

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: P182841

Luminaire Tested: **LDSQA4A09840D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182841  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26804)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQA4A09840D010TE LAR35FL 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 35° FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1153.8 lumens  
Efficiency: N/A  
Efficacy: 83.4 lumens/watt  
Spacing Criteria (0/90/45): 2.46 / 0.61 / 1.2  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

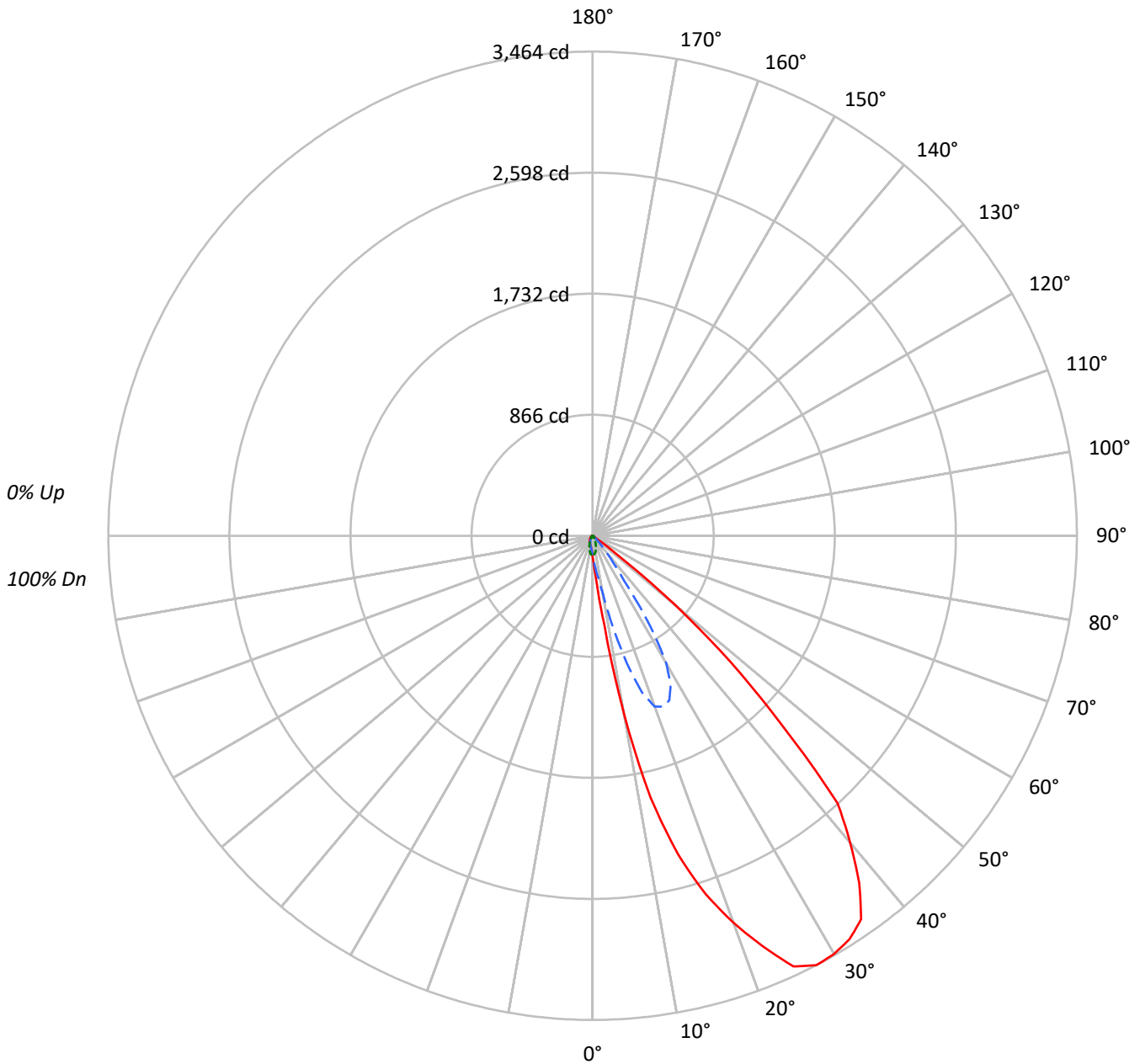
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20				20				20				20				20				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				100
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91				91
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82				82
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74				74
4	92	83	77	71	90	82	76	71	80	74	70	78	73	69	76	72	68	67				67
5	86	76	69	64	84	75	68	64	73	67	63	71	66	62	70	65	62	60				60
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54				54
7	75	64	57	52	74	63	56	51	62	56	51	60	55	51	59	54	50	49				49
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44				44
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40				40
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36				36

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

	0°	90°	180°
0°	13824	13824	13824
5°	32392	13041	9122
10°	127989	11460	7604
15°	236872	9177	6669
20°	303721	6680	6031
25°	363395	4735	5345
30°	386394	3121	4709
35°	396004	1880	4104
40°	362503	1227	3528
45°	261579	863	2877
50°	114194	678	2396
55°	7871	574	2010
60°	1434	543	1647
65°	527	527	1169
70°	482	651	793
75°	412	861	861
80°	0	1283	948
85°	0	2556	667



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	20.8	1.8
10°-20°	163.3	14.2
20°-30°	341.9	29.6
30°-40°	380.6	33.0
40°-50°	218.5	18.9
50°-60°	21.8	1.9
60°-70°	3.4	0.3
70°-80°	2.2	0.2
80°-90°	1.3	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°	526.0	45.6
0°-40°	906.6	78.6
0°-60°	1146.9	99.4
0°-90°	1153.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1153.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	143	143	143	143	143	
5°	333	230	134	98	94	61
15°	2362	943	92	64	66	668
25°	3400	1298	44	39	50	1540
35°	3348	396	16	23	35	2045
45°	1909	48	6	12	21	1458
55°	47	7	3	7	12	139
65°	2	2	2	4	5	3
75°	1	1	2	3	2	1
85°	0	1	2	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°	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7
2.5°	213.2	208.6	204.1	201.2	198.4	202.4	199.5	198.4	190.4	186.4	183.0
5°	333.1	324.6	312.1	301.8	291.6	293.9	285.9	276.2	256.4	242.1	229.6
7.5°	642.9	621.8	583.2	545.7	508.2	501.3	476.3	433.1	377.4	335.4	299.0
10°	1301.1	1237.4	1166.4	1089.6	999.8	974.8	912.9	795.8	667.9	521.8	416.1
12.5°	1920.7	1891.7	1808.1	1708.6	1611.4	1551.8	1487.5	1294.3	1091.4	856.0	659.4
15°	2361.8	2344.1	2270.8	2180.4	2075.8	2037.2	1958.7	1766.1	1509.7	1228.3	943.0
17.5°	2688.6	2658.5	2581.7	2483.4	2359.5	2326.5	2232.7	2041.2	1775.2	1492.6	1176.0
20°	2946.1	2927.3	2827.8	2709.6	2561.3	2521.5	2411.8	2212.3	1922.9	1622.8	1300.5
22.5°	3177.4	3145.6	3023.4	2882.4	2713.0	2670.4	2548.2	2329.4	2018.4	1684.2	1322.7
25°	3399.7	3351.4	3203.0	3018.3	2819.3	2761.3	2627.2	2395.3	2053.7	1689.3	1297.7
27.5°	3464.5	3440.0	3303.0	3088.2	2858.0	2792.6	2652.8	2410.1	2040.6	1642.7	1207.9
30°	3454.2	3433.8	3319.5	3095.0	2851.2	2782.4	2640.3	2364.6	1964.4	1521.1	1049.3
32.5°	3421.8	3413.9	3275.8	3035.9	2787.5	2712.5	2559.0	2251.5	1821.8	1335.8	766.8
35°	3348.5	3317.3	3145.0	2919.4	2680.6	2598.2	2424.8	2089.5	1633.6	972.6	396.2
37.5°	3133.7	3109.2	2973.4	2775.6	2543.1	2437.3	2254.3	1880.3	1264.7	553.1	237.0
40°	2866.5	2854.6	2747.7	2570.9	2322.5	2203.2	2004.2	1538.7	771.9	314.3	156.3
42.5°	2592.5	2589.1	2474.9	2290.1	2020.7	1883.7	1677.4	1037.9	410.4	189.8	90.4
45°	1909.3	1929.8	1850.2	1739.3	1533.6	1434.1	1166.4	534.9	236.5	105.2	47.7
47.5°	1339.2	1316.4	1175.5	981.6	793.5	671.9	508.2	252.9	126.2	55.1	27.3
50°	757.7	761.7	634.3	513.3	336.5	266.6	202.4	127.3	60.8	29.0	16.5
52.5°	197.8	206.9	178.5	153.5	130.7	106.3	85.8	55.1	29.0	17.1	10.8
55°	46.6	48.3	44.9	42.1	39.8	35.2	31.3	23.9	15.9	10.8	6.8
57.5°	16.5	17.1	16.5	16.5	15.9	15.3	14.2	12.5	9.7	6.8	4.5
60°	7.4	8.0	7.4	8.0	8.0	8.0	8.0	8.0	5.7	4.0	2.8
62.5°	3.4	3.4	3.4	3.4	4.0	4.0	4.5	4.5	3.4	2.8	2.3
65°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.7
67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
70°	1.7	1.7	1.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.7
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.1	1.1	1.1
80°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.1	1.1
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°	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7
2.5°	176.8	176.2	170.0	165.4	163.1	159.7	155.7	150.1	143.8	138.1	135.9
5°	214.9	207.5	194.4	183.6	178.5	173.4	164.3	154.0	144.4	134.1	129.0
7.5°	264.3	242.7	217.1	197.2	188.7	180.2	167.1	152.9	139.8	126.2	118.8
10°	332.0	281.9	237.6	205.8	193.3	181.9	163.1	145.5	131.3	116.5	106.9
12.5°	474.6	350.7	259.2	209.7	193.3	178.5	155.7	135.3	119.4	104.0	94.9
15°	683.8	473.5	306.4	213.7	189.3	170.5	144.4	122.2	105.2	91.5	83.0
17.5°	852.6	586.6	364.9	224.0	184.2	159.7	129.6	106.3	90.4	77.9	71.1
20°	937.9	634.3	391.6	225.7	171.7	142.7	112.0	89.8	75.6	64.8	59.1
22.5°	936.2	619.0	367.8	197.8	150.6	123.3	94.4	73.9	62.5	54.0	49.5
25°	877.1	547.9	306.9	158.0	121.6	102.3	76.7	59.7	50.6	44.3	40.4
27.5°	766.2	445.1	229.1	117.1	94.9	80.7	59.7	47.7	40.4	35.8	33.0
30°	601.4	297.8	144.4	87.0	72.2	60.8	46.0	36.9	31.8	27.9	26.1
32.5°	331.4	155.2	97.2	63.7	52.9	44.3	34.1	26.7	23.3	20.5	19.9
35°	183.0	109.7	69.3	42.6	35.2	30.1	23.3	19.3	17.1	15.9	15.9
37.5°	129.6	70.5	41.5	26.7	22.7	19.9	15.9	13.6	13.1	12.5	12.5
40°	77.9	41.5	25.0	17.6	15.3	13.6	11.9	10.2	10.2	9.7	10.2
42.5°	42.6	25.0	17.1	12.5	10.8	10.2	8.5	8.0	8.0	8.0	8.5
45°	25.6	16.5	11.9	9.1	8.0	6.8	6.3	5.7	6.3	6.3	6.8
47.5°	16.5	11.9	8.0	5.7	5.1	4.5	4.0	4.5	4.5	5.1	5.7
50°	11.4	7.4	5.1	3.4	3.4	2.8	3.4	3.4	4.0	4.5	5.1
52.5°	7.4	5.1	3.4	2.8	2.3	2.3	2.3	2.8	3.4	4.0	4.5
55°	4.5	3.4	2.8	2.3	2.3	2.3	2.3	2.3	2.8	3.4	4.0
57.5°	3.4	2.8	2.3	1.7	1.7	1.7	2.3	2.3	2.8	2.8	3.4
60°	2.3	2.3	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.8	3.4
62.5°	2.3	2.3	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.8	2.8
65°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.8
67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.8
70°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.8
72.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3
75°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3
77.5°	1.1	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3
82.5°	1.1	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3
85°	1.1	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3
87.5°	1.1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3
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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7
2.5°	133.0	129.0	125.6	126.8	124.5	120.5	119.4	116.5	113.1	112.5	112.5
5°	123.3	117.1	112.0	111.4	109.1	104.6	103.5	100.6	97.8	97.2	96.6
7.5°	111.4	104.6	100.0	98.9	97.2	93.2	92.7	89.8	88.1	87.0	87.0
10°	99.5	93.2	89.2	88.7	87.5	84.1	83.6	81.3	79.6	79.0	78.4
12.5°	88.1	83.0	79.6	79.0	77.9	75.0	74.5	72.8	71.6	71.1	71.1
15°	77.3	72.8	69.9	69.3	68.8	65.9	65.9	64.8	64.2	64.2	64.8
17.5°	66.5	62.5	60.3	59.7	59.7	57.4	58.0	57.4	57.4	57.4	58.5
20°	55.7	52.3	50.6	51.2	50.0	49.5	50.0	50.0	50.0	51.2	52.9
22.5°	46.6	43.8	42.1	42.6	42.6	42.1	42.6	43.2	44.3	46.0	47.7
25°	38.1	35.8	35.2	35.8	35.8	35.8	36.9	38.1	39.2	40.9	42.6
27.5°	30.7	29.0	29.0	29.6	30.1	30.1	31.8	33.0	34.7	36.4	38.1
30°	24.4	23.9	23.9	25.0	25.0	25.6	27.9	29.0	30.1	31.8	33.5
32.5°	19.3	19.3	19.9	21.0	21.0	22.2	23.9	25.0	26.1	27.9	29.6
35°	15.9	16.5	17.1	17.6	18.2	18.8	20.5	21.6	22.7	24.4	25.6
37.5°	13.1	13.6	14.2	15.3	15.3	15.9	17.6	18.8	19.3	21.0	22.7
40°	10.8	11.4	11.9	13.1	13.1	13.6	15.3	15.9	16.5	18.2	19.9
42.5°	9.1	9.7	10.2	10.8	11.4	11.9	13.1	13.6	14.8	15.9	17.1
45°	7.4	8.0	8.5	9.1	9.7	10.2	10.8	11.9	12.5	13.6	14.8
47.5°	6.3	6.8	7.4	8.0	8.5	8.5	9.7	10.2	10.8	11.9	13.1
50°	5.7	6.3	6.8	6.8	7.4	8.0	8.5	9.1	9.7	10.2	11.4
52.5°	4.5	5.1	5.7	6.3	6.3	6.8	7.4	8.0	8.5	9.1	9.7
55°	4.5	4.5	5.1	5.7	5.7	6.3	6.8	7.4	7.4	8.0	8.5
57.5°	4.0	4.5	4.5	5.1	5.1	5.7	6.3	6.3	6.8	6.8	7.4
60°	3.4	4.0	4.5	4.5	4.5	5.1	5.1	5.7	5.7	6.3	6.3
62.5°	3.4	4.0	4.0	4.5	4.5	4.5	5.1	5.1	5.1	5.7	5.7
65°	3.4	3.4	4.0	4.0	4.0	4.0	4.5	4.5	4.5	5.1	5.1
67.5°	2.8	3.4	3.4	3.4	4.0	4.0	4.0	4.0	4.0	4.5	4.5
70°	2.8	2.8	3.4	3.4	3.4	3.4	3.4	4.0	4.0	4.0	4.0
72.5°	2.8	2.8	2.8	2.8	3.4	3.4	3.4	3.4	3.4	3.4	3.4
75°	2.3	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
77.5°	2.3	2.3	2.3	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
80°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
82.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.7	1.7
85°	2.3	2.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
87.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.1	1.1	1.1
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°	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7
2.5°	110.3	109.1	108.6	110.3	108.0	109.1	108.6	109.1
5°	94.9	93.8	93.2	94.9	92.7	93.8	92.7	93.8
7.5°	85.3	84.7	84.1	85.3	83.6	84.7	84.1	84.7
10°	77.3	76.7	76.2	77.9	76.2	77.3	76.7	77.3
12.5°	70.5	70.5	69.9	71.1	69.9	71.1	70.5	71.1
15°	64.2	64.8	64.2	65.4	64.8	65.9	65.4	66.5
17.5°	59.1	59.7	59.7	61.4	60.8	62.5	62.0	62.5
20°	54.0	54.6	55.1	56.3	56.3	58.0	57.4	58.5
22.5°	48.9	50.0	50.0	51.7	51.7	53.4	53.4	54.0
25°	43.8	45.5	46.0	47.2	47.7	49.5	49.5	50.0
27.5°	39.8	40.9	41.5	43.2	43.8	45.5	45.5	46.6
30°	35.2	36.9	37.5	38.7	39.2	40.9	40.9	42.1
32.5°	31.3	32.4	33.5	34.7	35.2	36.9	36.9	38.1
35°	27.3	29.0	29.6	30.7	31.8	33.5	33.5	34.7
37.5°	23.9	25.6	26.1	27.3	28.4	30.1	30.1	31.3
40°	21.0	22.7	23.3	24.4	25.0	27.3	27.3	27.9
42.5°	18.8	19.9	20.5	21.6	22.2	23.3	23.3	24.4
45°	15.9	17.1	17.6	18.2	19.3	20.5	20.5	21.0
47.5°	13.6	14.8	15.3	15.9	16.5	17.6	17.6	18.8
50°	11.9	12.5	13.1	13.6	14.2	15.3	15.3	15.9
52.5°	10.2	10.8	11.4	11.9	12.5	13.1	13.6	14.2
55°	9.1	9.7	9.7	10.2	10.8	11.4	11.4	11.9
57.5°	8.0	8.5	8.5	8.5	9.1	9.7	9.7	10.2
60°	6.8	7.4	7.4	7.4	8.0	8.0	8.0	8.5
62.5°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
65°	5.1	5.1	5.1	5.1	5.1	5.1	4.5	5.1
67.5°	4.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0
70°	4.0	4.0	4.0	3.4	3.4	3.4	2.8	2.8
72.5°	3.4	3.4	3.4	2.8	2.8	2.8	2.3	2.3
75°	2.8	2.8	2.8	2.8	2.3	2.3	2.3	2.3
77.5°	2.3	2.3	2.3	2.3	2.3	2.3	1.7	1.7
80°	2.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7
82.5°	1.7	1.7	1.7	1.7	1.1	1.1	1.1	1.1
85°	1.1	1.1	1.1	1.1	1.1	1.1	0.6	0.6
87.5°	1.1	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)