

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: P182818

Luminaire Tested: **LDSQA4A13927D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182818  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26803)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQA4A13927D010TE LAR25NF 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1235.2 lumens  
Efficiency: N/A  
Efficacy: 55.5 lumens/watt  
Spacing Criteria (0/90/45): 2.36 / 0.61 / 1.19  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

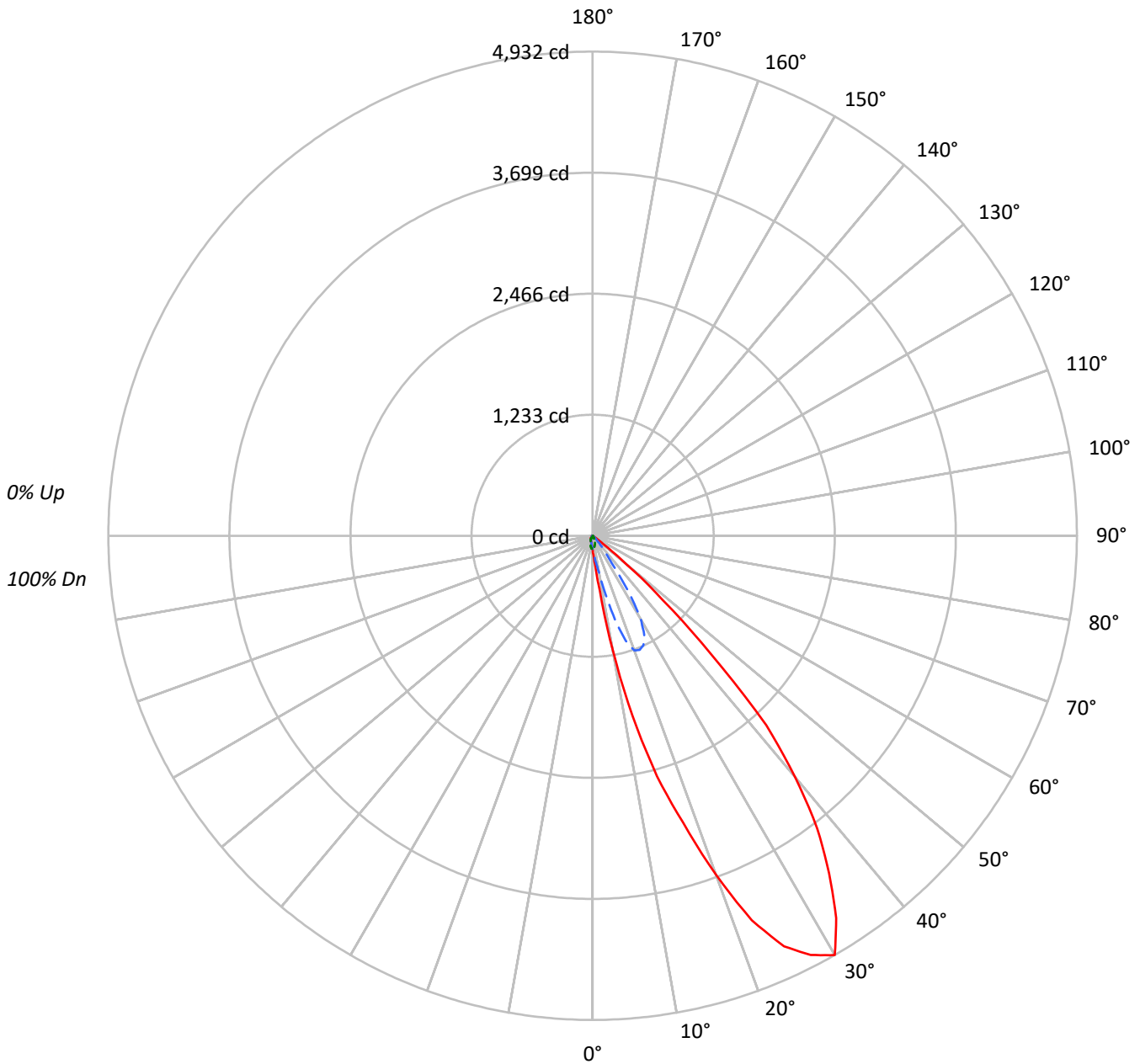
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83																			
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75																			
4	93	84	77	72	91	83	76	72	80	75	71	78	74	70	76	72	69	67																			
5	87	77	70	65	85	76	69	64	74	68	64	72	67	63	70	66	63	61																			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	57	55																			
7	76	65	57	52	74	64	57	52	62	56	52	61	56	52	60	55	51	50																			
8	71	59	52	47	69	59	52	47	58	51	47	57	51	47	55	50	47	45																			
9	66	55	48	43	65	54	48	43	53	47	43	52	47	43	51	46	42	41																			
10	62	51	44	39	61	50	44	39	49	43	39	48	43	39	48	42	39	37																			

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

	0°	90°	180°
0°	13340	13340	13340
5°	29854	12545	8985
10°	117070	10978	7073
15°	254142	8896	6158
20°	379134	6588	5567
25°	493127	4639	4842
30°	551659	3121	4228
35°	496457	1833	3595
40°	405159	1252	3136
45°	232630	849	2548
50°	68046	648	2155
55°	7854	524	1773
60°	1686	601	1434
65°	573	573	986
70°	538	708	708
75°	449	936	711
80°	0	1395	669
85°	0	2779	667



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	19.7	1.6
10°-20°	169.1	13.7
20°-30°	403.4	32.7
30°-40°	425.7	34.5
40°-50°	193.1	15.6
50°-60°	16.9	1.4
60°-70°	3.6	0.3
70°-80°	2.3	0.2
80°-90°	1.4	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°	592.2	47.9
0°-40°	1017.9	82.4
0°-60°	1227.9	99.4
0°-90°	1235.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1235.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	138	138	138	138	138	
5°	307	225	129	99	92	55
15°	2534	891	89	61	61	737
25°	4613	1227	43	37	45	2096
35°	4198	339	16	21	30	2592
45°	1698	48	6	12	19	1346
55°	46	7	3	7	10	93
65°	2	2	2	5	4	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°	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7
2.5°	204.7	205.9	200.3	200.9	195.4	197.8	196.0	191.0	187.3	181.1	178.6
5°	307.0	308.8	296.4	292.7	279.7	279.7	274.1	261.1	249.3	235.0	225.1
7.5°	561.3	568.7	531.5	503.6	462.6	452.7	433.5	388.8	352.3	315.0	287.1
10°	1190.1	1176.5	1099.6	1036.3	930.9	891.8	839.7	711.3	593.5	476.3	384.5
12.5°	1876.6	1920.7	1772.4	1721.0	1554.1	1518.8	1407.8	1198.2	999.1	792.0	608.4
15°	2534.0	2547.0	2417.4	2333.7	2130.3	2084.4	1947.9	1701.7	1433.8	1144.8	891.2
17.5°	3061.8	3113.9	2923.5	2833.5	2569.4	2495.6	2334.9	2035.4	1737.1	1421.4	1120.6
20°	3677.6	3691.2	3465.5	3292.5	2947.0	2834.8	2642.5	2271.1	1915.7	1555.4	1244.7
22.5°	4237.6	4234.5	3944.3	3699.9	3262.7	3128.7	2891.2	2450.9	2037.9	1614.9	1256.5
25°	4613.4	4623.3	4312.6	4023.6	3487.2	3306.1	3038.2	2544.5	2079.4	1613.1	1226.7
27.5°	4813.7	4803.8	4470.8	4161.9	3569.7	3366.9	3076.0	2547.6	2041.6	1549.8	1137.4
30°	4931.6	4798.9	4443.5	4122.9	3513.9	3305.5	3009.7	2449.7	1915.7	1408.4	978.0
32.5°	4616.5	4565.1	4255.6	3915.1	3321.6	3115.1	2823.0	2241.3	1716.0	1192.0	700.8
35°	4197.9	4199.8	3897.8	3579.6	3020.2	2840.4	2539.0	1987.6	1472.3	828.5	338.6
37.5°	3758.8	3765.0	3477.9	3182.1	2684.1	2494.9	2212.8	1698.6	1059.2	421.7	204.0
40°	3203.8	3216.8	2969.4	2731.8	2272.3	2090.0	1838.2	1285.6	592.3	235.7	138.3
42.5°	2617.7	2633.8	2414.3	2203.5	1812.7	1662.7	1439.4	796.3	294.0	152.6	81.2
45°	1698.0	1744.5	1581.4	1492.7	1266.4	1177.1	939.6	406.2	177.4	89.3	47.8
47.5°	971.8	972.4	834.7	668.5	548.2	476.9	372.7	184.8	103.6	50.2	29.1
50°	451.5	462.6	366.5	305.1	218.3	184.8	151.9	99.8	54.6	29.1	18.0
52.5°	131.5	138.9	125.9	114.1	96.7	86.2	73.8	49.0	28.5	17.4	11.2
55°	46.5	49.6	46.5	43.4	39.1	35.3	31.6	23.6	16.1	10.5	7.4
57.5°	19.2	19.8	19.2	18.6	17.4	17.4	15.5	13.0	9.9	6.8	5.0
60°	8.7	9.3	8.7	9.3	8.7	8.7	8.7	9.3	6.2	4.3	3.7
62.5°	3.7	4.3	4.3	4.3	4.3	5.0	5.0	4.3	3.7	3.1	2.5
65°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
70°	1.9	1.9	1.9	1.9	1.9	1.9	1.2	1.2	1.9	1.9	1.9
72.5°	1.9	1.9	1.9	1.9	1.2	1.2	1.2	1.2	1.2	1.9	1.9
75°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
77.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2
80°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2
82.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2
87.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7
2.5°	175.5	169.9	161.2	155.7	153.2	149.5	147.0	140.8	138.3	133.3	131.5
5°	215.8	204.7	191.6	181.1	174.3	166.8	155.7	143.3	137.1	129.0	124.7
7.5°	261.7	237.5	214.6	196.0	187.3	177.4	163.1	143.9	132.1	121.6	115.4
10°	320.0	270.4	234.4	204.7	191.6	178.6	161.2	138.9	124.0	111.6	104.8
12.5°	456.4	326.2	252.4	209.6	192.9	176.7	155.0	132.1	114.7	100.5	93.0
15°	656.8	455.8	300.8	214.0	188.5	168.7	143.9	120.9	102.9	88.7	81.2
17.5°	834.1	581.1	367.8	230.1	187.3	159.4	130.2	106.7	89.3	75.7	69.5
20°	930.9	646.8	412.4	240.0	181.7	145.1	114.7	92.4	75.7	63.9	58.3
22.5°	932.7	643.1	396.3	218.3	160.0	125.9	99.2	78.1	63.3	52.7	48.4
25°	876.9	573.7	330.5	171.8	130.9	106.7	83.1	65.1	51.5	43.4	39.7
27.5°	772.7	466.4	243.1	124.0	102.3	86.2	67.0	52.1	40.3	35.3	32.2
30°	607.8	303.9	142.0	92.4	79.4	66.4	50.9	36.6	31.6	27.9	25.4
32.5°	326.2	147.6	99.2	68.2	56.4	46.5	33.5	26.7	22.9	20.5	19.8
35°	170.5	107.9	66.4	43.4	36.0	30.4	22.9	18.6	16.7	15.5	15.5
37.5°	122.2	67.6	42.2	27.9	23.6	19.2	16.1	13.6	12.4	12.4	12.4
40°	72.6	41.6	25.4	18.0	15.5	13.6	11.8	9.9	9.9	9.9	9.9
42.5°	44.0	26.0	18.0	12.4	11.2	9.9	8.7	8.1	7.4	7.4	8.1
45°	27.3	18.0	11.8	9.3	8.7	7.4	6.8	6.2	6.2	6.2	6.8
47.5°	17.4	13.0	8.7	6.2	5.6	5.0	4.3	4.3	5.0	5.0	5.6
50°	13.0	8.1	5.6	4.3	3.7	3.7	3.1	3.7	3.7	4.3	5.0
52.5°	7.4	5.0	3.7	3.1	3.1	2.5	2.5	3.1	3.1	3.7	4.3
55°	5.0	3.7	3.1	2.5	2.5	2.5	2.5	2.5	3.1	3.1	3.7
57.5°	3.7	3.1	2.5	2.5	2.5	1.9	2.5	2.5	2.5	3.1	3.7
60°	3.1	2.5	2.5	2.5	2.5	1.9	1.9	2.5	2.5	3.1	3.1
62.5°	2.5	2.5	2.5	2.5	2.5	1.9	2.5	2.5	2.5	2.5	3.1
65°	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.1
67.5°	1.9	1.9	2.5	2.5	2.5	1.9	2.5	2.5	2.5	2.5	3.1
70°	1.9	1.9	1.9	2.5	2.5	1.9	2.5	2.5	2.5	2.5	2.5
72.5°	1.9	1.9	1.9	2.5	2.5	1.9	2.5	2.5	2.5	2.5	2.5
75°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5
77.5°	1.9	1.9	1.9	1.9	2.5	1.9	2.5	2.5	2.5	2.5	2.5
80°	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5	2.5
82.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5
85°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5
87.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5
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°	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7
2.5°	126.5	124.7	120.9	120.3	119.7	117.2	115.4	113.5	113.5	111.6	110.4
5°	117.2	114.1	109.8	107.9	107.3	104.2	101.7	99.8	99.2	97.4	95.5
7.5°	107.3	103.6	98.6	96.7	96.1	93.0	90.5	88.7	87.4	85.6	84.3
10°	96.7	92.4	88.1	86.2	85.6	82.5	80.6	78.8	77.5	76.3	75.0
12.5°	85.6	81.9	77.5	75.7	75.0	72.6	70.7	69.5	68.8	67.6	67.0
15°	74.4	70.7	67.0	65.7	65.1	63.3	62.0	61.4	60.8	60.8	60.2
17.5°	63.3	60.2	57.1	56.4	55.8	54.6	54.0	53.3	54.0	54.0	54.6
20°	52.7	50.2	47.8	47.8	47.1	46.5	46.5	46.5	47.8	48.4	49.6
22.5°	43.4	41.6	39.7	39.7	39.7	39.7	39.7	40.9	42.2	43.4	44.0
25°	36.0	34.1	33.5	33.5	33.5	34.1	34.7	36.0	37.2	38.5	39.7
27.5°	29.1	27.9	27.9	27.9	28.5	29.1	29.8	31.0	32.9	34.1	35.3
30°	23.6	22.9	22.9	23.6	24.2	24.8	26.0	27.3	28.5	29.8	31.0
32.5°	18.6	19.2	19.2	19.8	20.5	21.1	22.3	23.6	24.8	26.0	26.7
35°	15.5	15.5	16.1	16.7	17.4	18.0	19.2	20.5	21.1	22.3	23.6
37.5°	12.4	13.0	13.6	14.3	14.9	15.5	16.1	17.4	18.0	19.2	20.5
40°	10.5	11.2	11.8	12.4	12.4	13.6	13.6	14.9	15.5	16.7	18.0
42.5°	8.7	9.3	9.9	10.5	10.5	11.2	11.8	12.4	13.6	14.3	15.5
45°	6.8	7.4	8.1	8.7	9.3	9.9	9.9	11.2	11.8	12.4	13.6
47.5°	6.2	6.8	7.4	7.4	8.1	8.7	8.7	9.9	10.5	11.2	11.8
50°	5.0	5.6	6.2	6.8	6.8	7.4	8.1	8.7	9.3	9.9	9.9
52.5°	4.3	5.0	5.6	5.6	6.2	6.8	6.8	7.4	8.1	8.1	8.7
55°	4.3	5.0	5.0	5.6	5.6	6.2	6.2	6.8	6.8	7.4	7.4
57.5°	3.7	4.3	4.3	5.0	5.0	5.6	5.6	6.2	6.2	6.2	6.8
60°	3.7	3.7	4.3	4.3	5.0	5.0	5.0	5.6	5.6	5.6	6.2
62.5°	3.1	3.7	3.7	4.3	4.3	4.3	5.0	5.0	5.0	5.6	5.6
65°	3.1	3.7	3.7	4.3	4.3	4.3	4.3	4.3	5.0	5.0	5.0
67.5°	3.1	3.1	3.7	3.7	3.7	3.7	4.3	4.3	4.3	4.3	4.3
70°	3.1	3.1	3.1	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
72.5°	2.5	3.1	3.1	3.1	3.1	3.7	3.7	3.7	3.7	3.7	3.1
75°	2.5	2.5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
77.5°	2.5	2.5	2.5	3.1	3.1	3.1	3.1	3.1	3.1	2.5	2.5
80°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9
82.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9
85°	2.5	1.9	2.5	2.5	2.5	1.9	1.9	1.9	1.9	1.9	1.2
87.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.2	1.2
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):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	137.7	137.7	137.7	137.7	137.7	137.7	137.7	137.7
2.5°	109.1	107.9	108.5	108.5	107.3	106.7	106.7	107.3
5°	94.3	93.0	93.6	93.6	92.4	91.8	91.8	92.4
7.5°	83.1	81.9	82.5	82.5	81.2	81.2	81.2	81.2
10°	74.4	73.8	73.8	73.8	72.6	73.2	72.6	71.9
12.5°	66.4	66.4	66.4	66.4	65.7	66.4	65.7	65.7
15°	60.2	60.2	60.8	60.8	60.8	61.4	61.4	61.4
17.5°	55.2	55.8	56.4	57.1	57.1	57.7	57.7	57.7
20°	50.2	51.5	52.1	52.7	52.7	54.0	53.3	54.0
22.5°	45.3	46.5	47.1	47.8	48.4	49.0	49.0	49.6
25°	40.9	42.2	42.8	43.4	44.0	45.3	45.3	45.3
27.5°	36.6	37.8	38.5	39.7	40.3	41.6	41.6	41.6
30°	32.2	33.5	34.1	34.7	36.0	37.2	37.2	37.8
32.5°	27.9	29.8	30.4	31.0	32.2	33.5	34.1	34.1
35°	24.8	26.0	26.7	27.9	28.5	30.4	30.4	30.4
37.5°	21.7	22.9	24.2	24.8	25.4	26.7	27.3	27.9
40°	19.2	20.5	21.1	21.7	22.9	24.2	24.8	24.8
42.5°	16.7	18.0	18.6	19.2	19.8	21.1	21.1	21.1
45°	14.9	15.5	16.1	16.7	17.4	18.0	18.6	18.6
47.5°	12.4	13.6	13.6	14.3	14.9	16.1	16.1	16.7
50°	10.5	11.8	11.8	12.4	13.0	13.6	14.3	14.3
52.5°	9.3	9.9	10.5	10.5	11.2	11.8	12.4	12.4
55°	8.1	8.7	8.7	9.3	9.3	9.9	10.5	10.5
57.5°	6.8	7.4	8.1	8.1	8.1	8.7	8.7	9.3
60°	6.2	6.8	6.8	6.8	6.8	7.4	7.4	7.4
62.5°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
65°	5.0	5.0	5.0	5.0	4.3	4.3	4.3	4.3
67.5°	4.3	4.3	4.3	4.3	3.7	3.7	3.7	3.7
70°	3.7	3.7	3.7	3.7	3.1	3.1	3.1	2.5
72.5°	3.1	3.1	3.1	3.1	3.1	2.5	2.5	2.5
75°	3.1	2.5	2.5	2.5	2.5	2.5	1.9	1.9
77.5°	2.5	2.5	2.5	1.9	1.9	1.9	1.9	1.9
80°	1.9	1.9	1.9	1.9	1.9	1.2	1.2	1.2
82.5°	1.9	1.2	1.2	1.2	1.2	1.2	1.2	1.2
85°	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6
87.5°	1.2	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)