

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: P182752

Luminaire Tested: **LDSQA4A13835D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182752  
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: LDSQA4A13835D010TE LAR35FL 4LSQA1H 30°  
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,  
SELF-FLANGED, 35° FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1753.8 lumens  
Efficiency: N/A  
Efficacy: 78.8 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

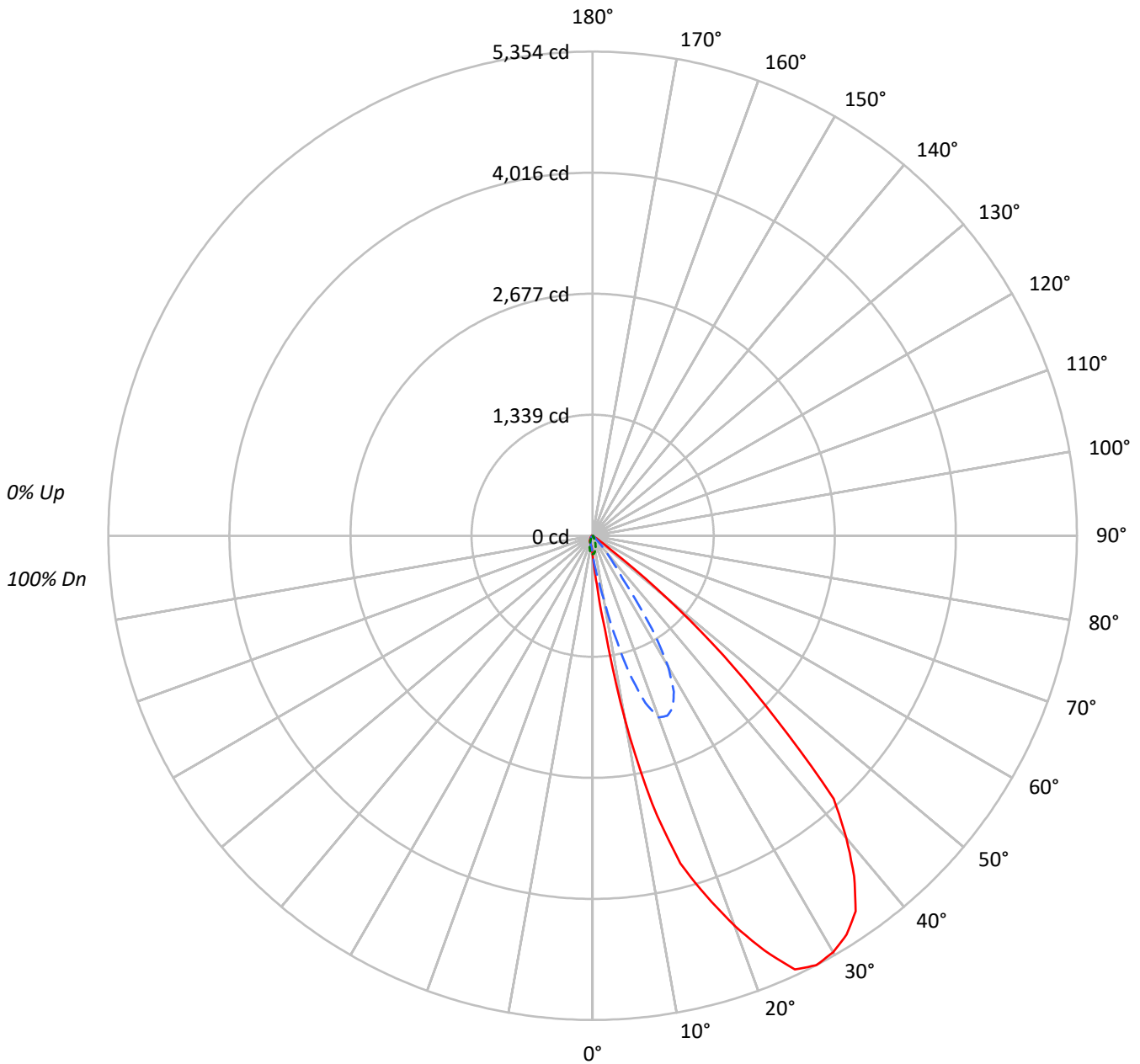
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20				20				20				20				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	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°	19830	19830	19830
5°	52133	18885	12331
10°	204393	16339	10260
15°	376289	12878	9097
20°	472845	9103	8278
25°	565577	6007	7375
30°	594760	3770	6466
35°	599558	2282	5606
40°	551715	1518	4768
45°	392526	1096	3959
50°	162196	844	3270
55°	9357	811	2854
60°	1085	775	2325
65°	367	917	1650
70°	453	906	1133
75°	599	1198	1198
80°	0	1785	1339
85°	0	3557	1778



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	32.2	1.8
10°-20°	257.0	14.7
20°-30°	531.6	30.3
30°-40°	578.7	33.0
40°-50°	317.3	18.1
50°-60°	27.5	1.6
60°-70°	4.5	0.3
70°-80°	3.2	0.2
80°-90°	2.0	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°	820.7	46.8
0°-40°	1399.4	79.8
0°-60°	1744.1	99.4
0°-90°	1753.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1753.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	205	205	205	205	205	
5°	536	367	194	134	127	98
15°	3752	1577	128	87	91	1048
25°	5291	2098	56	53	69	2389
35°	5070	574	19	30	47	3111
45°	2865	59	8	17	29	2187
55°	55	6	5	10	17	189
65°	2	2	4	6	7	2
75°	2	2	3	5	3	1
85°	0	2	3	2	2	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°	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7
2.5°	321.8	310.6	309.0	310.6	302.6	301.8	303.4	296.9	291.3	285.7	280.9
5°	536.1	512.8	505.6	496.0	471.9	463.9	462.3	436.6	411.7	388.4	366.8
7.5°	1041.7	995.2	970.3	922.1	848.3	815.4	797.7	713.5	634.8	563.4	498.4
10°	2077.8	1955.8	1896.4	1805.7	1644.4	1565.0	1507.2	1295.3	1086.7	886.0	709.5
12.5°	3032.0	2964.6	2877.1	2829.0	2567.4	2467.0	2371.5	2077.8	1760.0	1435.8	1113.9
15°	3751.9	3653.2	3560.1	3537.6	3332.2	3215.0	3109.1	2804.9	2426.9	2014.4	1577.0
17.5°	4174.9	4104.2	4016.0	3973.4	3732.7	3638.0	3517.6	3223.0	2855.5	2444.6	1936.6
20°	4586.6	4482.2	4357.8	4293.6	4027.2	3918.1	3781.6	3471.8	3082.6	2646.0	2138.0
22.5°	4963.0	4828.1	4651.6	4552.1	4252.7	4132.3	3979.8	3644.4	3223.0	2723.9	2154.8
25°	5291.2	5169.2	4934.1	4759.9	4406.8	4264.8	4087.4	3736.7	3273.6	2717.4	2097.9
27.5°	5353.8	5272.0	5060.9	4859.4	4460.6	4302.5	4118.7	3755.9	3238.3	2628.4	1944.6
30°	5316.9	5228.6	5059.3	4853.8	4438.1	4278.4	4087.4	3674.1	3100.3	2420.5	1663.7
32.5°	5227.8	5151.6	4949.3	4732.6	4327.4	4161.2	3959.8	3482.3	2863.5	2089.8	1223.9
35°	5069.7	4954.9	4711.0	4532.8	4151.6	3980.6	3734.3	3226.3	2509.6	1502.4	573.8
37.5°	4747.9	4636.3	4460.6	4296.1	3924.5	3723.0	3463.0	2869.9	1860.3	819.4	354.7
40°	4362.7	4266.4	4113.1	3953.4	3570.5	3338.6	3052.1	2243.1	1094.7	461.5	218.3
42.5°	3943.7	3844.2	3670.9	3484.7	3067.3	2822.6	2512.8	1451.8	577.0	272.1	118.8
45°	2865.1	2776.0	2650.0	2516.0	2274.4	2097.9	1690.2	762.4	319.4	144.5	58.6
47.5°	1960.6	1854.7	1622.0	1340.3	1086.7	929.4	699.0	330.7	163.7	72.2	34.5
50°	1076.2	963.9	845.1	658.1	440.6	362.0	281.7	159.7	73.8	36.1	19.3
52.5°	264.0	233.5	213.5	196.6	155.7	140.4	118.8	66.6	33.7	20.1	13.6
55°	55.4	51.4	49.0	48.2	44.1	42.5	36.9	25.7	18.5	12.8	6.4
57.5°	16.1	15.2	16.1	16.1	16.1	15.2	15.2	11.2	10.4	6.4	4.0
60°	5.6	5.6	5.6	6.4	6.4	6.4	7.2	7.2	5.6	4.0	3.2
62.5°	2.4	2.4	2.4	3.2	3.2	4.0	4.0	4.0	3.2	3.2	2.4
65°	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
85°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
87.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7
2.5°	267.2	259.2	249.6	239.2	237.6	231.9	223.9	212.7	208.7	200.6	193.4
5°	335.5	313.8	291.3	271.3	264.8	256.0	241.6	221.5	208.7	194.2	182.2
7.5°	427.0	377.2	331.5	295.3	284.1	269.7	247.2	221.5	202.2	182.2	166.1
10°	548.9	447.8	369.2	310.6	292.1	272.9	243.2	211.9	189.4	166.1	149.3
12.5°	784.1	551.4	404.5	318.6	292.9	268.1	230.3	196.6	170.9	147.7	130.8
15°	1114.7	748.0	475.9	324.2	284.9	254.4	210.3	175.8	150.1	128.4	112.4
17.5°	1394.0	934.2	571.4	340.3	279.3	236.8	187.0	151.7	126.8	107.5	94.7
20°	1530.5	1017.6	614.8	342.7	263.2	210.3	159.7	126.0	104.3	88.3	77.0
22.5°	1514.4	989.5	574.6	300.2	222.3	177.4	132.4	101.9	83.5	70.6	62.6
25°	1406.9	867.6	468.7	229.5	173.4	143.7	103.5	79.5	65.0	56.2	49.8
27.5°	1226.3	696.6	341.9	162.1	131.6	109.1	77.0	61.0	49.8	43.3	39.3
30°	944.6	445.4	196.6	116.4	95.5	77.8	57.8	44.1	37.7	33.7	30.5
32.5°	487.1	216.7	130.8	83.5	67.4	56.2	40.1	32.1	28.1	25.7	24.1
35°	267.2	154.1	90.7	53.8	43.3	36.1	27.3	22.5	20.9	19.3	19.3
37.5°	183.8	95.5	50.6	32.1	26.5	22.5	18.5	16.1	15.2	15.2	15.2
40°	105.9	50.6	28.9	20.1	16.9	15.2	12.8	12.0	12.0	12.0	12.8
42.5°	54.6	29.7	19.3	13.6	12.0	10.4	8.8	8.8	8.8	9.6	10.4
45°	32.1	20.1	12.8	8.8	8.0	7.2	6.4	6.4	7.2	8.0	8.8
47.5°	20.1	13.6	8.0	5.6	4.8	4.8	4.8	4.8	5.6	6.4	7.2
50°	13.6	7.2	4.8	3.2	3.2	3.2	3.2	4.0	4.8	5.6	6.4
52.5°	7.2	4.0	3.2	2.4	2.4	2.4	3.2	3.2	4.0	4.8	5.6
55°	4.0	3.2	2.4	2.4	2.4	2.4	2.4	3.2	4.0	4.8	5.6
57.5°	3.2	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0	4.8
60°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0	4.8
62.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0	4.0
65°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0	4.0
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	4.0
70°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	4.0
72.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2
75°	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	4.0
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2
80°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2
82.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2
85°	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2
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°	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7
2.5°	189.4	183.0	176.6	176.6	173.4	168.5	166.9	162.1	158.9	157.3	155.7
5°	173.4	163.7	154.9	154.1	150.1	144.5	142.1	137.2	134.0	132.4	131.6
7.5°	154.9	145.3	136.4	134.8	131.6	127.6	125.2	121.2	119.6	118.0	117.2
10°	137.2	127.6	121.2	119.6	117.2	114.0	111.6	109.1	107.5	106.7	106.7
12.5°	119.6	112.4	106.7	105.1	103.5	101.1	99.5	97.9	97.1	97.1	97.1
15°	103.5	97.1	92.3	92.3	90.7	89.1	89.1	87.5	86.7	87.5	88.3
17.5°	87.5	82.7	78.6	78.6	77.8	77.0	77.0	77.0	77.8	78.6	80.3
20°	72.2	68.2	66.6	66.6	65.8	66.6	66.6	67.4	68.2	70.6	73.0
22.5°	58.6	56.2	54.6	55.4	55.4	56.2	57.0	58.6	60.2	62.6	65.0
25°	47.4	45.7	44.9	45.7	46.5	47.4	49.0	50.6	53.0	55.4	58.6
27.5°	37.7	36.9	36.9	37.7	38.5	40.1	42.5	44.1	46.5	49.0	52.2
30°	30.5	29.7	30.5	32.1	32.9	34.5	36.1	38.5	40.9	43.3	46.5
32.5°	24.1	24.9	25.7	26.5	27.3	29.7	31.3	32.9	35.3	37.7	40.9
35°	20.1	20.9	21.7	22.5	23.3	24.9	26.5	28.1	30.5	32.9	36.1
37.5°	16.1	16.9	17.7	19.3	20.1	20.9	23.3	24.1	26.5	28.1	31.3
40°	13.6	14.4	15.2	16.1	16.9	18.5	20.1	20.9	22.5	24.9	27.3
42.5°	11.2	12.0	12.8	13.6	14.4	16.1	16.9	18.5	20.1	21.7	23.3
45°	9.6	10.4	11.2	12.0	12.8	13.6	14.4	16.1	16.9	18.5	20.1
47.5°	8.0	8.8	10.4	10.4	11.2	12.0	12.8	13.6	15.2	16.1	17.7
50°	7.2	8.0	8.8	9.6	9.6	10.4	11.2	12.0	12.8	13.6	15.2
52.5°	6.4	7.2	8.0	8.0	8.8	9.6	10.4	10.4	11.2	12.0	12.8
55°	5.6	6.4	7.2	7.2	8.0	8.8	8.8	9.6	10.4	10.4	11.2
57.5°	5.6	5.6	6.4	6.4	7.2	7.2	8.0	8.8	8.8	9.6	10.4
60°	4.8	5.6	5.6	6.4	6.4	7.2	7.2	8.0	8.0	8.8	8.8
62.5°	4.8	4.8	5.6	5.6	6.4	6.4	7.2	7.2	7.2	8.0	8.0
65°	4.8	4.8	5.6	5.6	5.6	6.4	6.4	6.4	6.4	7.2	7.2
67.5°	4.0	4.8	4.8	5.6	5.6	5.6	5.6	5.6	6.4	6.4	6.4
70°	4.0	4.8	4.8	4.8	4.8	5.6	5.6	5.6	5.6	5.6	5.6
72.5°	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.8	4.8	4.8
75°	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.8	4.8
77.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
80°	3.2	3.2	3.2	3.2	3.2	4.0	3.2	3.2	3.2	3.2	3.2
82.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4
85°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4	2.4
87.5°	3.2	3.2	3.2	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
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):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	204.7	204.7	204.7	204.7	204.7	204.7	204.7	204.7
2.5°	153.3	151.7	153.3	151.7	151.7	148.5	150.9	149.3
5°	129.2	127.6	129.2	128.4	126.8	126.0	127.6	126.8
7.5°	115.6	114.0	115.6	115.6	114.0	113.2	114.8	114.0
10°	105.1	104.3	105.1	105.1	104.3	103.5	105.1	104.3
12.5°	96.3	95.5	97.1	97.1	96.3	96.3	97.9	96.3
15°	88.3	88.3	89.9	89.9	89.9	89.9	91.5	90.7
17.5°	80.3	81.9	83.5	84.3	84.3	84.3	85.9	85.9
20°	73.8	75.4	77.0	77.8	78.6	78.6	80.3	80.3
22.5°	66.6	68.2	70.6	71.4	72.2	73.0	74.6	74.6
25°	60.2	61.8	64.2	65.0	66.6	67.4	69.0	69.0
27.5°	53.8	56.2	57.8	59.4	60.2	61.8	63.4	63.4
30°	48.2	50.6	52.2	53.8	54.6	56.2	57.8	57.8
32.5°	42.5	44.9	46.5	48.2	49.8	50.6	53.0	53.0
35°	37.7	39.3	41.7	42.5	44.1	45.7	47.4	47.4
37.5°	32.9	34.5	36.1	37.7	39.3	40.1	41.7	42.5
40°	28.9	30.5	32.1	32.9	34.5	36.1	36.9	37.7
42.5°	24.9	26.5	28.1	28.9	30.5	31.3	32.9	32.9
45°	21.7	23.3	24.1	24.9	26.5	27.3	28.9	28.9
47.5°	18.5	20.1	20.9	21.7	22.5	23.3	24.9	24.9
50°	16.1	16.9	17.7	18.5	19.3	20.9	21.7	21.7
52.5°	13.6	15.2	15.2	16.1	16.9	17.7	18.5	19.3
55°	12.0	12.8	13.6	13.6	14.4	15.2	16.1	16.9
57.5°	10.4	11.2	12.0	12.0	12.8	12.8	13.6	14.4
60°	9.6	9.6	10.4	10.4	10.4	11.2	11.2	12.0
62.5°	8.0	8.0	8.8	8.8	8.8	8.8	8.8	8.8
65°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
67.5°	6.4	6.4	6.4	6.4	5.6	5.6	5.6	5.6
70°	5.6	5.6	5.6	5.6	4.8	4.8	4.8	4.0
72.5°	4.8	4.8	4.8	4.8	4.0	4.0	3.2	3.2
75°	4.0	4.0	4.0	4.0	4.0	3.2	3.2	3.2
77.5°	4.0	3.2	3.2	3.2	3.2	3.2	3.2	2.4
80°	3.2	3.2	2.4	2.4	2.4	2.4	2.4	2.4
82.5°	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6
85°	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6
87.5°	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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)