

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: P182711

Luminaire Tested: **LDSQA4A09830D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182711  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26800)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQA4A09830D010TE LAR25NF 4LSQA1H 30°  
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,  
SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1142.1 lumens  
Efficiency: N/A  
Efficacy: 82.5 lumens/watt  
Spacing Criteria (0/90/45): 2.38 / 0.59 / 1.18  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

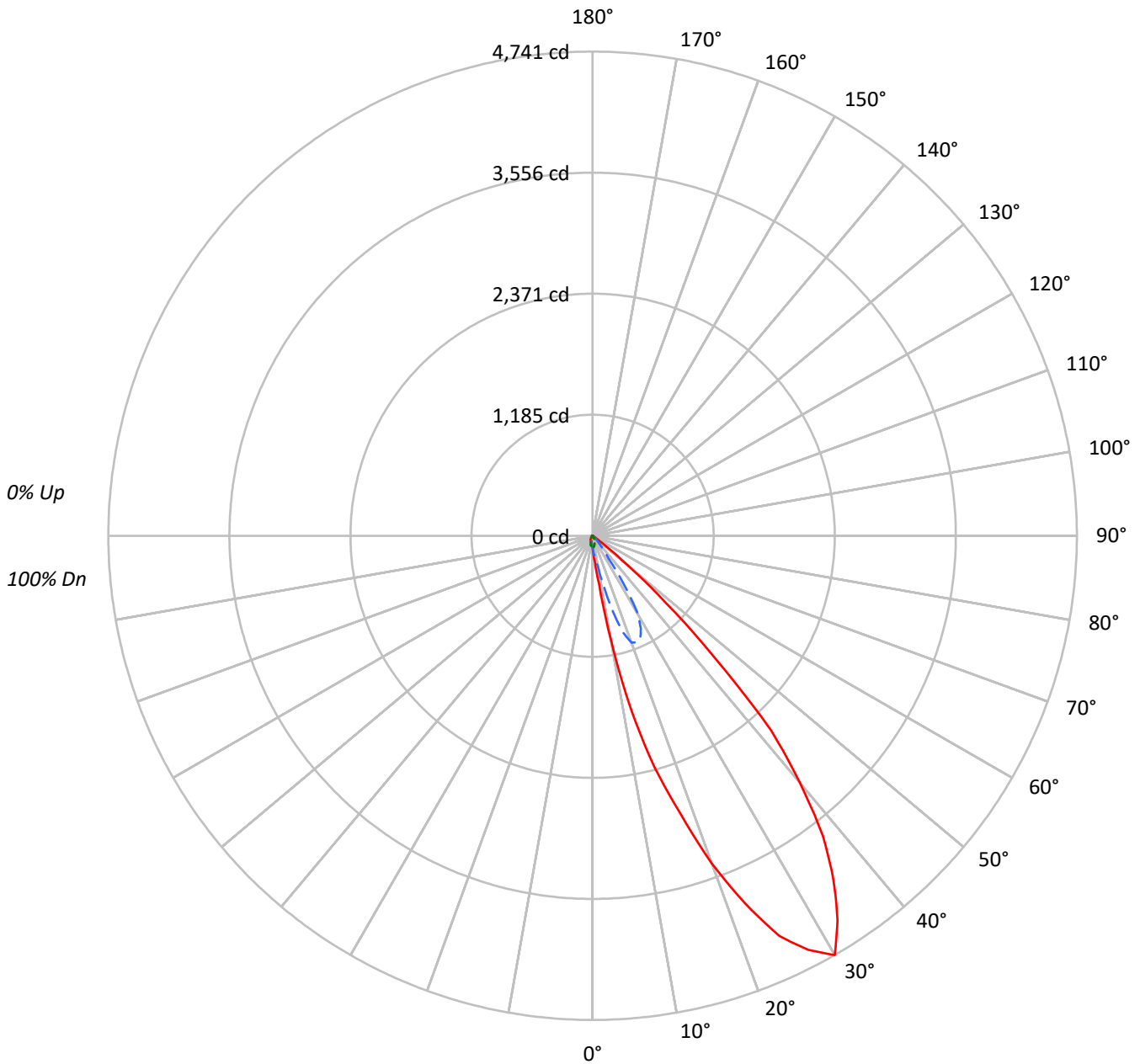
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20									20									20									20									
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	84	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	82	76	72	80	75	71	78	73	70	76	72	69	67																			
5	87	77	70	64	85	76	69	64	74	68	64	72	67	63	70	66	62	61																			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55																			
7	76	64	57	52	74	64	57	52	62	56	52	61	56	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	38	37																			

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

	0°	90°	180°
0°	11557	11557	11557
5°	25566	10930	7682
10°	102364	9493	6414
15°	235959	7552	5636
20°	352226	5361	5031
25°	461990	3570	4479
30°	530316	2248	3915
35°	486250	1443	3382
40°	398747	936	2883
45°	231178	658	2329
50°	65514	482	1914
55°	5996	456	1605
60°	930	523	1337
65°	252	481	963
70°	312	595	765
75°	412	786	786
80°	0	1172	614
85°	0	2334	556



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	16.9	1.5
10°-20°	151.9	13.3
20°-30°	370.0	32.4
30°-40°	401.0	35.1
40°-50°	181.7	15.9
50°-60°	14.1	1.2
60°-70°	2.9	0.3
70°-80°	2.1	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°	538.9	47.2
0°-40°	939.9	82.3
0°-60°	1135.7	99.4
0°-90°	1142.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1142.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	119	119	119	119	119	
5°	263	194	112	85	79	47
15°	2353	770	75	55	56	684
25°	4322	1105	33	33	42	1970
35°	4112	281	12	19	29	2529
45°	1687	36	5	11	17	1332
55°	36	5	3	6	10	81
65°	1	2	2	4	4	2
75°	1	2	2	3	2	1
85°	0	2	2	2	0	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°	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3
2.5°	178.6	175.5	177.1	172.8	170.2	168.0	169.1	168.0	161.2	159.6	154.3
5°	262.9	258.2	258.2	249.2	239.6	233.8	233.8	226.9	212.0	205.2	194.0
7.5°	471.3	461.7	453.8	425.7	389.1	368.4	363.1	334.0	296.3	272.5	244.4
10°	1040.6	1000.9	972.8	899.6	801.5	740.6	714.6	613.9	494.1	404.0	322.3
12.5°	1749.9	1695.8	1646.5	1526.7	1385.7	1289.8	1238.4	1089.9	857.2	690.7	516.9
15°	2352.7	2294.4	2236.0	2090.3	1941.3	1858.1	1763.7	1567.0	1259.6	1023.1	769.7
17.5°	2847.3	2814.4	2754.5	2540.9	2353.2	2223.3	2125.2	1868.1	1551.7	1281.8	995.0
20°	3416.6	3335.5	3228.4	2969.2	2712.6	2549.9	2412.0	2098.7	1733.0	1422.8	1114.3
22.5°	3895.8	3838.1	3684.3	3342.4	2965.0	2826.1	2657.5	2280.6	1849.6	1482.7	1128.1
25°	4322.1	4231.4	4038.4	3631.8	3245.4	3009.0	2802.2	2379.2	1892.5	1487.0	1105.3
27.5°	4571.7	4453.5	4226.6	3783.5	3342.4	3081.0	2852.0	2396.1	1865.5	1430.8	1022.1
30°	4740.8	4505.5	4254.7	3785.0	3311.6	3044.5	2807.0	2310.8	1753.1	1302.5	882.1
32.5°	4462.0	4325.8	4086.2	3634.5	3144.1	2883.3	2647.4	2125.8	1577.6	1112.2	613.9
35°	4111.6	4001.3	3793.0	3344.5	2892.9	2646.9	2396.7	1888.3	1349.2	764.4	281.0
37.5°	3704.5	3618.1	3393.8	2984.0	2586.4	2345.8	2095.0	1609.4	950.0	379.0	170.7
40°	3153.1	3080.0	2896.0	2566.8	2200.5	1971.5	1740.4	1203.9	515.8	211.5	111.3
42.5°	2591.7	2530.3	2362.7	2078.1	1756.3	1567.6	1364.0	733.7	256.6	133.1	62.0
45°	1687.4	1610.5	1520.4	1390.0	1230.9	1114.8	874.7	354.1	152.1	74.2	35.5
47.5°	967.5	916.6	768.7	606.5	492.5	449.5	327.1	164.9	83.8	42.9	21.7
50°	434.7	401.8	337.2	274.6	198.8	155.3	132.0	82.7	41.3	23.3	14.8
52.5°	107.1	109.2	103.4	90.7	80.6	68.4	59.4	38.7	21.7	14.3	9.5
55°	35.5	36.0	32.9	31.3	28.6	26.5	24.4	17.5	13.3	12.7	4.8
57.5°	12.7	12.7	13.3	12.2	11.7	11.1	10.6	9.0	8.0	4.8	2.7
60°	4.8	4.8	4.8	5.3	5.3	5.3	5.8	5.3	3.7	2.7	2.1
62.5°	2.1	2.1	2.1	2.1	2.7	2.7	3.2	2.7	2.1	2.1	1.6
65°	1.1	1.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
67.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6	1.6
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6	1.6
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6	1.6
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6
77.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1	1.6
80°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1	1.6
82.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1	1.6
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.6
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	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°	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3
2.5°	149.0	145.8	139.4	134.7	130.9	130.4	127.2	121.9	119.8	116.1	112.9
5°	183.4	175.5	165.4	155.9	149.0	145.3	134.1	124.0	118.2	112.4	107.1
7.5°	220.5	202.5	185.0	169.6	160.1	154.3	141.0	124.6	114.0	105.5	98.6
10°	267.2	230.1	199.9	176.0	163.3	155.3	139.4	119.8	106.6	96.5	89.6
12.5°	373.7	272.5	213.6	179.2	163.3	152.1	133.1	113.4	98.6	86.4	79.0
15°	556.1	380.6	253.4	180.8	158.0	145.3	123.5	102.8	88.0	75.3	68.4
17.5°	727.9	501.0	316.5	191.9	154.8	135.2	110.8	90.7	75.3	63.1	57.3
20°	816.9	560.9	351.5	200.4	149.5	122.5	96.0	77.4	62.6	52.0	47.2
22.5°	819.0	555.6	334.5	180.8	129.9	105.0	82.2	63.6	50.9	41.9	38.2
25°	768.7	491.4	275.1	141.0	105.0	88.0	68.4	52.0	39.8	33.4	30.7
27.5°	673.8	397.6	203.0	101.8	82.2	70.0	53.5	39.8	30.2	26.0	24.4
30°	521.1	246.0	112.4	75.3	62.0	52.5	38.7	26.5	22.8	20.1	19.1
32.5°	258.7	120.3	79.5	53.5	42.4	33.4	24.4	19.6	17.5	15.9	15.4
35°	140.5	86.4	49.8	32.3	25.4	21.2	16.4	13.8	12.7	12.2	12.2
37.5°	98.1	51.4	30.2	19.6	15.9	14.3	11.7	10.1	9.5	9.5	9.5
40°	54.1	30.7	18.6	12.7	10.6	9.5	8.0	7.4	7.4	7.4	8.0
42.5°	31.3	19.1	12.7	9.0	7.4	6.9	5.8	5.3	5.8	5.8	6.4
45°	20.1	14.3	8.5	6.4	5.3	4.8	4.2	4.2	4.8	4.8	5.3
47.5°	14.3	10.1	5.8	4.2	3.2	3.2	3.2	3.2	3.7	4.2	4.8
50°	8.5	5.3	3.2	2.7	2.1	2.1	2.1	2.7	3.2	3.2	3.7
52.5°	4.8	3.2	2.1	2.1	1.6	1.6	2.1	2.1	2.7	3.2	3.7
55°	2.7	2.1	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.7	3.2
57.5°	2.1	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.7	2.7
60°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.7	2.7
62.5°	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.7
65°	1.6	1.6	1.6	2.1	1.6	2.1	2.1	2.1	2.1	2.1	2.7
67.5°	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.7
70°	1.6	1.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.7
72.5°	1.6	1.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.7
75°	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
77.5°	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
80°	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
82.5°	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
85°	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
87.5°	1.6	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1
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°	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3
2.5°	111.9	108.1	105.5	104.4	102.3	102.8	101.3	100.2	97.0	97.0	94.9
5°	103.4	98.6	95.4	93.8	91.7	91.2	89.6	88.0	84.8	84.3	82.7
7.5°	94.4	89.6	85.9	84.3	82.2	81.6	79.5	78.5	75.8	75.3	73.7
10°	84.8	79.5	76.3	74.7	72.6	72.6	71.0	70.0	67.9	67.9	66.8
12.5°	74.7	70.0	67.9	65.7	64.7	64.7	63.6	62.6	61.0	61.5	61.0
15°	64.1	60.4	58.3	57.3	56.7	56.7	56.2	55.7	54.6	55.7	54.6
17.5°	54.1	51.4	49.8	49.3	48.8	48.8	48.8	49.3	48.8	49.8	49.8
20°	44.5	42.4	41.3	41.3	40.8	41.9	41.9	42.9	42.9	44.5	45.1
22.5°	36.6	35.0	34.5	34.5	34.5	35.5	36.0	37.1	37.6	39.2	40.3
25°	29.2	28.6	28.6	28.6	29.2	30.2	31.3	32.3	32.9	35.0	35.5
27.5°	23.9	23.3	23.9	23.9	24.4	26.0	27.0	28.1	29.2	30.7	31.8
30°	19.1	19.1	19.6	20.1	20.7	21.7	23.3	24.4	25.4	27.0	28.1
32.5°	15.4	15.9	16.4	17.0	17.0	18.6	19.6	21.2	21.7	23.3	24.4
35°	12.7	13.3	13.8	14.3	14.3	15.9	17.0	18.0	19.1	20.1	21.2
37.5°	10.1	10.6	11.7	12.2	12.2	13.8	14.3	15.4	16.4	17.5	18.6
40°	8.5	9.0	10.1	10.1	10.6	11.7	12.2	13.3	14.3	15.4	16.4
42.5°	6.9	7.4	8.5	9.0	9.0	10.1	10.6	11.7	12.2	13.3	13.8
45°	6.4	6.4	7.4	7.4	8.0	8.5	9.5	10.1	10.6	11.7	12.2
47.5°	5.3	5.8	6.4	6.9	6.9	7.4	8.0	8.5	9.0	10.1	10.6
50°	4.2	4.8	5.8	5.8	5.8	6.9	7.4	8.0	8.0	8.5	9.0
52.5°	4.2	4.2	4.8	5.3	5.3	5.8	6.4	6.9	6.9	7.4	8.0
55°	3.7	3.7	4.2	4.8	4.8	5.3	5.8	5.8	6.4	6.4	6.9
57.5°	3.2	3.7	4.2	4.2	4.2	4.8	5.3	5.3	5.8	5.8	6.4
60°	3.2	3.7	3.7	4.2	4.2	4.8	4.8	4.8	5.3	5.3	5.3
62.5°	3.2	3.2	3.7	3.7	3.7	4.2	4.2	4.8	4.8	4.8	4.8
65°	3.2	3.2	3.7	3.7	3.7	4.2	4.2	4.2	4.2	4.2	4.2
67.5°	2.7	3.2	3.2	3.2	3.7	3.7	3.7	3.7	3.7	3.7	3.7
70°	2.7	2.7	3.2	3.2	3.2	3.7	3.7	3.7	3.7	3.7	3.7
72.5°	2.7	2.7	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
75°	2.7	2.7	2.7	2.7	2.7	3.2	3.2	3.2	3.2	2.7	2.7
77.5°	2.1	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.1
80°	2.1	2.1	2.7	2.1	2.7	2.7	2.7	2.7	2.1	2.1	2.1
82.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.6	1.6
85°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.6	1.6	1.6	1.1
87.5°	2.1	2.1	2.1	2.1	2.1	2.1	1.6	1.6	1.6	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°	119.3	119.3	119.3	119.3	119.3	119.3	119.3	119.3
2.5°	93.8	94.9	93.8	94.9	92.2	93.3	94.4	91.7
5°	81.6	80.6	81.1	82.2	80.0	80.6	81.1	79.0
7.5°	73.2	73.7	72.6	73.7	72.1	72.6	73.2	71.6
10°	66.3	66.8	66.3	66.8	65.2	66.3	66.8	65.2
12.5°	59.9	61.0	60.4	61.5	59.9	61.0	62.0	59.9
15°	55.1	56.2	55.7	56.7	55.7	56.7	57.8	56.2
17.5°	50.4	51.4	51.4	52.5	52.0	53.0	54.1	52.5
20°	45.6	47.2	47.2	48.2	48.2	48.8	50.4	48.8
22.5°	41.3	42.9	42.9	44.0	44.0	45.1	46.1	45.1
25°	36.6	38.7	39.2	40.3	40.3	41.3	42.9	41.9
27.5°	33.4	35.0	35.5	36.6	37.1	38.2	39.2	38.2
30°	29.2	31.3	31.8	32.9	33.4	35.0	35.5	35.0
32.5°	26.0	27.6	28.1	29.2	30.2	31.3	32.3	31.8
35°	22.8	24.4	24.9	26.0	26.5	28.1	29.2	28.6
37.5°	20.1	21.7	22.3	22.8	23.3	24.9	26.0	25.4
40°	17.5	18.6	19.1	20.1	20.7	21.7	22.8	22.8
42.5°	15.4	16.4	17.0	17.5	18.0	19.1	20.1	19.6
45°	13.3	14.3	14.8	15.4	15.9	16.4	17.5	17.0
47.5°	11.1	12.2	12.7	13.3	13.8	14.3	15.4	14.8
50°	9.5	10.6	10.6	11.1	11.7	12.2	13.3	12.7
52.5°	8.5	9.0	9.5	9.5	10.1	10.6	11.7	11.1
55°	7.4	8.0	8.0	8.5	8.5	9.0	9.5	9.5
57.5°	6.4	6.9	6.9	7.4	7.4	8.0	8.5	8.5
60°	5.8	5.8	6.4	6.4	6.4	6.9	6.9	6.9
62.5°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
65°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
67.5°	3.7	3.7	3.7	3.7	3.7	3.2	3.2	3.2
70°	3.2	3.2	3.2	3.2	3.2	2.7	2.7	2.7
72.5°	3.2	3.2	2.7	2.7	2.7	2.7	2.7	2.1
75°	2.7	2.7	2.7	2.7	2.1	2.1	2.1	2.1
77.5°	2.1	2.1	2.1	2.1	1.6	1.6	1.6	1.6
80°	2.1	1.6	1.6	1.6	1.6	1.6	1.6	1.1
82.5°	1.6	1.6	1.6	1.1	1.1	1.1	1.1	1.1
85°	1.1	1.1	1.1	1.1	0.5	0.5	0.5	0.5
87.5°	1.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)