5	1966.0	507.9	396.4	264.9	195.2	199.2	193.2	173.3	149.4	155.4
85°	1047.8	1164.3	269.9	218.1	172.3	117.5	128.5	124.5	109.6	86.6	88.6
87.5°	100.6	196.2	82.7	79.7	63.7	36.9	45.8	38.8	32.9	20.9	15.9
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):**

	185°	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°
0°	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2
2.5°	2332.6	2192.1	2051.7	2137.3	2139.3	2162.2	2165.2	2080.6	2148.3	2200.1	2253.9
5°	2369.4	2277.8	2282.8	2200.1	2155.3	2213.0	2201.1	2178.2	2219.0	2275.8	2344.5
7.5°	2102.5	2042.7	2032.8	1953.1	1759.9	1717.0	1752.9	1767.8	1822.6	1910.3	1984.0
10°	1641.4	1759.9	1626.4	1595.5	1544.7	1445.1	1387.4	1380.4	1496.9	1567.7	1629.4
12.5°	1479.0	1449.1	1433.2	1348.5	1348.5	1243.0	1209.1	1240.0	1419.3	1470.0	1549.7
15°	1259.9	1238.0	1164.3	1122.5	1102.5	1059.7	1095.6	1125.4	1292.8	1296.7	1380.4
17.5°	1045.8	1032.8	963.1	955.1	935.2	916.3	949.2	1020.9	1111.5	1095.6	1134.4
20°	935.2	890.4	826.7	849.6	828.6	813.7	799.8	901.3	965.1	986.0	1008.9
22.5°	907.3	825.7	787.8	766.9	767.9	744.0	747.0	831.6	928.2	941.2	927.2
25°	1036.8	891.4	768.9	708.1	685.2	677.3	700.2	774.9	891.4	919.3	930.2
27.5°	1213.1	968.1	791.8	688.2	642.4	646.4	679.2	731.0	868.5	918.3	931.2
30°	1164.3	910.3	792.8	673.3	616.5	637.4	649.4	699.2	850.6	925.3	990.0
32.5°	898.4	818.7	797.8	685.2	662.3	629.5	646.4	694.2	797.8	844.6	847.6
35°	760.9	700.2	686.2	658.3	626.5	612.5	631.4	673.3	741.0	769.9	765.9
37.5°	754.9	688.2	633.4	621.5	608.5	604.6	615.5	654.3	723.1	773.9	762.9
40°	764.9	682.2	626.5	605.5	610.5	592.6	603.6	651.4	726.1	773.9	763.9
42.5°	753.0	675.3	617.5	601.6	606.5	581.6	594.6	644.4	718.1	774.9	755.9
45°	729.0	659.3	612.5	585.6	608.5	571.7	587.6	626.5	694.2	755.9	734.0
47.5°	705.1	640.4	591.6	574.7	597.6	561.7	568.7	602.6	670.3	731.0	712.1
50°	679.2	616.5	574.7	569.7	585.6	559.7	548.8	576.7	641.4	702.2	686.2
52.5°	651.4	596.6	562.7	560.7	575.7	546.8	530.9	552.8	610.5	671.3	658.3
55°	624.5	574.7	547.8	552.8	569.7	535.8	515.9	529.9	577.7	637.4	619.5
57.5°	597.6	549.8	527.9	541.8	554.8	521.9	497.0	505.0	543.8	602.6	581.6
60°	573.7	527.9	506.0	522.9	534.8	501.0	472.1	477.1	511.9	564.7	545.8
62.5°	542.8	504.0	475.1	497.0	506.0	473.1	442.2	448.2	476.1	525.9	511.9
65°	499.0	474.1	447.2	462.1	474.1	440.2	411.3	418.3	439.2	486.0	476.1
67.5°	461.1	437.2	419.3	431.3	433.2	407.4	381.5	385.4	402.4	446.2	435.2
70°	419.3	396.4	382.5	391.4	390.4	368.5	348.6	349.6	363.5	403.4	388.4
72.5°	373.5	351.6	344.6	349.6	345.6	325.7	306.8	313.7	322.7	352.6	340.6
75°	324.7	304.8	300.8	305.8	299.8	280.9	263.9	270.9	278.9	303.8	288.8
77.5°	273.9	256.0	257.0	258.0	250.0	237.0	220.1	227.1	232.1	249.0	234.1
80°	218.1	204.2	208.2	208.2	199.2	190.2	174.3	176.3	179.3	185.2	174.3
82.5°	159.4	159.4	159.4	160.4	141.4	144.4	130.5	129.5	126.5	125.5	118.5
85°	94.6	98.6	100.6	103.6	76.7	89.6	77.7	74.7	68.7	62.7	60.8
87.5°	20.9	26.9	26.9	25.9	0.0	10.0	5.0	8.0	2.0	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



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**CANDELA DISTRIBUTION (continued):**

	285°	295°	305°	315°	325°	335°	345°	355°	359°	360°
0°	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2	2164.2
2.5°	2192.1	2132.4	2243.9	2343.5	2327.6	2385.3	2250.9	2450.1	2661.2	2661.2
5°	2326.6	2275.8	2304.7	2362.4	2406.3	2607.4	2774.8	2941.1	3284.7	3288.7
7.5°	1962.1	2071.6	2097.5	2080.6	2268.8	2527.8	2803.6	3277.7	3568.5	3591.5
10°	1834.6	1884.4	1963.0	2006.9	2083.6	2338.5	2681.1	3243.9	3552.6	3610.4
12.5°	1662.3	1846.5	1966.0	2211.0	2271.8	2322.6	2867.4	3354.4	3567.6	3553.6
15°	1474.0	1613.5	1785.8	2056.7	2211.0	2599.5	2977.9	3709.0	3829.5	3935.1
17.5°	1175.2	1277.8	1506.9	1815.6	2198.1	2555.6	3250.8	4147.2	4372.3	4481.8
20°	967.1	968.1	1197.2	1606.5	2022.8	2372.4	3354.4	4510.7	4796.6	4852.3
22.5°	914.3	868.5	989.0	1321.6	1829.6	2481.0	3563.6	5095.4	5691.9	5832.4
25°	885.4	829.6	905.3	1166.3	1691.2	2537.7	3984.9	5899.1	6665.0	6719.8
27.5°	897.4	923.3	947.2	1039.8	1515.9	2431.2	3887.3	6258.7	7079.3	7182.9
30°	978.0	1019.9	965.1	997.0	1371.4	2276.8	4061.6	6842.3	7601.2	7775.5
32.5°	813.7	797.8	792.8	862.5	1227.0	2137.3	4427.1	7664.0	8166.9	8386.0
35°	734.0	709.1	719.1	798.8	1156.3	2117.4	4632.2	8344.2	9060.3	9194.8
37.5°	731.0	702.2	715.1	774.9	1181.2	2153.3	4960.9	9435.8	10635.9	10923.8
40°	724.1	708.1	715.1	759.9	1155.3	2173.2	5150.1	10353.1	11733.5	12025.3
42.5°	723.1	715.1	722.1	771.9	1128.4	2182.2	5412.1	11181.7	12889.8	13119.9
45°	720.1	728.1	728.1	781.8	1116.5	2241.9	5566.5	11588.1	13652.7	13936.6
47.5°	706.1	730.0	768.9	778.8	1067.7	2214.0	5784.6	12204.6	14058.1	14325.0
50°	688.2	727.1	820.7	758.9	1059.7	2146.3	6039.5	12693.6	14578.0	14810.0
52.5°	664.3	722.1	808.7	720.1	1045.8	2134.4	6397.1	13329.0	15184.5	15389.7
55°	630.4	704.1	771.9	681.2	1011.9	2096.5	6943.9	14116.8	15978.3	16118.7
57.5°	599.6	677.3	718.1	659.3	931.2	2104.5	7324.3	14759.2	16644.6	16767.1
60°	571.7	674.3	641.4	636.4	848.6	1997.9	7447.8	14752.3	16892.6	17084.8
62.5°	541.8	636.4	587.6	605.5	775.9	1888.4	7185.9	14119.8	16624.7	16961.3
65°	503.0	545.8	542.8	583.6	777.8	1710.1	6585.3	13004.3	15956.4	16399.6
67.5°	457.1	483.0	500.0	547.8	802.7	1571.6	5619.2	11662.8	14819.0	15345.9
70°	410.3	436.2	455.2	501.0	825.7	1507.9	4472.9	9778.4	12966.5	13501.3
72.5°	362.5	389.4	404.4	444.2	794.8	1371.4	3310.6	7608.2	10407.8	10688.7
75°	312.7	338.6	350.6	387.4	690.2	1134.4	2285.7	5762.7	7623.1	7908.0
77.5°	261.9	289.8	293.8	323.7	526.9	867.5	1465.1	4420.1	5398.1	5588.4
80°	209.2	237.0	237.0	253.0	370.5	596.6	877.4	3334.5	3931.1	4005.8
82.5°	150.4	180.3	178.3	179.3	256.0	369.5	507.9	2498.9	2840.5	2854.4
85°	88.6	109.6	108.6	99.6	151.4	199.2	274.9	1551.7	1585.6	1589.6
87.5°	16.9	25.9	22.9	10.0	41.8	58.8	79.7	287.8	114.5	111.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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