

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: P182755

Luminaire Tested: **LDSQA4A13930D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182755  
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: LDSQA4A13930D010TE 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 / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

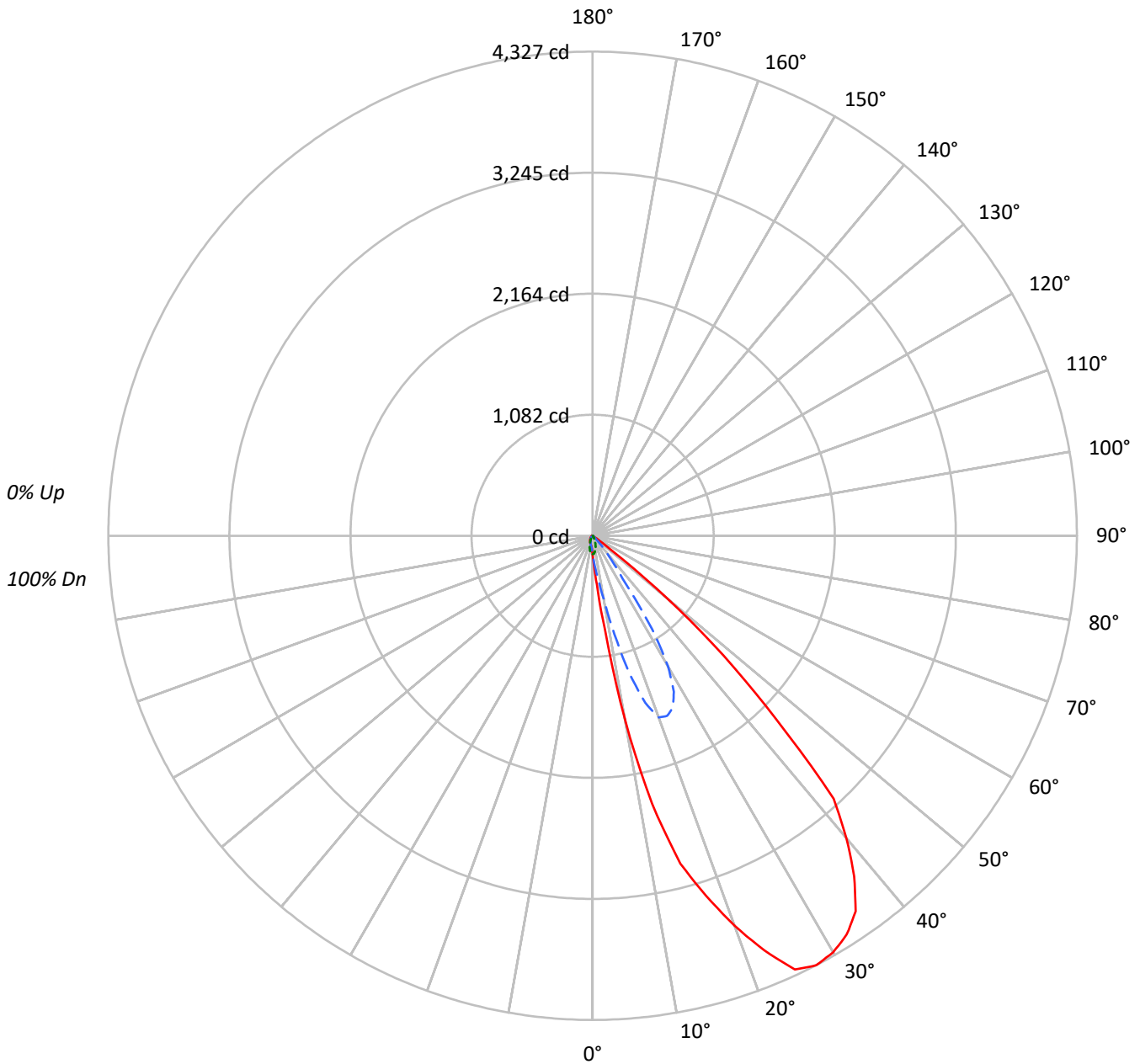
Lumens per Lamp: N/A  
Luminaire Lumens: 1417.5 lumens  
Efficiency: N/A  
Efficacy: 63.7 lumens/watt  
Spacing Criteria (0/90/45): 2.46 / 0.59 / 1.2  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (A<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°	16023	16023	16023
5°	42136	15268	9968
10°	165202	13211	8293
15°	304148	10410	7351
20°	382185	7361	6691
25°	457137	4853	5964
30°	480727	3043	5224
35°	484607	1845	4529
40°	445930	1227	3857
45°	317270	891	3206
50°	131104	678	2637
55°	7567	659	2297
60°	872	620	1879
65°	298	734	1330
70°	368	736	906
75°	487	973	973
80°	0	1450	1060
85°	0	2890	1445



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	26.0	1.8
10°-20°	207.7	14.7
20°-30°	429.6	30.3
30°-40°	467.7	33.0
40°-50°	256.5	18.1
50°-60°	22.2	1.6
60°-70°	3.6	0.3
70°-80°	2.6	0.2
80°-90°	1.6	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°	663.4	46.8
0°-40°	1131.1	79.8
0°-60°	1409.7	99.4
0°-90°	1417.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1417.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	165	165	165	165	165	
5°	433	296	157	108	102	79
15°	3033	1275	104	70	73	847
25°	4277	1696	45	43	56	1931
35°	4098	464	16	25	38	2515
45°	2316	47	6	14	23	1768
55°	45	5	4	8	14	153
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°	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4
2.5°	260.1	251.0	249.7	251.0	244.6	243.9	245.2	240.0	235.5	230.9	227.0
5°	433.3	414.5	408.7	400.9	381.4	374.9	373.6	352.9	332.8	314.0	296.4
7.5°	842.0	804.4	784.3	745.3	685.7	659.1	644.8	576.7	513.1	455.4	402.8
10°	1679.4	1580.8	1532.8	1459.5	1329.1	1264.9	1218.2	1047.0	878.3	716.1	573.4
12.5°	2450.7	2396.2	2325.5	2286.6	2075.1	1994.0	1916.8	1679.4	1422.6	1160.5	900.4
15°	3032.6	2952.8	2877.5	2859.4	2693.3	2598.6	2513.0	2267.1	1961.6	1628.2	1274.7
17.5°	3374.4	3317.3	3246.0	3211.6	3017.0	2940.5	2843.2	2605.1	2308.0	1975.9	1565.3
20°	3707.2	3622.9	3522.3	3470.4	3255.1	3166.9	3056.6	2806.2	2491.6	2138.7	1728.1
22.5°	4011.4	3902.5	3759.7	3679.3	3437.4	3340.0	3216.8	2945.7	2605.1	2201.6	1741.7
25°	4276.7	4178.1	3988.1	3847.3	3561.9	3447.1	3303.7	3020.2	2646.0	2196.4	1695.6
27.5°	4327.3	4261.2	4090.6	3927.8	3605.4	3477.6	3329.0	3035.8	2617.4	2124.4	1571.7
30°	4297.5	4226.1	4089.3	3923.2	3587.2	3458.1	3303.7	2969.7	2505.8	1956.4	1344.7
32.5°	4225.5	4163.9	4000.4	3825.3	3497.7	3363.4	3200.6	2814.6	2314.5	1689.2	989.2
35°	4097.7	4004.9	3807.7	3663.7	3355.6	3217.4	3018.3	2607.7	2028.4	1214.3	463.8
37.5°	3837.6	3747.4	3605.4	3472.4	3172.0	3009.2	2799.1	2319.7	1503.6	662.3	286.7
40°	3526.2	3448.4	3324.5	3195.4	2886.0	2698.5	2466.9	1813.1	884.8	373.0	176.4
42.5°	3187.6	3107.2	2967.1	2816.6	2479.3	2281.4	2031.0	1173.5	466.4	219.9	96.0
45°	2315.8	2243.8	2141.9	2033.6	1838.4	1695.6	1366.1	616.2	258.2	116.8	47.4
47.5°	1584.7	1499.1	1311.0	1083.3	878.3	751.2	565.0	267.3	132.3	58.4	27.9
50°	869.9	779.1	683.1	531.9	356.1	292.6	227.7	129.1	59.7	29.2	15.6
52.5°	213.4	188.8	172.5	158.9	125.8	113.5	96.0	53.8	27.2	16.2	11.0
55°	44.8	41.5	39.6	38.9	35.7	34.4	29.8	20.8	14.9	10.4	5.2
57.5°	13.0	12.3	13.0	13.0	13.0	12.3	12.3	9.1	8.4	5.2	3.2
60°	4.5	4.5	4.5	5.2	5.2	5.2	5.8	5.8	4.5	3.2	2.6
62.5°	1.9	1.9	1.9	2.6	2.6	3.2	3.2	3.2	2.6	2.6	1.9
65°	1.3	1.3	1.3	1.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.9
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.9
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.9
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.9
77.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.3	1.3	1.3	1.9
80°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.3	1.3	1.3	1.3
82.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.3	1.3	1.3
85°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.3	1.3	1.3
87.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	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°	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4
2.5°	216.0	209.5	201.7	193.3	192.0	187.5	181.0	171.9	168.7	162.2	156.3
5°	271.1	253.6	235.5	219.3	214.1	206.9	195.3	179.0	168.7	157.0	147.3
7.5°	345.1	304.9	267.9	238.7	229.6	218.0	199.8	179.0	163.5	147.3	134.3
10°	443.7	362.0	298.4	251.0	236.1	220.6	196.5	171.3	153.1	134.3	120.7
12.5°	633.8	445.6	326.9	257.5	236.8	216.7	186.2	158.9	138.2	119.4	105.7
15°	901.0	604.6	384.7	262.1	230.3	205.6	170.0	142.1	121.3	103.8	90.8
17.5°	1126.8	755.1	461.9	275.0	225.7	191.4	151.1	122.6	102.5	86.9	76.5
20°	1237.0	822.5	496.9	277.0	212.8	170.0	129.1	101.8	84.3	71.4	62.3
22.5°	1224.1	799.8	464.5	242.6	179.7	143.4	107.0	82.4	67.5	57.1	50.6
25°	1137.1	701.2	378.8	185.5	140.1	116.1	83.7	64.2	52.5	45.4	40.2
27.5°	991.2	563.1	276.3	131.0	106.4	88.2	62.3	49.3	40.2	35.0	31.8
30°	763.5	360.0	158.9	94.1	77.2	62.9	46.7	35.7	30.5	27.2	24.6
32.5°	393.7	175.1	105.7	67.5	54.5	45.4	32.4	25.9	22.7	20.8	19.5
35°	216.0	124.5	73.3	43.5	35.0	29.2	22.1	18.2	16.9	15.6	15.6
37.5°	148.5	77.2	40.9	25.9	21.4	18.2	14.9	13.0	12.3	12.3	12.3
40°	85.6	40.9	23.4	16.2	13.6	12.3	10.4	9.7	9.7	9.7	10.4
42.5°	44.1	24.0	15.6	11.0	9.7	8.4	7.1	7.1	7.1	7.8	8.4
45°	25.9	16.2	10.4	7.1	6.5	5.8	5.2	5.2	5.8	6.5	7.1
47.5°	16.2	11.0	6.5	4.5	3.9	3.9	3.9	3.9	4.5	5.2	5.8
50°	11.0	5.8	3.9	2.6	2.6	2.6	2.6	3.2	3.9	4.5	5.2
52.5°	5.8	3.2	2.6	1.9	1.9	1.9	2.6	2.6	3.2	3.9	4.5
55°	3.2	2.6	1.9	1.9	1.9	1.9	1.9	2.6	3.2	3.9	4.5
57.5°	2.6	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	3.2	3.9
60°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	3.2	3.9
62.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	3.2	3.2
65°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	3.2	3.2
67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6	3.2
70°	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6	2.6	3.2
72.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6	2.6
75°	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6	2.6	2.6	3.2
77.5°	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6	2.6	2.6
80°	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6	2.6	2.6
82.5°	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6	2.6	2.6
85°	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6	2.6	2.6	2.6
87.5°	1.9	1.9	1.9	1.9	1.9	1.9	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°	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4
2.5°	153.1	147.9	142.7	142.7	140.1	136.2	134.9	131.0	128.4	127.1	125.8
5°	140.1	132.3	125.2	124.5	121.3	116.8	114.8	110.9	108.3	107.0	106.4
7.5°	125.2	117.4	110.3	109.0	106.4	103.1	101.2	98.0	96.7	95.4	94.7
10°	110.9	103.1	98.0	96.7	94.7	92.1	90.2	88.2	86.9	86.3	86.3
12.5°	96.7	90.8	86.3	85.0	83.7	81.7	80.4	79.1	78.5	78.5	78.5
15°	83.7	78.5	74.6	74.6	73.3	72.0	72.0	70.7	70.1	70.7	71.4
17.5°	70.7	66.8	63.6	63.6	62.9	62.3	62.3	62.3	62.9	63.6	64.9
20°	58.4	55.1	53.8	53.8	53.2	53.8	53.8	54.5	55.1	57.1	59.0
22.5°	47.4	45.4	44.1	44.8	44.8	45.4	46.1	47.4	48.7	50.6	52.5
25°	38.3	37.0	36.3	37.0	37.6	38.3	39.6	40.9	42.8	44.8	47.4
27.5°	30.5	29.8	29.8	30.5	31.1	32.4	34.4	35.7	37.6	39.6	42.2
30°	24.6	24.0	24.6	25.9	26.6	27.9	29.2	31.1	33.1	35.0	37.6
32.5°	19.5	20.1	20.8	21.4	22.1	24.0	25.3	26.6	28.5	30.5	33.1
35°	16.2	16.9	17.5	18.2	18.8	20.1	21.4	22.7	24.6	26.6	29.2
37.5°	13.0	13.6	14.3	15.6	16.2	16.9	18.8	19.5	21.4	22.7	25.3
40°	11.0	11.7	12.3	13.0	13.6	14.9	16.2	16.9	18.2	20.1	22.1
42.5°	9.1	9.7	10.4	11.0	11.7	13.0	13.6	14.9	16.2	17.5	18.8
45°	7.8	8.4	9.1	9.7	10.4	11.0	11.7	13.0	13.6	14.9	16.2
47.5°	6.5	7.1	8.4	8.4	9.1	9.7	10.4	11.0	12.3	13.0	14.3
50°	5.8	6.5	7.1	7.8	7.8	8.4	9.1	9.7	10.4	11.0	12.3
52.5°	5.2	5.8	6.5	6.5	7.1	7.8	8.4	8.4	9.1	9.7	10.4
55°	4.5	5.2	5.8	5.8	6.5	7.1	7.1	7.8	8.4	8.4	9.1
57.5°	4.5	4.5	5.2	5.2	5.8	5.8	6.5	7.1	7.1	7.8	8.4
60°	3.9	4.5	4.5	5.2	5.2	5.8	5.8	6.5	6.5	7.1	7.1
62.5°	3.9	3.9	4.5	4.5	5.2	5.2	5.8	5.8	5.8	6.5	6.5
65°	3.9	3.9	4.5	4.5	4.5	5.2	5.2	5.2	5.2	5.8	5.8
67.5°	3.2	3.9	3.9	4.5	4.5	4.5	4.5	4.5	5.2	5.2	5.2
70°	3.2	3.9	3.9	3.9	3.9	4.5	4.5	4.5	4.5	4.5	4.5
72.5°	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9	3.9	3.9	3.9
75°	3.2	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9	3.9	3.9
77.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
80°	2.6	2.6	2.6	2.6	2.6	3.2	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	1.9	1.9
85°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	1.9	1.9	1.9	1.9
87.5°	2.6	2.6	2.6	1.9	1.9	1.9	1.9	1.9	1.9	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°	165.4	165.4	165.4	165.4	165.4	165.4	165.4	165.4
2.5°	123.9	122.6	123.9	122.6	122.6	120.0	122.0	120.7
5°	104.4	103.1	104.4	103.8	102.5	101.8	103.1	102.5
7.5°	93.4	92.1	93.4	93.4	92.1	91.5	92.8	92.1
10°	85.0	84.3	85.0	85.0	84.3	83.7	85.0	84.3
12.5°	77.8	77.2	78.5	78.5	77.8	77.8	79.1	77.8
15°	71.4	71.4	72.7	72.7	72.7	72.7	73.9	73.3
17.5°	64.9	66.2	67.5	68.1	68.1	68.1	69.4	69.4
20°	59.7	61.0	62.3	62.9	63.6	63.6	64.9	64.9
22.5°	53.8	55.1	57.1	57.7	58.4	59.0	60.3	60.3
25°	48.7	49.9	51.9	52.5	53.8	54.5	55.8	55.8
27.5°	43.5	45.4	46.7	48.0	48.7	49.9	51.2	51.2
30°	38.9	40.9	42.2	43.5	44.1	45.4	46.7	46.7
32.5°	34.4	36.3	37.6	38.9	40.2	40.9	42.8	42.8
35°	30.5	31.8	33.7	34.4	35.7	37.0	38.3	38.3
37.5°	26.6	27.9	29.2	30.5	31.8	32.4	33.7	34.4
40°	23.4	24.6	25.9	26.6	27.9	29.2	29.8	30.5
42.5°	20.1	21.4	22.7	23.4	24.6	25.3	26.6	26.6
45°	17.5	18.8	19.5	20.1	21.4	22.1	23.4	23.4
47.5°	14.9	16.2	16.9	17.5	18.2	18.8	20.1	20.1
50°	13.0	13.6	14.3	14.9	15.6	16.9	17.5	17.5
52.5°	11.0	12.3	12.3	13.0	13.6	14.3	14.9	15.6
55°	9.7	10.4	11.0	11.0	11.7	12.3	13.0	13.6
57.5°	8.4	9.1	9.7	9.7	10.4	10.4	11.0	11.7
60°	7.8	7.8	8.4	8.4	8.4	9.1	9.1	9.7
62.5°	6.5	6.5	7.1	7.1	7.1	7.1	7.1	7.1
65°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
67.5°	5.2	5.2	5.2	5.2	4.5	4.5	4.5	4.5
70°	4.5	4.5	4.5	4.5	3.9	3.9	3.9	3.2
72.5°	3.9	3.9	3.9	3.9	3.2	3.2	2.6	2.6
75°	3.2	3.2	3.2	3.2	3.2	2.6	2.6	2.6
77.5°	3.2	2.6	2.6	2.6	2.6	2.6	2.6	1.9
80°	2.6	2.6	1.9	1.9	1.9	1.9	1.9	1.9
82.5°	1.9	1.9	1.9	1.9	1.3	1.3	1.3	1.3
85°	1.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3
87.5°	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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)