

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: P182814

Luminaire Tested: **LDSQA4A13827D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182814  
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: LDSQA4A13827D010TE LAR25NF 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1539.0 lumens  
Efficiency: N/A  
Efficacy: 69.1 lumens/watt  
Spacing Criteria (0/90/45): 2.37 / 0.61 / 1.19  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

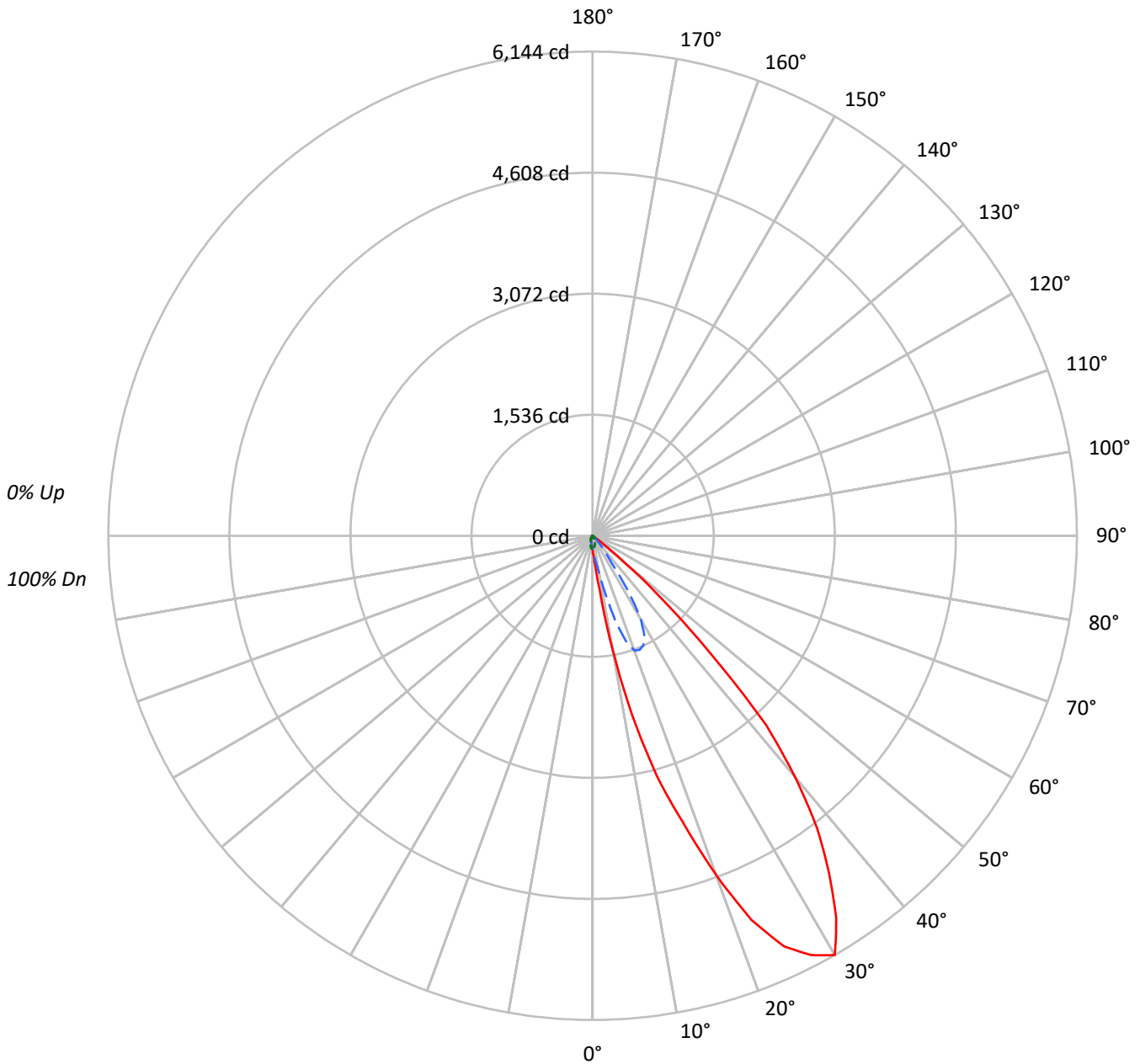
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	16614	16614	16614
5°	37196	15627	11193
10°	145863	13683	8814
15°	316655	11082	7672
20°	472381	8206	6928
25°	614416	5783	6029
30°	687337	3893	5269
35°	618563	2282	4482
40°	504811	1568	3908
45°	289856	1055	3178
50°	84775	814	2683
55°	9796	659	2213
60°	2093	756	1802
65°	711	711	1238
70°	651	878	878
75°	561	1160	861
80°	0	1729	837
85°	0	3446	889



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	24.6	1.6
10°-20°	210.7	13.7
20°-30°	502.6	32.7
30°-40°	530.4	34.5
40°-50°	240.5	15.6
50°-60°	21.1	1.4
60°-70°	4.4	0.3
70°-80°	2.9	0.2
80°-90°	1.8	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°	737.8	47.9
0°-40°	1268.2	82.4
0°-60°	1529.9	99.4
0°-90°	1539.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1539.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	172	172	172	172	172	
5°	382	280	161	124	115	69
15°	3157	1110	110	76	76	919
25°	5748	1528	54	46	56	2611
35°	5230	422	19	26	38	3230
45°	2116	60	8	15	23	1677
55°	58	9	4	8	13	116
65°	3	3	3	6	5	4
75°	2	2	3	4	2	1
85°	0	2	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°	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5
2.5°	255.0	256.5	249.6	250.4	243.4	246.5	244.2	238.0	233.4	225.6	222.5
5°	382.5	384.8	369.4	364.7	348.5	348.5	341.5	325.3	310.6	292.9	280.5
7.5°	699.3	708.6	662.2	627.4	576.4	564.1	540.1	484.5	438.9	392.5	357.8
10°	1482.8	1465.8	1370.0	1291.2	1159.8	1111.1	1046.2	886.3	739.5	593.4	479.1
12.5°	2338.2	2393.1	2208.4	2144.2	1936.4	1892.3	1754.0	1492.9	1244.8	986.7	758.0
15°	3157.3	3173.5	3012.0	2907.7	2654.2	2597.0	2427.1	2120.3	1786.5	1426.4	1110.4
17.5°	3814.8	3879.7	3642.5	3530.5	3201.3	3109.4	2909.2	2536.0	2164.3	1771.0	1396.3
20°	4582.1	4599.1	4317.9	4102.3	3671.9	3532.0	3292.5	2829.6	2386.9	1937.9	1550.8
22.5°	5279.9	5276.0	4914.4	4609.9	4065.2	3898.3	3602.3	3053.7	2539.1	2012.1	1565.5
25°	5748.1	5760.5	5373.4	5013.3	4344.9	4119.3	3785.5	3170.4	2590.9	2009.8	1528.4
27.5°	5997.7	5985.3	5570.4	5185.6	4447.7	4195.0	3832.6	3174.3	2543.7	1931.0	1417.1
30°	6144.5	5979.2	5536.4	5136.9	4378.1	4118.5	3749.9	3052.2	2386.9	1754.8	1218.5
32.5°	5752.0	5687.9	5302.3	4878.1	4138.6	3881.3	3517.3	2792.5	2138.1	1485.1	873.2
35°	5230.4	5232.7	4856.4	4460.0	3763.1	3539.0	3163.4	2476.5	1834.4	1032.3	421.9
37.5°	4683.3	4691.1	4333.3	3964.7	3344.3	3108.6	2757.0	2116.4	1319.8	525.4	254.2
40°	3991.8	4008.0	3699.7	3403.7	2831.2	2604.0	2290.3	1601.8	737.9	293.6	172.3
42.5°	3261.6	3281.7	3008.1	2745.4	2258.6	2071.6	1793.4	992.1	366.3	190.1	101.2
45°	2115.7	2173.6	1970.4	1859.9	1577.9	1466.6	1170.6	506.1	221.0	111.3	59.5
47.5°	1210.8	1211.6	1040.1	833.0	683.1	594.2	464.4	230.3	129.0	62.6	36.3
50°	562.5	576.4	456.7	380.2	272.0	230.3	189.3	124.4	68.0	36.3	22.4
52.5°	163.8	173.1	156.9	142.2	120.5	107.4	92.0	61.0	35.5	21.6	13.9
55°	58.0	61.8	58.0	54.1	48.7	44.0	39.4	29.4	20.1	13.1	9.3
57.5°	24.0	24.7	24.0	23.2	21.6	21.6	19.3	16.2	12.4	8.5	6.2
60°	10.8	11.6	10.8	11.6	10.8	10.8	10.8	11.6	7.7	5.4	4.6
62.5°	4.6	5.4	5.4	5.4	5.4	6.2	6.2	5.4	4.6	3.9	3.1
65°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
67.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
70°	2.3	2.3	2.3	2.3	2.3	2.3	1.5	1.5	2.3	2.3	2.3
72.5°	2.3	2.3	2.3	2.3	1.5	1.5	1.5	1.5	1.5	2.3	2.3
75°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.5	1.5	1.5
80°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.5	1.5	1.5
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5
2.5°	218.7	211.7	200.9	193.9	190.9	186.2	183.1	175.4	172.3	166.1	163.8
5°	268.9	255.0	238.8	225.6	217.1	207.9	193.9	178.5	170.8	160.7	155.3
7.5°	326.1	295.9	267.4	244.2	233.4	221.0	203.2	179.3	164.6	151.4	143.7
10°	398.7	336.9	292.1	255.0	238.8	222.5	200.9	173.1	154.5	139.1	130.6
12.5°	568.7	406.4	314.5	261.2	240.3	220.2	193.2	164.6	142.9	125.2	115.9
15°	818.3	567.9	374.8	266.6	234.9	210.2	179.3	150.7	128.3	110.5	101.2
17.5°	1039.3	724.0	458.2	286.7	233.4	198.6	162.3	132.9	111.3	94.3	86.5
20°	1159.8	805.9	513.8	299.0	226.4	180.8	142.9	115.1	94.3	79.6	72.6
22.5°	1162.1	801.3	493.8	272.0	199.4	156.9	123.6	97.4	78.8	65.7	60.3
25°	1092.6	714.7	411.8	214.0	163.0	132.9	103.5	81.1	64.1	54.1	49.5
27.5°	962.8	581.1	302.9	154.5	127.5	107.4	83.5	64.9	50.2	44.0	40.2
30°	757.2	378.6	176.9	115.1	98.9	82.7	63.4	45.6	39.4	34.8	31.7
32.5°	406.4	183.9	123.6	85.0	70.3	58.0	41.7	33.2	28.6	25.5	24.7
35°	212.5	134.5	82.7	54.1	44.8	37.9	28.6	23.2	20.9	19.3	19.3
37.5°	152.2	84.2	52.5	34.8	29.4	24.0	20.1	17.0	15.5	15.5	15.5
40°	90.4	51.8	31.7	22.4	19.3	17.0	14.7	12.4	12.4	12.4	12.4
42.5°	54.9	32.5	22.4	15.5	13.9	12.4	10.8	10.0	9.3	9.3	10.0
45°	34.0	22.4	14.7	11.6	10.8	9.3	8.5	7.7	7.7	7.7	8.5
47.5°	21.6	16.2	10.8	7.7	7.0	6.2	5.4	5.4	6.2	6.2	7.0
50°	16.2	10.0	7.0	5.4	4.6	4.6	3.9	4.6	4.6	5.4	6.2
52.5°	9.3	6.2	4.6	3.9	3.9	3.1	3.1	3.9	3.9	4.6	5.4
55°	6.2	4.6	3.9	3.1	3.1	3.1	3.1	3.1	3.9	3.9	4.6
57.5°	4.6	3.9	3.1	3.1	3.1	2.3	3.1	3.1	3.1	3.9	4.6
60°	3.9	3.1	3.1	3.1	3.1	2.3	2.3	3.1	3.1	3.9	3.9
62.5°	3.1	3.1	3.1	3.1	3.1	2.3	3.1	3.1	3.1	3.1	3.9
65°	2.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.9
67.5°	2.3	2.3	3.1	3.1	3.1	2.3	3.1	3.1	3.1	3.1	3.9
70°	2.3	2.3	2.3	3.1	3.1	2.3	3.1	3.1	3.1	3.1	3.1
72.5°	2.3	2.3	2.3	3.1	3.1	2.3	3.1	3.1	3.1	3.1	3.1
75°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1
77.5°	2.3	2.3	2.3	2.3	3.1	2.3	3.1	3.1	3.1	3.1	3.1
80°	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1
82.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1
85°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1
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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5
2.5°	157.6	155.3	150.7	149.9	149.1	146.0	143.7	141.4	141.4	139.1	137.5
5°	146.0	142.2	136.8	134.5	133.7	129.8	126.7	124.4	123.6	121.3	119.0
7.5°	133.7	129.0	122.9	120.5	119.8	115.9	112.8	110.5	109.0	106.6	105.1
10°	120.5	115.1	109.7	107.4	106.6	102.8	100.5	98.1	96.6	95.0	93.5
12.5°	106.6	102.0	96.6	94.3	93.5	90.4	88.1	86.5	85.8	84.2	83.5
15°	92.7	88.1	83.5	81.9	81.1	78.8	77.3	76.5	75.7	75.7	75.0
17.5°	78.8	75.0	71.1	70.3	69.5	68.0	67.2	66.5	67.2	67.2	68.0
20°	65.7	62.6	59.5	59.5	58.7	58.0	58.0	58.0	59.5	60.3	61.8
22.5°	54.1	51.8	49.5	49.5	49.5	49.5	49.5	51.0	52.5	54.1	54.9
25°	44.8	42.5	41.7	41.7	41.7	42.5	43.3	44.8	46.4	47.9	49.5
27.5°	36.3	34.8	34.8	34.8	35.5	36.3	37.1	38.6	41.0	42.5	44.0
30°	29.4	28.6	28.6	29.4	30.1	30.9	32.5	34.0	35.5	37.1	38.6
32.5°	23.2	24.0	24.0	24.7	25.5	26.3	27.8	29.4	30.9	32.5	33.2
35°	19.3	19.3	20.1	20.9	21.6	22.4	24.0	25.5	26.3	27.8	29.4
37.5°	15.5	16.2	17.0	17.8	18.5	19.3	20.1	21.6	22.4	24.0	25.5
40°	13.1	13.9	14.7	15.5	15.5	17.0	17.0	18.5	19.3	20.9	22.4
42.5°	10.8	11.6	12.4	13.1	13.1	13.9	14.7	15.5	17.0	17.8	19.3
45°	8.5	9.3	10.0	10.8	11.6	12.4	12.4	13.9	14.7	15.5	17.0
47.5°	7.7	8.5	9.3	9.3	10.0	10.8	10.8	12.4	13.1	13.9	14.7
50°	6.2	7.0	7.7	8.5	8.5	9.3	10.0	10.8	11.6	12.4	12.4
52.5°	5.4	6.2	7.0	7.0	7.7	8.5	8.5	9.3	10.0	10.0	10.8
55°	5.4	6.2	6.2	7.0	7.0	7.7	7.7	8.5	8.5	9.3	9.3
57.5°	4.6	5.4	5.4	6.2	6.2	7.0	7.0	7.7	7.7	7.7	8.5
60°	4.6	4.6	5.4	5.4	6.2	6.2	6.2	7.0	7.0	7.0	7.7
62.5°	3.9	4.6	4.6	5.4	5.4	5.4	6.2	6.2	6.2	7.0	7.0
65°	3.9	4.6	4.6	5.4	5.4	5.4	5.4	5.4	6.2	6.2	6.2
67.5°	3.9	3.9	4.6	4.6	4.6	4.6	5.4	5.4	5.4	5.4	5.4
70°	3.9	3.9	3.9	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
72.5°	3.1	3.9	3.9	3.9	3.9	4.6	4.6	4.6	4.6	4.6	3.9
75°	3.1	3.1	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
77.5°	3.1	3.1	3.1	3.9	3.9	3.9	3.9	3.9	3.9	3.1	3.1
80°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.3
82.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3
85°	3.1	2.3	3.1	3.1	3.1	2.3	2.3	2.3	2.3	2.3	1.5
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.5	1.5
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):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	171.5	171.5	171.5	171.5	171.5	171.5	171.5	171.5
2.5°	136.0	134.5	135.2	135.2	133.7	132.9	132.9	133.7
5°	117.5	115.9	116.7	116.7	115.1	114.4	114.4	115.1
7.5°	103.5	102.0	102.8	102.8	101.2	101.2	101.2	101.2
10°	92.7	92.0	92.0	92.0	90.4	91.2	90.4	89.6
12.5°	82.7	82.7	82.7	82.7	81.9	82.7	81.9	81.9
15°	75.0	75.0	75.7	75.7	75.7	76.5	76.5	76.5
17.5°	68.8	69.5	70.3	71.1	71.1	71.9	71.9	71.9
20°	62.6	64.1	64.9	65.7	65.7	67.2	66.5	67.2
22.5°	56.4	58.0	58.7	59.5	60.3	61.0	61.0	61.8
25°	51.0	52.5	53.3	54.1	54.9	56.4	56.4	56.4
27.5°	45.6	47.1	47.9	49.5	50.2	51.8	51.8	51.8
30°	40.2	41.7	42.5	43.3	44.8	46.4	46.4	47.1
32.5°	34.8	37.1	37.9	38.6	40.2	41.7	42.5	42.5
35°	30.9	32.5	33.2	34.8	35.5	37.9	37.9	37.9
37.5°	27.0	28.6	30.1	30.9	31.7	33.2	34.0	34.8
40°	24.0	25.5	26.3	27.0	28.6	30.1	30.9	30.9
42.5°	20.9	22.4	23.2	24.0	24.7	26.3	26.3	26.3
45°	18.5	19.3	20.1	20.9	21.6	22.4	23.2	23.2
47.5°	15.5	17.0	17.0	17.8	18.5	20.1	20.1	20.9
50°	13.1	14.7	14.7	15.5	16.2	17.0	17.8	17.8
52.5°	11.6	12.4	13.1	13.1	13.9	14.7	15.5	15.5
55°	10.0	10.8	10.8	11.6	11.6	12.4	13.1	13.1
57.5°	8.5	9.3	10.0	10.0	10.0	10.8	10.8	11.6
60°	7.7	8.5	8.5	8.5	8.5	9.3	9.3	9.3
62.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
65°	6.2	6.2	6.2	6.2	5.4	5.4	5.4	5.4
67.5°	5.4	5.4	5.4	5.4	4.6	4.6	4.6	4.6
70°	4.6	4.6	4.6	4.6	3.9	3.9	3.9	3.1
72.5°	3.9	3.9	3.9	3.9	3.9	3.1	3.1	3.1
75°	3.9	3.1	3.1	3.1	3.1	3.1	2.3	2.3
77.5°	3.1	3.1	3.1	2.3	2.3	2.3	2.3	2.3
80°	2.3	2.3	2.3	2.3	2.3	1.5	1.5	1.5
82.5°	2.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
85°	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8
87.5°	1.5	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)