

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: io LED

Report Number: P182756

Luminaire Tested: **LDSQA4A13935D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182756  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26801)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQA4A13935D010TE LAR35FL 4LSQA1H 30°  
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,  
SELF-FLANGED, 35° FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1431.2 lumens  
Efficiency: N/A  
Efficacy: 64.3 lumens/watt  
Spacing Criteria (0/90/45): 2.46 / 0.59 / 1.2  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

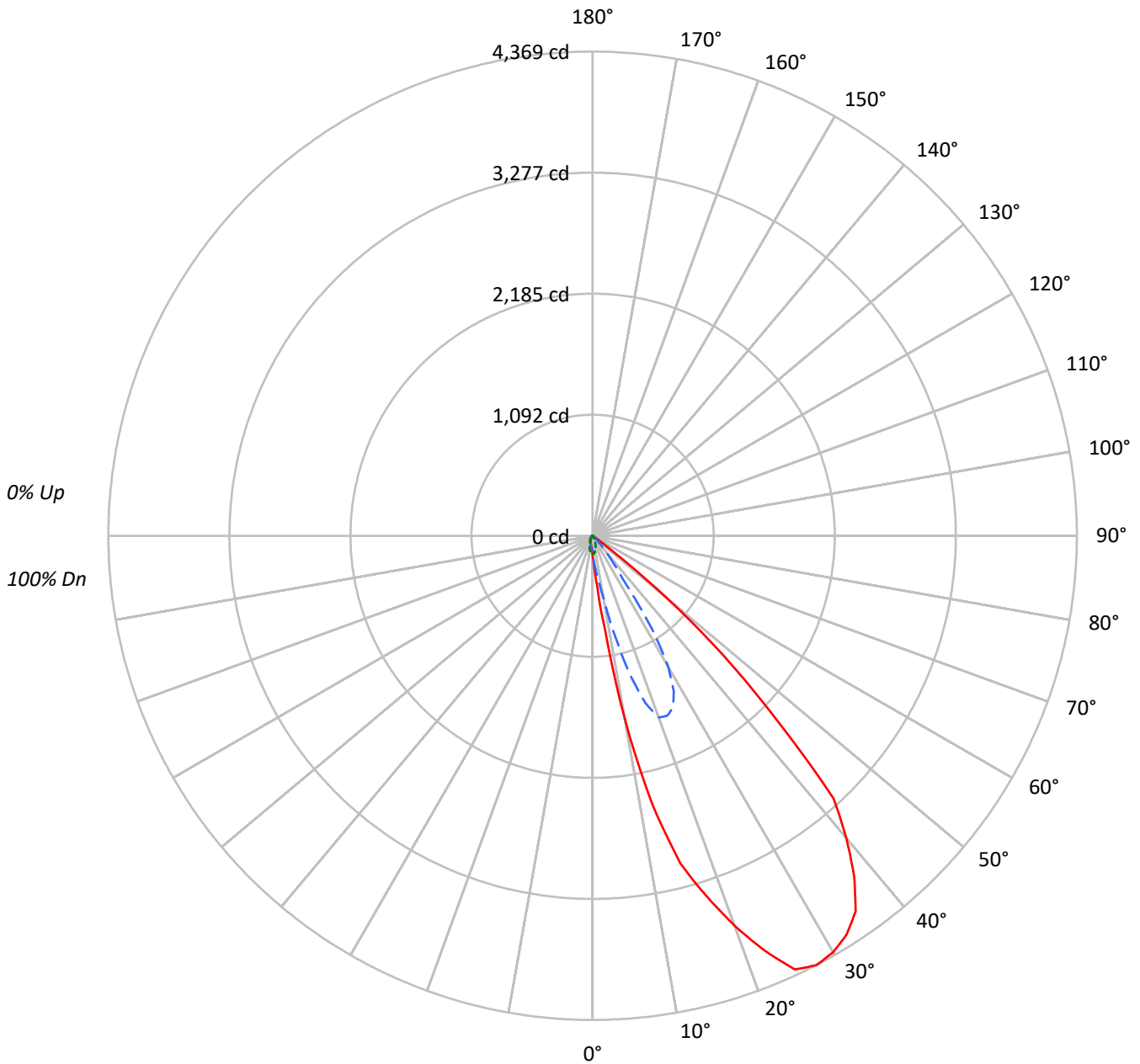
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20									20									20									20									
RC	80									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	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	112	109	106	104	110	107	105	102	103	101	99	99	98	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83																			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74																			
4	92	83	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67																			
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	60																			
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55																			
7	75	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49																			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45																			
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41																			
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	39	37																			

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

	0°	90°	180°
0°	16178	16178	16178
5°	42545	15413	10065
10°	166786	13339	8371
15°	307067	10511	7422
20°	385855	7423	6753
25°	461531	4896	6018
30°	485336	3076	5280
35°	489254	1857	4565
40°	450217	1239	3895
45°	320312	891	3233
50°	132355	693	2668
55°	7634	659	2331
60°	891	639	1899
65°	298	756	1352
70°	368	736	935
75°	487	973	973
80°	0	1450	1116
85°	0	2890	1445



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	26.2	1.8
10°-20°	209.7	14.7
20°-30°	433.8	30.3
30°-40°	472.2	33.0
40°-50°	258.9	18.1
50°-60°	22.4	1.6
60°-70°	3.7	0.3
70°-80°	2.6	0.2
80°-90°	1.7	0.1
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°-30°	669.7	46.8
0°-40°	1141.9	79.8
0°-60°	1423.3	99.4
0°-90°	1431.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1431.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	167	167	167	167	167	
5°	438	299	158	109	104	80
15°	3062	1287	105	71	74	855
25°	4318	1712	46	43	56	1950
35°	4137	468	16	25	39	2539
45°	2338	48	6	14	24	1784
55°	45	5	4	8	14	154
65°	1	2	3	5	6	2
75°	1	2	3	4	3	1
85°	0	1	3	2	1	0
90°	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°	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0
2.5°	262.6	253.4	252.1	253.4	246.9	246.2	247.6	242.3	237.7	233.1	229.2
5°	437.5	418.5	412.6	404.7	385.1	378.5	377.2	356.3	336.0	317.0	299.3
7.5°	850.1	812.1	791.8	752.5	692.2	665.4	651.0	582.2	518.0	459.7	406.7
10°	1695.5	1596.0	1547.5	1473.5	1341.9	1277.1	1229.9	1057.0	886.7	723.0	578.9
12.5°	2474.2	2419.2	2347.8	2308.5	2095.0	2013.2	1935.2	1695.5	1436.2	1171.6	909.0
15°	3061.7	2981.1	2905.2	2886.8	2719.2	2623.5	2537.1	2288.9	1980.4	1643.8	1286.9
17.5°	3406.8	3349.2	3277.1	3242.4	3046.0	2968.7	2870.4	2630.1	2330.1	1994.8	1580.3
20°	3742.8	3657.6	3556.1	3503.7	3286.3	3197.2	3085.9	2833.1	2515.5	2159.2	1744.7
22.5°	4049.9	3939.9	3795.8	3714.6	3470.3	3372.1	3247.7	2973.9	2630.1	2222.7	1758.4
25°	4317.8	4218.2	4026.3	3884.2	3596.1	3480.2	3335.4	3049.2	2671.3	2217.5	1711.9
27.5°	4368.9	4302.1	4129.8	3965.4	3640.0	3510.9	3361.0	3064.9	2642.5	2144.8	1586.8
30°	4338.7	4266.7	4128.5	3960.9	3621.6	3491.3	3335.4	2998.1	2529.9	1975.2	1357.6
32.5°	4266.0	4203.8	4038.8	3862.0	3531.2	3395.7	3231.3	2841.6	2336.7	1705.4	998.7
35°	4137.0	4043.4	3844.3	3698.9	3387.8	3248.3	3047.3	2632.7	2047.9	1226.0	468.3
37.5°	3874.4	3783.4	3640.0	3505.7	3202.5	3038.1	2825.9	2341.9	1518.1	668.7	289.5
40°	3560.1	3481.5	3356.4	3226.1	2913.7	2724.4	2490.6	1830.5	893.3	376.6	178.1
42.5°	3218.2	3137.0	2995.5	2843.6	2503.0	2303.3	2050.5	1184.7	470.9	222.0	96.9
45°	2338.0	2265.3	2162.5	2053.1	1856.0	1711.9	1379.2	622.2	260.7	117.9	47.8
47.5°	1599.9	1513.5	1323.6	1093.7	886.7	758.4	570.4	269.8	133.6	58.9	28.2
50°	878.2	786.5	689.6	537.0	359.5	295.4	229.9	130.3	60.3	29.5	15.7
52.5°	215.5	190.6	174.2	160.5	127.1	114.6	96.9	54.4	27.5	16.4	11.1
55°	45.2	41.9	39.9	39.3	36.0	34.7	30.1	21.0	15.1	10.5	5.2
57.5°	13.1	12.4	13.1	13.1	13.1	12.4	12.4	9.2	8.5	5.2	3.3
60°	4.6	4.6	4.6	5.2	5.2	5.2	5.9	5.9	4.6	3.3	2.6
62.5°	2.0	2.0	2.0	2.6	2.6	3.3	3.3	3.3	2.6	2.6	2.0
65°	1.3	1.3	1.3	1.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0
77.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	1.3	1.3	2.0
80°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	1.3	1.3	1.3
82.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	1.3	1.3
85°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	1.3	1.3
87.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	1.3	1.3
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0
2.5°	218.1	211.5	203.7	195.2	193.9	189.3	182.7	173.5	170.3	163.7	157.8
5°	273.7	256.1	237.7	221.4	216.1	208.9	197.1	180.8	170.3	158.5	148.7
7.5°	348.4	307.8	270.5	241.0	231.8	220.0	201.7	180.8	165.0	148.7	135.6
10°	448.0	365.4	301.3	253.4	238.4	222.7	198.4	172.9	154.6	135.6	121.8
12.5°	639.8	449.9	330.1	260.0	239.0	218.7	188.0	160.5	139.5	120.5	106.7
15°	909.7	610.4	388.4	264.6	232.5	207.6	171.6	143.4	122.5	104.8	91.7
17.5°	1137.6	762.3	466.3	277.7	227.9	193.2	152.6	123.8	103.5	87.8	77.3
20°	1248.9	830.4	501.7	279.6	214.8	171.6	130.3	102.8	85.1	72.0	62.9
22.5°	1235.8	807.5	468.9	244.9	181.4	144.7	108.1	83.2	68.1	57.6	51.1
25°	1148.0	708.0	382.5	187.3	141.5	117.2	84.5	64.8	53.0	45.8	40.6
27.5°	1000.7	568.5	279.0	132.3	107.4	89.1	62.9	49.8	40.6	35.4	32.1
30°	770.8	363.5	160.5	95.0	77.9	63.5	47.2	36.0	30.8	27.5	24.9
32.5°	397.5	176.8	106.7	68.1	55.0	45.8	32.7	26.2	22.9	21.0	19.6
35°	218.1	125.7	74.0	43.9	35.4	29.5	22.3	18.3	17.0	15.7	15.7
37.5°	150.0	77.9	41.3	26.2	21.6	18.3	15.1	13.1	12.4	12.4	12.4
40°	86.4	41.3	23.6	16.4	13.8	12.4	10.5	9.8	9.8	9.8	10.5
42.5°	44.5	24.2	15.7	11.1	9.8	8.5	7.2	7.2	7.2	7.9	8.5
45°	26.2	16.4	10.5	7.2	6.5	5.9	5.2	5.2	5.9	6.5	7.2
47.5°	16.4	11.1	6.5	4.6	3.9	3.9	3.9	3.9	4.6	5.2	5.9
50°	11.1	5.9	3.9	2.6	2.6	2.6	2.6	3.3	3.9	4.6	5.2
52.5°	5.9	3.3	2.6	2.0	2.0	2.0	2.6	2.6	3.3	3.9	4.6
55°	3.3	2.6	2.0	2.0	2.0	2.0	2.0	2.6	3.3	3.9	4.6
57.5°	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	3.3	3.9
60°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	3.3	3.9
62.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	3.3	3.3
65°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	3.3	3.3
67.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	3.3
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	3.3
72.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6
75°	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	3.3
77.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6
80°	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6
82.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6
85°	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.6
87.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6
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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0
2.5°	154.6	149.3	144.1	144.1	141.5	137.5	136.2	132.3	129.7	128.4	127.1
5°	141.5	133.6	126.4	125.7	122.5	117.9	115.9	112.0	109.4	108.1	107.4
7.5°	126.4	118.5	111.3	110.0	107.4	104.1	102.2	98.9	97.6	96.3	95.6
10°	112.0	104.1	98.9	97.6	95.6	93.0	91.0	89.1	87.8	87.1	87.1
12.5°	97.6	91.7	87.1	85.8	84.5	82.5	81.2	79.9	79.2	79.2	79.2
15°	84.5	79.2	75.3	75.3	74.0	72.7	72.7	71.4	70.7	71.4	72.0
17.5°	71.4	67.5	64.2	64.2	63.5	62.9	62.9	62.9	63.5	64.2	65.5
20°	58.9	55.7	54.4	54.4	53.7	54.4	54.4	55.0	55.7	57.6	59.6
22.5°	47.8	45.8	44.5	45.2	45.2	45.8	46.5	47.8	49.1	51.1	53.0
25°	38.6	37.3	36.7	37.3	38.0	38.6	39.9	41.3	43.2	45.2	47.8
27.5°	30.8	30.1	30.1	30.8	31.4	32.7	34.7	36.0	38.0	39.9	42.6
30°	24.9	24.2	24.9	26.2	26.9	28.2	29.5	31.4	33.4	35.4	38.0
32.5°	19.6	20.3	21.0	21.6	22.3	24.2	25.5	26.9	28.8	30.8	33.4
35°	16.4	17.0	17.7	18.3	19.0	20.3	21.6	22.9	24.9	26.9	29.5
37.5°	13.1	13.8	14.4	15.7	16.4	17.0	19.0	19.6	21.6	22.9	25.5
40°	11.1	11.8	12.4	13.1	13.8	15.1	16.4	17.0	18.3	20.3	22.3
42.5°	9.2	9.8	10.5	11.1	11.8	13.1	13.8	15.1	16.4	17.7	19.0
45°	7.9	8.5	9.2	9.8	10.5	11.1	11.8	13.1	13.8	15.1	16.4
47.5°	6.5	7.2	8.5	8.5	9.2	9.8	10.5	11.1	12.4	13.1	14.4
50°	5.9	6.5	7.2	7.9	7.9	8.5	9.2	9.8	10.5	11.1	12.4
52.5°	5.2	5.9	6.5	6.5	7.2	7.9	8.5	8.5	9.2	9.8	10.5
55°	4.6	5.2	5.9	5.9	6.5	7.2	7.2	7.9	8.5	8.5	9.2
57.5°	4.6	4.6	5.2	5.2	5.9	5.9	6.5	7.2	7.2	7.9	8.5
60°	3.9	4.6	4.6	5.2	5.2	5.9	5.9	6.5	6.5	7.2	7.2
62.5°	3.9	3.9	4.6	4.6	5.2	5.2	5.9	5.9	5.9	6.5	6.5
65°	3.9	3.9	4.6	4.6	4.6	5.2	5.2	5.2	5.2	5.9	5.9
67.5°	3.3	3.9	3.9	4.6	4.6	4.6	4.6	4.6	5.2	5.2	5.2
70°	3.3	3.9	3.9	3.9	3.9	4.6	4.6	4.6	4.6	4.6	4.6
72.5°	3.3	3.3	3.3	3.3	3.9	3.9	3.9	3.9	3.9	3.9	3.9
75°	3.3	3.3	3.3	3.3	3.3	3.9	3.9	3.9	3.9	3.9	3.9
77.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
80°	2.6	2.6	2.6	2.6	2.6	3.3	2.6	2.6	2.6	2.6	2.6
82.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.0	2.0
85°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.0	2.0
87.5°	2.6	2.6	2.6	2.0	2.0	2.0	2.0	2.0	2.0	1.3	1.3
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):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	167.0	167.0	167.0	167.0	167.0	167.0	167.0	167.0
2.5°	125.1	123.8	125.1	123.8	123.8	121.2	123.1	121.8
5°	105.4	104.1	105.4	104.8	103.5	102.8	104.1	103.5
7.5°	94.3	93.0	94.3	94.3	93.0	92.3	93.7	93.0
10°	85.8	85.1	85.8	85.8	85.1	84.5	85.8	85.1
12.5°	78.6	77.9	79.2	79.2	78.6	78.6	79.9	78.6
15°	72.0	72.0	73.3	73.3	73.3	73.3	74.7	74.0
17.5°	65.5	66.8	68.1	68.8	68.8	68.8	70.1	70.1
20°	60.3	61.6	62.9	63.5	64.2	64.2	65.5	65.5
22.5°	54.4	55.7	57.6	58.3	58.9	59.6	60.9	60.9
25°	49.1	50.4	52.4	53.0	54.4	55.0	56.3	56.3
27.5°	43.9	45.8	47.2	48.5	49.1	50.4	51.7	51.7
30°	39.3	41.3	42.6	43.9	44.5	45.8	47.2	47.2
32.5°	34.7	36.7	38.0	39.3	40.6	41.3	43.2	43.2
35°	30.8	32.1	34.1	34.7	36.0	37.3	38.6	38.6
37.5°	26.9	28.2	29.5	30.8	32.1	32.7	34.1	34.7
40°	23.6	24.9	26.2	26.9	28.2	29.5	30.1	30.8
42.5°	20.3	21.6	22.9	23.6	24.9	25.5	26.9	26.9
45°	17.7	19.0	19.6	20.3	21.6	22.3	23.6	23.6
47.5°	15.1	16.4	17.0	17.7	18.3	19.0	20.3	20.3
50°	13.1	13.8	14.4	15.1	15.7	17.0	17.7	17.7
52.5°	11.1	12.4	12.4	13.1	13.8	14.4	15.1	15.7
55°	9.8	10.5	11.1	11.1	11.8	12.4	13.1	13.8
57.5°	8.5	9.2	9.8	9.8	10.5	10.5	11.1	11.8
60°	7.9	7.9	8.5	8.5	8.5	9.2	9.2	9.8
62.5°	6.5	6.5	7.2	7.2	7.2	7.2	7.2	7.2
65°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
67.5°	5.2	5.2	5.2	5.2	4.6	4.6	4.6	4.6
70°	4.6	4.6	4.6	4.6	3.9	3.9	3.9	3.3
72.5°	3.9	3.9	3.9	3.9	3.3	3.3	2.6	2.6
75°	3.3	3.3	3.3	3.3	3.3	2.6	2.6	2.6
77.5°	3.3	2.6	2.6	2.6	2.6	2.6	2.6	2.0
80°	2.6	2.6	2.0	2.0	2.0	2.0	2.0	2.0
82.5°	2.0	2.0	2.0	2.0	1.3	1.3	1.3	1.3
85°	2.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3
87.5°	1.3	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180°    - - 45°-225°    - - - - 90°-270°















(END OF REPORT)