

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: io LED

Report Number: P273448

Luminaire Tested: **0.05-09W-830-90ASYM-STD-UNV-AN-3F0**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P273448  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1708-246-12)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: 0.05-09W-830-90ASYM-STD-UNV-AN-3F0  
Description: iO LIGHTING SERIES 2.0 LINEAR LED LUMINAIRE. 90 DEGREE ASYMMETRIC OPTIC.  
VERY HIGH OUTPUT  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1065.7 lumens  
Efficiency: N/A  
Efficacy: 57.6 lumens/watt  
Spacing Criteria (0/90/45): 1.03 / 0.97 / 1.19  
Luminous Opening: Rectangular (W 2.92' x L: 0.21' x H: 0')  
CIE Type: Direct

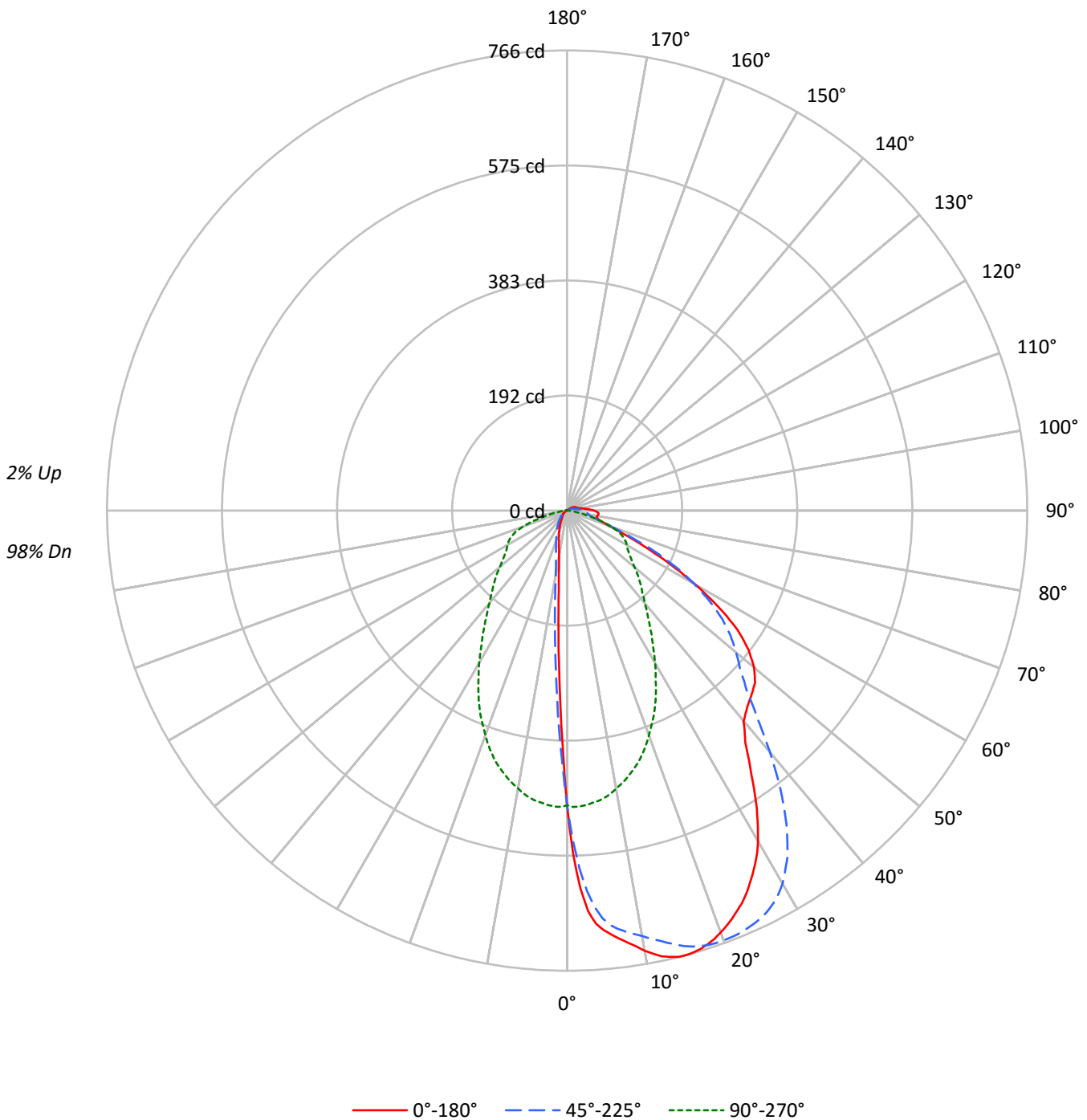
Input Watts (W): 18.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20					20					
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	110	110	110	105	105	105	100	100	100	98								
1	109	105	101	98	106	103	99	96	98	95	93	94	91	89	90	88	86	84								
2	100	93	87	82	98	91	85	80	87	82	78	84	80	76	80	77	74	72								
3	92	83	75	69	90	81	74	68	78	72	67	75	70	65	72	68	64	62								
4	85	74	66	59	83	72	65	59	70	63	58	67	61	57	65	60	56	54								
5	78	66	58	52	76	65	57	51	63	56	51	61	55	50	59	53	49	47								
6	73	60	52	45	71	59	51	45	57	50	45	55	49	44	53	48	44	42								
7	67	55	46	40	66	54	46	40	52	45	40	50	44	39	49	43	39	37								
8	63	50	42	36	61	49	41	36	48	41	36	46	40	35	45	39	35	33								
9	59	46	38	33	57	45	38	33	44	37	32	43	37	32	42	36	32	30								
10	55	42	35	30	54	42	35	30	41	34	29	40	34	29	39	33	29	27								

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	8689	8689	8689
5°	12469	8679	2945
10°	13381	8454	1380
15°	14050	8082	966
20°	14089	7503	739
25°	13774	6806	561
30°	13001	5985	419
35°	11557	5240	329
40°	10570	4655	284
45°	10865	4326	263
50°	11194	4032	243
55°	10701	3904	198
60°	8751	4064	124
65°	5960	4292	147
70°	3817	4061	181
75°	3607	2923	198
80°	5192	1908	296
85°	10711	1301	589



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	42.6	4.0
10°-20°	117.4	11.0
20°-30°	177.6	16.7
30°-40°	204.1	19.2
40°-50°	196.1	18.4
50°-60°	163.8	15.4
60°-70°	88.6	8.3
70°-80°	32.5	3.1
80°-90°	19.3	1.8
90°-100°	11.4	1.1
100°-110°	6.0	0.6
110°-120°	3.7	0.3
120°-130°	2.0	0.2
130°-140°	0.7	0.1
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°-30°	337.6	31.7
0°-40°	541.7	50.8
0°-60°	901.6	84.6
0°-90°	1042.0	97.8
90°-120°	21.1	2.0
90°-150°	23.7	2.2
90°-180°	24.0	2.3
0°-180°	1065.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	490	490	490	490	490	
5°	701	682	488	229	166	68
15°	766	750	441	71	53	215
25°	705	753	348	42	29	322
35°	534	637	242	25	15	336
45°	434	423	173	15	10	335
55°	346	316	126	8	6	302
65°	142	159	102	4	4	147
75°	53	44	43	3	3	59
85°	53	33	6	2	3	42
90°	45	27	1	2	2	24
95°	32	20	1	2	2	24
105°	18	10	1	1	2	19
115°	14	5	1	1	1	13
125°	7	1	1	1	1	7
135°	1	1	1	1	1	1
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5
1°	571.8	570.1	571.8	563.0	563.6	566.6	566.6	561.3	564.2	551.9	549.6
2°	629.2	628.0	628.0	620.4	620.4	622.7	621.6	615.1	615.1	602.3	597.0
3°	667.8	666.1	665.5	659.6	659.6	660.8	659.6	654.4	652.0	640.9	634.5
4°	689.5	688.9	687.1	683.0	683.0	684.2	683.0	679.5	677.8	668.4	662.5
5°	701.2	701.2	698.8	695.9	695.9	697.1	695.3	693.6	691.2	686.0	681.9
6°	710.0	708.8	708.2	704.7	704.7	705.3	704.1	702.3	700.6	697.1	694.2
7°	718.2	717.0	715.8	712.3	712.9	712.3	711.1	708.8	707.6	704.7	701.8
8°	726.3	725.2	724.6	720.5	720.5	719.9	718.7	715.8	714.6	711.1	708.2
9°	734.5	733.4	732.8	728.7	728.7	728.1	726.3	724.0	721.1	717.0	713.5
10°	743.9	742.7	742.1	738.1	737.5	736.3	734.5	732.2	728.1	724.0	719.3
11°	751.5	751.5	749.2	746.2	745.1	744.5	742.7	740.4	735.7	730.4	725.8
12°	758.5	758.5	756.2	753.3	752.1	751.5	749.8	747.4	742.1	738.1	731.6
13°	762.6	762.6	760.9	758.0	758.0	757.4	755.6	753.9	748.6	744.5	738.1
14°	765.6	765.6	763.8	760.9	761.5	760.9	759.7	758.5	753.9	750.3	744.5
15°	766.1	766.7	764.4	762.0	763.2	762.6	762.0	760.9	758.5	755.0	750.3
16°	765.0	766.1	763.8	761.5	763.2	762.6	762.6	761.5	760.9	758.5	755.0
17°	762.6	763.8	762.0	759.7	762.0	761.5	761.5	761.5	762.0	760.3	758.0
18°	758.5	760.3	759.1	757.4	759.7	760.3	760.3	759.7	762.0	761.5	760.3
19°	753.9	755.6	755.0	753.9	756.2	757.4	757.4	758.0	760.9	761.5	761.5
20°	747.4	749.8	749.2	748.6	752.1	752.7	753.9	755.0	759.1	760.3	761.5
21°	740.4	743.3	743.3	742.7	746.2	748.0	749.8	751.5	756.2	758.5	760.9
22°	732.8	735.7	735.7	735.7	739.8	742.1	743.9	748.0	753.3	757.4	760.3
23°	724.0	726.9	726.9	727.5	732.2	735.1	737.5	742.1	749.2	755.0	758.5
24°	715.2	717.6	718.2	718.7	724.0	726.9	729.3	735.1	743.9	751.5	755.6
25°	704.7	707.6	707.6	708.8	714.6	717.6	720.5	727.5	737.5	746.2	752.7
26°	692.4	695.9	697.1	698.3	704.1	707.0	710.5	718.2	729.9	739.2	748.6
27°	680.1	683.6	685.4	685.4	693.0	695.9	700.0	708.2	721.7	731.6	743.3
28°	666.6	670.2	670.2	673.1	680.1	683.6	687.7	697.1	711.1	722.2	736.3
29°	652.0	655.5	655.5	659.0	666.1	670.2	674.3	684.8	697.7	711.7	727.5
30°	635.6	639.1	639.7	642.6	650.3	654.4	659.0	670.7	683.6	699.4	717.0
32.5°	587.6	591.7	591.7	598.2	604.0	611.0	614.6	627.4	644.4	662.0	683.0
35°	534.4	538.5	537.9	541.4	550.8	554.9	561.9	575.3	592.9	614.6	636.8
37.5°	487.0	489.3	488.1	491.1	497.5	503.9	509.2	519.7	537.3	560.1	582.9
40°	457.1	457.7	456.5	455.9	458.9	461.2	464.1	470.6	483.5	502.8	525.0
42.5°	443.7	441.9	440.1	438.4	436.6	436.6	435.5	436.6	441.3	452.4	468.2
45°	433.7	433.1	430.8	428.4	424.9	423.8	421.4	416.7	413.8	416.1	422.6
47.5°	424.3	422.6	420.2	417.9	413.8	412.0	407.9	400.9	395.7	392.1	390.4
50°	406.2	403.9	401.5	399.8	396.2	394.5	390.4	384.0	378.7	372.2	367.0
52.5°	380.4	377.5	376.3	374.6	371.1	368.7	365.2	360.5	355.9	351.2	343.0
55°	346.5	344.7	343.6	344.2	340.1	338.9	336.5	330.7	326.6	321.9	315.5
57.5°	299.1	297.9	298.5	301.4	300.8	301.4	301.4	298.5	295.0	289.1	281.5
60°	247.0	245.8	247.0	249.9	250.5	252.3	254.0	256.4	256.9	252.3	244.1
62.5°	193.1	191.4	192.0	193.7	193.7	196.1	198.4	202.5	206.6	207.2	204.9
65°	142.2	140.5	140.5	141.1	140.5	142.2	143.4	144.6	149.2	155.7	159.2



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
67.5°	101.8	100.7	100.7	100.7	100.7	101.3	100.7	101.8	104.2	108.3	113.0
70°	73.7	73.2	73.2	73.2	72.6	73.2	73.7	73.7	74.9	76.7	79.0
72.5°	59.7	59.1	59.1	58.5	57.4	57.4	56.8	56.2	55.6	56.2	57.4
75°	52.7	52.7	52.1	51.5	50.3	49.7	48.6	47.4	46.2	45.1	44.5
77.5°	50.3	50.3	49.7	48.6	47.4	46.2	45.7	43.3	41.6	39.8	38.0
80°	50.9	50.3	49.7	48.6	46.8	46.2	45.1	42.7	40.4	37.5	35.1
82.5°	52.1	52.1	51.5	49.7	48.0	46.8	45.7	43.3	40.4	37.5	33.9
85°	52.7	52.1	51.5	49.7	48.0	46.8	45.1	42.1	39.2	36.3	32.8
87.5°	49.7	49.2	48.6	46.8	44.5	43.9	42.1	39.2	36.9	33.4	30.4
90°	45.1	43.9	43.3	41.6	39.8	38.6	37.5	34.5	32.2	29.8	26.9
92.5°	38.0	37.5	36.9	35.1	33.9	32.8	31.6	29.3	27.5	25.8	24.0
95°	31.6	31.0	30.4	29.3	28.1	27.5	26.3	24.6	23.4	21.7	20.5
97.5°	26.3	25.8	25.2	24.6	23.4	22.8	22.2	21.1	19.9	18.7	17.6
100°	22.2	22.2	21.7	21.1	19.9	19.3	18.7	18.1	17.0	15.8	15.2
102.5°	19.3	19.3	18.7	18.1	17.6	17.0	16.4	15.8	14.6	13.5	12.9
105°	17.6	17.0	17.0	16.4	15.8	15.2	14.6	13.5	12.3	11.7	10.5
107.5°	16.4	15.8	15.8	15.2	14.0	14.0	13.5	12.3	11.1	9.9	9.4
110°	15.2	15.2	14.6	14.0	13.5	12.9	12.3	11.7	9.9	8.8	7.6
112.5°	14.6	14.6	14.0	13.5	12.9	12.3	11.7	10.5	9.4	8.2	6.4
115°	14.0	13.5	13.5	12.9	11.7	11.1	10.5	9.4	8.2	6.4	5.3
117.5°	12.3	12.3	12.3	11.1	10.5	9.9	9.4	8.2	7.0	5.3	4.1
120°	11.1	10.5	10.5	9.9	8.8	8.2	8.2	7.0	5.3	4.1	2.9
122.5°	9.4	8.8	8.8	8.2	7.6	7.0	6.4	5.3	4.1	2.9	2.3
125°	7.0	7.0	7.0	6.4	5.9	5.3	4.7	4.1	2.9	2.3	1.2
127.5°	5.9	5.3	5.3	4.7	4.1	4.1	3.5	2.9	1.8	1.2	1.2
130°	4.1	4.1	3.5	3.5	2.9	2.3	1.8	1.2	1.2	1.2	1.2
132.5°	2.3	2.3	2.3	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2
135°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	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):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
180°	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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5
1°	546.1	533.2	528.5	525.0	520.9	515.1	511.5	507.4	499.8	493.4	485.8
2°	589.4	573.0	564.8	555.4	549.6	540.2	531.4	520.3	506.9	493.4	478.2
3°	625.1	607.5	595.2	582.4	575.3	563.6	549.0	532.6	512.7	492.2	469.4
4°	653.2	635.6	621.6	606.4	598.2	585.3	566.0	544.3	517.4	491.1	461.2
5°	673.7	657.9	643.8	627.4	618.7	605.2	581.8	553.7	522.1	488.1	451.8
6°	687.7	673.7	660.8	645.6	636.8	622.7	596.4	564.2	526.8	486.4	441.9
7°	697.1	685.4	674.3	660.8	651.4	638.6	609.9	574.2	530.3	483.5	431.9
8°	704.1	693.6	684.2	672.5	664.3	651.4	622.2	583.5	533.8	479.9	422.0
9°	708.8	698.8	691.2	680.7	673.7	662.5	632.7	590.6	535.5	475.3	410.3
10°	714.6	703.5	696.5	687.7	681.3	671.9	642.6	598.2	537.9	470.0	398.6
11°	720.5	708.2	701.2	693.0	687.1	678.9	650.8	604.6	539.6	464.7	386.3
12°	725.8	712.9	705.9	697.7	692.4	684.2	657.9	611.0	541.4	459.5	374.6
13°	732.2	717.0	710.0	702.3	696.5	688.9	664.3	616.9	542.6	453.6	362.3
14°	737.5	723.4	714.1	705.9	700.6	693.0	669.6	622.7	543.1	447.2	350.0
15°	742.7	728.7	718.2	708.8	703.5	695.9	674.3	626.8	543.7	440.7	337.1
16°	748.0	734.0	722.2	711.7	707.0	699.4	678.4	630.9	543.7	433.7	324.3
17°	753.3	739.8	726.3	715.2	710.5	703.5	681.9	635.0	543.1	425.5	310.8
18°	758.0	744.5	732.2	719.3	714.6	707.0	685.4	638.6	542.0	416.7	298.5
19°	760.3	748.6	736.3	724.0	717.6	710.5	688.9	642.1	540.2	407.9	285.0
20°	761.5	752.1	740.4	727.5	719.9	712.9	691.8	645.0	537.9	398.0	271.6
21°	762.0	755.0	743.3	731.0	723.4	715.8	694.7	647.3	535.5	388.0	259.3
22°	762.6	756.8	747.4	735.1	726.3	718.7	697.7	650.8	534.4	378.7	247.0
23°	761.5	757.4	749.2	737.5	729.9	721.1	700.6	653.8	532.0	369.9	234.7
24°	759.7	758.0	751.5	740.4	733.4	724.0	703.5	656.1	529.1	358.8	223.0
25°	758.5	758.0	752.1	742.1	736.3	727.5	705.3	657.9	525.6	348.2	211.9
26°	756.2	757.4	753.3	745.1	738.6	729.9	707.6	659.0	520.9	337.1	200.8
27°	752.7	755.6	754.4	748.0	741.6	733.4	710.5	660.2	515.6	325.4	190.8
28°	748.6	753.9	755.0	750.3	744.5	736.3	714.1	662.5	510.4	313.7	180.9
29°	743.3	750.9	753.9	752.1	748.0	740.4	717.0	665.5	504.5	303.8	172.1
30°	735.7	746.8	752.7	753.3	750.3	743.3	719.9	666.6	499.3	292.6	164.5
32.5°	708.8	730.4	744.5	755.0	755.6	750.9	728.7	670.7	483.5	265.7	146.3
35°	667.8	700.6	727.5	749.2	755.0	758.0	739.8	675.4	467.1	242.3	129.3
37.5°	619.8	655.5	696.5	732.2	746.2	755.0	748.6	679.5	447.2	220.1	118.2
40°	561.3	601.1	649.7	701.8	722.2	743.3	752.1	680.7	426.1	201.3	108.3
42.5°	500.4	540.8	592.3	653.8	684.8	716.4	746.8	676.6	400.9	185.5	100.7
45°	444.2	478.8	529.1	597.0	633.9	675.4	729.3	663.7	375.8	172.7	94.8
47.5°	398.0	420.8	464.1	532.0	572.4	623.9	704.1	646.2	348.8	159.8	89.5
50°	365.2	375.2	404.4	462.4	501.6	557.2	666.1	627.4	324.8	146.3	83.1
52.5°	338.3	338.9	352.9	393.3	429.0	482.9	612.2	601.1	305.5	135.2	76.7
55°	309.0	304.9	309.6	334.2	358.8	402.7	540.2	568.9	290.9	126.4	69.6
57.5°	276.8	269.2	269.2	281.5	296.7	329.5	449.5	520.9	278.0	119.4	63.8
60°	238.8	230.0	227.1	233.5	242.3	264.6	364.6	455.4	263.4	114.7	59.1
62.5°	197.8	189.6	186.7	189.0	193.1	208.9	281.5	375.8	243.5	109.4	54.4
65°	157.4	150.4	146.3	147.5	149.2	161.5	210.7	289.1	215.4	102.4	50.3



TEST NUMBER: P273448

CATALOG NUMBER: 0.05-09W-830-90ASYM-STD-UNV-AN-3F0

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
67.5°	117.1	115.9	113.5	114.1	116.5	121.2	155.1	209.5	176.8	93.1	45.1
70°	83.1	86.0	87.2	87.8	88.4	91.3	111.2	145.7	131.7	78.4	39.2
72.5°	59.1	62.0	65.6	67.3	67.9	69.1	80.2	99.5	93.1	60.9	31.0
75°	45.1	46.2	48.6	52.1	52.1	53.3	58.5	67.3	63.2	42.7	23.4
77.5°	36.9	36.9	38.0	40.4	41.0	41.6	43.9	46.8	41.6	28.7	15.8
80°	33.4	32.2	31.6	32.2	32.8	32.8	33.4	32.2	27.5	18.7	9.9
82.5°	31.0	29.3	27.5	26.9	26.3	25.8	25.2	22.2	18.1	11.1	5.3
85°	29.8	26.9	24.6	22.8	22.2	21.1	19.3	15.8	11.7	6.4	2.9
87.5°	27.5	24.6	22.2	19.9	18.7	17.6	14.6	11.1	7.0	3.5	1.2
90°	24.6	22.2	19.9	17.0	15.8	14.6	11.7	7.6	4.1	1.2	1.2
92.5°	21.7	19.9	17.6	15.2	13.5	12.3	8.8	5.3	2.3	1.2	1.2
95°	18.7	17.6	15.2	12.9	11.7	9.9	7.0	3.5	1.2	1.2	1.2
97.5°	16.4	15.2	12.9	10.5	9.4	8.2	4.7	1.8	1.2	1.2	1.2
100°	14.0	12.9	11.1	8.8	7.6	5.9	2.9	1.2	1.2	1.2	1.2
102.5°	11.7	10.5	8.8	6.4	5.3	4.1	1.8	1.2	1.2	1.2	1.2
105°	9.4	8.2	7.0	4.7	3.5	2.3	1.2	1.2	1.2	1.2	1.2
107.5°	8.2	6.4	5.3	3.5	2.3	1.8	1.2	1.2	1.2	1.2	1.2
110°	6.4	5.3	3.5	2.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2
112.5°	5.3	3.5	2.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
115°	4.1	2.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
117.5°	2.9	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
120°	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
122.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
125°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
127.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
130°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
132.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
135°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P273448

CATALOG NUMBER: 0.05-09W-830-90ASYM-STD-UNV-AN-3F0

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P273448

CATALOG NUMBER: 0.05-09W-830-90ASYM-STD-UNV-AN-3F0

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5
1°	475.8	466.5	458.3	454.8	450.1	444.8	443.1	430.8	425.5	421.4	416.7
2°	461.2	445.4	430.8	427.3	416.1	404.4	397.4	379.9	369.3	361.7	352.9
3°	446.6	423.2	403.3	396.2	382.2	364.6	352.3	331.3	316.6	306.1	294.4
4°	430.2	400.9	375.2	364.6	348.8	326.6	310.2	286.8	269.2	256.9	244.1
5°	414.4	379.3	347.7	334.8	316.6	290.9	271.6	247.6	228.8	216.0	202.5
6°	398.0	357.0	320.7	305.5	286.8	258.1	237.6	213.0	194.3	181.4	169.1
7°	381.0	334.8	295.6	278.6	259.3	229.4	207.2	184.4	166.2	154.5	141.6
8°	364.6	313.7	271.6	254.0	234.1	203.7	182.0	160.4	142.2	131.1	121.7
9°	347.7	293.2	248.2	230.0	210.7	180.3	159.8	138.7	124.1	114.7	105.9
10°	330.7	273.3	227.1	208.9	190.2	161.0	140.5	122.9	109.4	101.3	94.2
11°	314.3	254.6	207.8	189.0	171.5	142.8	125.3	109.4	97.7	90.7	84.9
12°	297.9	236.5	190.2	172.1	154.5	128.8	112.4	98.9	89.0	83.1	77.8
13°	282.1	219.5	173.8	156.9	139.9	116.5	101.8	90.1	81.9	76.7	72.0
14°	266.3	202.5	159.8	141.6	127.6	106.5	93.6	83.1	76.1	71.4	67.3
15°	251.7	187.9	145.2	129.9	117.1	97.7	86.6	77.3	71.4	66.7	63.2
16°	237.0	173.8	133.4	120.0	107.7	90.7	80.2	72.6	67.3	62.6	59.7
17°	222.4	161.5	123.5	110.6	99.5	84.3	75.5	68.5	63.2	59.1	56.2
18°	209.5	149.8	114.1	102.4	92.5	79.0	70.8	64.4	59.7	56.2	52.7
19°	196.7	138.7	105.9	95.4	86.6	74.9	67.3	61.5	56.8	52.7	49.7
20°	184.4	129.3	98.9	89.5	81.4	70.8	63.8	57.9	53.3	49.7	46.8
21°	173.2	120.6	93.1	84.3	76.7	67.3	60.9	55.0	50.3	46.8	44.5
22°	162.7	113.0	87.8	79.6	73.2	64.4	57.9	52.1	48.0	44.5	42.1
23°	152.2	106.5	83.1	75.5	69.6	60.9	55.0	49.2	45.7	42.7	40.4
24°	142.2	100.7	79.0	72.0	66.7	58.5	52.1	46.8	43.3	40.4	38.0
25°	134.0	95.4	74.9	69.1	63.2	55.6	49.7	45.1	41.6	38.6	36.3
26°	127.0	90.1	71.4	66.1	60.9	52.7	47.4	42.7	39.8	36.9	34.5
27°	120.0	86.0	68.5	63.2	57.9	50.3	45.1	41.0	38.0	35.1	32.8
28°	114.1	81.9	65.6	60.3	55.6	48.6	43.3	39.2	36.3	33.4	31.0
29°	108.3	78.4	63.2	57.9	53.3	46.2	41.6	37.5	34.5	31.6	29.3
30°	103.0	74.9	60.3	55.6	50.9	44.5	39.8	35.7	32.8	29.8	26.9
32.5°	92.5	67.9	55.0	50.3	46.2	40.4	36.3	32.2	28.7	25.8	24.0
35°	83.7	62.0	49.7	45.7	42.1	36.9	32.2	28.7	25.2	22.8	21.1
37.5°	76.7	56.8	45.7	41.6	38.6	33.4	29.3	25.2	22.2	19.9	18.1
40°	70.2	52.7	42.1	38.6	35.1	30.4	25.8	22.2	19.3	17.6	15.8
42.5°	66.1	49.2	38.6	35.7	32.8	27.5	23.4	19.9	17.0	15.2	13.5
45°	62.6	46.2	36.3	32.8	29.8	25.2	21.1	17.6	15.2	13.5	11.7
47.5°	59.1	43.3	33.9	30.4	27.5	22.8	18.7	15.8	13.5	11.7	10.5
50°	55.6	40.4	31.6	28.1	25.2	20.5	17.0	14.0	11.7	9.9	8.8
52.5°	51.5	37.5	28.7	25.8	22.8	18.7	15.2	12.3	9.9	8.8	8.2
55°	47.4	34.5	26.3	23.4	21.1	17.0	13.5	10.5	8.2	7.6	7.0
57.5°	42.1	31.0	23.4	21.1	18.7	15.2	11.1	8.8	7.0	6.4	6.4
60°	38.0	27.5	20.5	18.7	17.0	12.9	9.4	7.0	5.9	5.3	5.3
62.5°	33.9	24.0	18.1	16.4	14.6	11.1	7.6	5.9	5.3	4.7	4.1
65°	29.8	20.5	15.8	14.0	12.3	8.8	5.9	4.7	4.1	3.5	3.5



TEST NUMBER: P273448

CATALOG NUMBER: 0.05-09W-830-90ASYM-STD-UNV-AN-3F0

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
67.5°	25.8	17.0	12.9	11.1	9.9	6.4	4.7	3.5	2.9	2.9	2.9
70°	21.1	14.0	9.9	8.8	7.0	4.7	3.5	2.9	2.9	2.9	2.9
72.5°	16.4	10.5	7.6	6.4	4.7	3.5	2.9	2.9	2.9	2.9	2.9
75°	11.7	7.6	4.7	4.1	2.9	2.3	2.3	2.3	2.9	2.9	2.9
77.5°	8.2	5.3	2.9	2.3	2.3	2.3	2.3	2.3	2.9	2.9	2.9
80°	5.3	2.9	1.8	2.3	2.3	2.3	2.3	2.3	2.3	2.9	2.9
82.5°	2.9	1.8	1.8	1.8	1.8	2.3	2.3	2.3	2.3	2.3	2.3
85°	1.2	1.8	1.8	1.8	1.8	1.8	2.3	2.3	2.3	2.3	2.3
87.5°	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	2.3	2.3	2.3
90°	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	2.3	2.3
92.5°	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8
95°	1.2	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8
97.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8
100°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.8	1.8
102.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
105°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
107.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
110°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
112.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
115°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
117.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
120°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
122.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
125°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
127.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
130°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
132.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
135°	1.2	1.2	1.2	1.8	1.2	1.8	1.8	1.8	1.2	1.2	1.2
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P273448

CATALOG NUMBER: 0.05-09W-830-90ASYM-STD-UNV-AN-3F0

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P273448

CATALOG NUMBER: 0.05-09W-830-90ASYM-STD-UNV-AN-3F0

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	490.5	490.5	490.5	490.5	490.5	490.5	490.5	490.5
1°	422.6	413.8	411.5	398.6	399.2	395.7	397.4	397.4
2°	354.7	344.2	340.1	327.8	326.6	321.9	322.5	321.9
3°	293.2	282.1	277.4	265.7	263.4	258.7	258.7	258.1
4°	240.6	229.4	224.2	214.8	211.9	207.2	206.6	204.9
5°	197.8	187.3	182.0	175.0	171.5	167.4	166.8	165.6
6°	163.3	154.5	149.2	142.8	139.3	135.8	135.8	134.6
7°	136.4	128.8	124.7	120.0	117.1	114.1	113.5	113.0
8°	116.5	108.3	106.5	103.0	100.7	98.3	97.7	96.6
9°	101.8	94.8	93.6	90.7	88.4	86.6	86.0	85.5
10°	90.1	84.9	83.7	81.4	79.6	77.8	77.8	76.7
11°	80.8	77.3	76.1	74.3	72.6	71.4	71.4	70.8
12°	74.3	71.4	70.2	69.1	67.3	66.1	66.1	65.6
13°	69.1	66.1	65.6	64.4	62.6	61.5	61.5	60.9
14°	64.4	62.0	60.9	60.3	58.5	57.9	57.4	56.8
15°	60.9	57.9	57.4	56.2	54.4	53.8	53.3	52.7
16°	56.8	54.4	53.3	52.1	50.9	50.3	49.7	49.7
17°	53.3	50.9	50.3	49.7	48.0	47.4	46.8	46.8
18°	50.3	48.0	47.4	46.8	45.1	44.5	44.5	43.9
19°	47.4	45.7	44.5	43.9	42.7	42.1	41.6	41.6
20°	45.1	43.3	42.1	41.6	40.4	39.8	39.8	39.2
21°	42.7	41.0	39.8	39.2	38.0	37.5	37.5	36.9
22°	40.4	38.6	38.0	37.5	36.3	35.7	35.1	35.1
23°	38.6	36.9	35.7	35.1	33.9	33.4	32.8	32.8
24°	36.3	34.5	33.9	33.4	32.2	31.0	31.0	30.4
25°	34.5	32.8	31.6	31.0	29.8	29.3	28.7	28.7
26°	32.8	30.4	29.8	29.3	28.1	27.5	26.9	26.9
27°	30.4	28.7	28.1	27.5	26.3	25.8	25.2	25.2
28°	28.7	26.9	26.3	25.8	24.6	24.0	24.0	23.4
29°	26.9	25.2	24.6	24.0	23.4	22.8	22.2	22.2
30°	25.2	24.0	23.4	22.8	22.2	21.1	21.1	20.5
32.5°	22.2	20.5	19.9	19.9	18.7	18.1	18.1	17.6
35°	19.3	17.6	17.0	17.0	16.4	15.8	15.8	15.2
37.5°	16.4	15.2	15.2	14.6	14.0	14.0	13.5	14.0
40°	14.6	13.5	12.9	12.9	12.3	12.3	12.3	12.3
42.5°	12.3	11.7	11.7	11.1	11.1	11.1	11.1	11.1
45°	11.1	10.5	10.5	10.5	10.5	10.5	10.5	10.5
47.5°	9.9	9.4	9.4	9.4	9.4	9.4	9.4	9.4
50°	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
52.5°	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
55°	7.0	7.0	6.4	6.4	6.4	6.4	6.4	6.4
57.5°	5.9	5.9	5.3	5.3	5.3	5.3	4.7	4.7
60°	4.7	4.1	4.1	4.1	3.5	3.5	3.5	3.5
62.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
65°	2.9	2.9	3.5	3.5	3.5	3.5	3.5	3.5



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**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
67.5°	2.9	2.9	2.9	2.9	3.5	3.5	3.5	3.5
70°	2.9	2.9	3.5	3.5	3.5	3.5	3.5	3.5
72.5°	2.9	2.9	2.9	2.9	3.5	3.5	3.5	3.5
75°	2.9	2.9	2.9	2.9	2.9	3.5	2.9	2.9
77.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
80°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
82.5°	2.3	2.9	2.9	2.9	2.9	2.9	2.9	2.9
85°	2.3	2.3	2.3	2.9	2.9	2.9	2.9	2.9
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
90°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
92.5°	1.8	2.3	2.3	2.3	2.3	2.3	2.3	2.3
95°	1.8	1.8	1.8	1.8	1.8	2.3	2.3	2.3
97.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
100°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
102.5°	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8
105°	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.8
107.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
110°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
112.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
115°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
117.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
120°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
122.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
125°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
127.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
130°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
132.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
135°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





TEST NUMBER: P273448

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**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)