

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: P182716

Luminaire Tested: **LDSQA4A09935D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182716  
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: LDSQA4A09935D010TE 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 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 948.7 lumens  
Efficiency: N/A  
Efficacy: 68.5 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

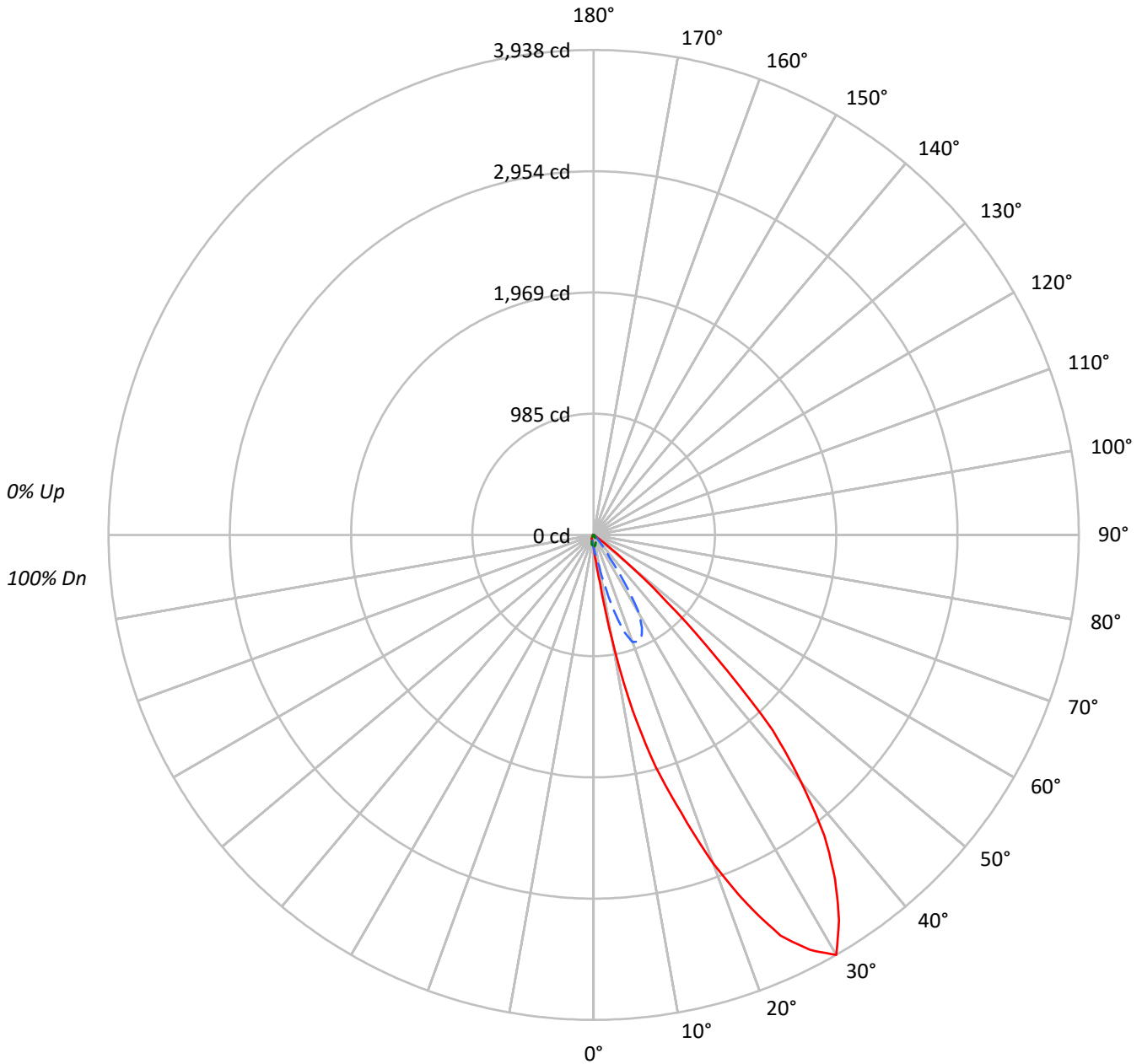
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	9600	9600	9600
5°	21238	9083	6379
10°	85031	7879	5332
15°	196012	6268	4684
20°	292598	4454	4175
25°	383768	2961	3720
30°	440535	1868	3255
35°	403927	1194	2815
40°	331242	784	2390
45°	192036	548	1932
50°	54422	392	1598
55°	4982	372	1334
60°	775	426	1104
65°	206	413	802
70°	255	510	623
75°	337	674	674
80°	0	1004	502
85°	0	2001	445



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	14.1	1.5
10°-20°	126.2	13.3
20°-30°	307.4	32.4
30°-40°	333.2	35.1
40°-50°	151.0	15.9
50°-60°	11.7	1.2
60°-70°	2.4	0.3
70°-80°	1.8	0.2
80°-90°	1.1	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°	447.6	47.2
0°-40°	780.8	82.3
0°-60°	943.4	99.4
0°-90°	948.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	948.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	99	99	99	99	99	
5°	218	161	93	70	66	39
15°	1954	639	62	45	47	568
25°	3590	918	28	27	35	1637
35°	3416	233	10	16	24	2101
45°	1402	30	4	9	14	1107
55°	30	4	2	5	8	67
65°	1	1	2	4	4	1
75°	1	1	2	3	2	1
85°	0	1	2	1	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°	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1
2.5°	148.4	145.8	147.1	143.6	141.4	139.6	140.5	139.6	133.9	132.6	128.1
5°	218.4	214.5	214.5	207.0	199.0	194.2	194.2	188.5	176.1	170.4	161.2
7.5°	391.5	383.6	377.0	353.6	323.2	306.1	301.7	277.4	246.2	226.4	203.0
10°	864.4	831.4	808.1	747.3	665.8	615.2	593.6	509.9	410.4	335.6	267.7
12.5°	1453.7	1408.7	1367.8	1268.3	1151.1	1071.4	1028.7	905.4	712.1	573.8	429.4
15°	1954.4	1905.9	1857.5	1736.4	1612.6	1543.5	1465.1	1301.7	1046.3	849.9	639.4
17.5°	2365.2	2337.9	2288.2	2110.7	1954.8	1846.9	1765.4	1551.9	1289.0	1064.8	826.6
20°	2838.2	2770.8	2681.9	2466.5	2253.4	2118.2	2003.7	1743.4	1439.6	1182.0	925.7
22.5°	3236.3	3188.3	3060.6	2776.5	2463.0	2347.6	2207.6	1894.5	1536.5	1231.7	937.1
25°	3590.3	3515.0	3354.7	3017.0	2695.9	2499.5	2327.8	1976.4	1572.1	1235.2	918.2
27.5°	3797.8	3699.5	3511.1	3142.9	2776.5	2559.4	2369.2	1990.5	1549.7	1188.6	849.0
30°	3938.2	3742.7	3534.4	3144.2	2751.0	2529.0	2331.8	1919.6	1456.3	1082.0	732.8
32.5°	3706.6	3593.4	3394.4	3019.2	2611.8	2395.2	2199.2	1765.9	1310.5	923.9	509.9
35°	3415.5	3323.9	3150.8	2778.3	2403.1	2198.8	1990.9	1568.6	1120.7	635.0	233.4
37.5°	3077.3	3005.5	2819.2	2478.8	2148.6	1948.6	1740.3	1337.0	789.1	314.9	141.8
40°	2619.3	2558.6	2405.7	2132.3	1828.0	1637.7	1445.7	1000.1	428.5	175.7	92.5
42.5°	2153.0	2101.9	1962.7	1726.3	1458.9	1302.2	1133.1	609.5	213.1	110.5	51.5
45°	1401.7	1337.8	1263.0	1154.7	1022.5	926.1	726.6	294.2	126.4	61.7	29.5
47.5°	803.7	761.4	638.5	503.8	409.1	373.4	271.7	137.0	69.6	35.7	18.1
50°	361.1	333.8	280.1	228.1	165.1	129.0	109.7	68.7	34.3	19.4	12.3
52.5°	89.0	90.7	85.9	75.3	66.9	56.8	49.3	32.1	18.1	11.9	7.9
55°	29.5	29.9	27.3	26.0	23.8	22.0	20.3	14.5	11.0	10.6	4.0
57.5°	10.6	10.6	11.0	10.1	9.7	9.2	8.8	7.5	6.6	4.0	2.2
60°	4.0	4.0	4.0	4.4	4.4	4.4	4.8	4.4	3.1	2.2	1.8
62.5°	1.8	1.8	1.8	1.8	2.2	2.2	2.6	2.2	1.8	1.8	1.3
65°	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
67.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3	1.3
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3	1.3
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3	1.3
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3
77.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9	1.3
80°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9	1.3
82.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9	1.3
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	1.3
87.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9
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°	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1
2.5°	123.7	121.1	115.8	111.9	108.8	108.3	105.7	101.3	99.5	96.4	93.8
5°	152.4	145.8	137.4	129.5	123.7	120.7	111.4	103.0	98.2	93.4	89.0
7.5°	183.2	168.2	153.7	140.9	133.0	128.1	117.1	103.5	94.7	87.6	81.9
10°	221.9	191.1	166.0	146.2	135.6	129.0	115.8	99.5	88.5	80.1	74.4
12.5°	310.5	226.4	177.5	148.8	135.6	126.4	110.5	94.2	81.9	71.8	65.6
15°	461.9	316.2	210.5	150.2	131.2	120.7	102.6	85.4	73.1	62.5	56.8
17.5°	604.6	416.1	262.9	159.4	128.6	112.3	92.0	75.3	62.5	52.4	47.6
20°	678.6	465.9	292.0	166.5	124.2	101.7	79.7	64.3	52.0	43.2	39.2
22.5°	680.4	461.5	277.9	150.2	107.9	87.2	68.3	52.8	42.3	34.8	31.7
25°	638.5	408.2	228.6	117.1	87.2	73.1	56.8	43.2	33.0	27.7	25.5
27.5°	559.7	330.3	168.7	84.6	68.3	58.1	44.5	33.0	25.1	21.6	20.3
30°	432.9	204.3	93.4	62.5	51.5	43.6	32.1	22.0	18.9	16.7	15.9
32.5°	214.9	100.0	66.1	44.5	35.2	27.7	20.3	16.3	14.5	13.2	12.8
35°	116.7	71.8	41.4	26.9	21.1	17.6	13.7	11.4	10.6	10.1	10.1
37.5°	81.5	42.7	25.1	16.3	13.2	11.9	9.7	8.4	7.9	7.9	7.9
40°	44.9	25.5	15.4	10.6	8.8	7.9	6.6	6.2	6.2	6.2	6.6
42.5°	26.0	15.9	10.6	7.5	6.2	5.7	4.8	4.4	4.8	4.8	5.3
45°	16.7	11.9	7.0	5.3	4.4	4.0	3.5	3.5	4.0	4.0	4.4
47.5°	11.9	8.4	4.8	3.5	2.6	2.6	2.6	2.6	3.1	3.5	4.0
50°	7.0	4.4	2.6	2.2	1.8	1.8	1.8	2.2	2.6	2.6	3.1
52.5°	4.0	2.6	1.8	1.8	1.3	1.3	1.8	1.8	2.2	2.6	3.1
55°	2.2	1.8	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2	2.6
57.5°	1.8	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2	2.2
60°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2	2.2
62.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8	2.2
65°	1.3	1.3	1.3	1.8	1.3	1.8	1.8	1.8	1.8	1.8	2.2
67.5°	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.2
70°	1.3	1.3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.2
72.5°	1.3	1.3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.2
75°	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
77.5°	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
80°	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
82.5°	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
85°	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
87.5°	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8	1.8	1.8
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°	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1
2.5°	92.9	89.8	87.6	86.8	85.0	85.4	84.1	83.2	80.6	80.6	78.8
5°	85.9	81.9	79.3	77.9	76.2	75.7	74.4	73.1	70.5	70.0	68.7
7.5°	78.4	74.4	71.3	70.0	68.3	67.8	66.1	65.2	63.0	62.5	61.2
10°	70.5	66.1	63.4	62.1	60.3	60.3	59.0	58.1	56.4	56.4	55.5
12.5°	62.1	58.1	56.4	54.6	53.7	53.7	52.8	52.0	50.6	51.1	50.6
15°	53.3	50.2	48.4	47.6	47.1	47.1	46.7	46.2	45.4	46.2	45.4
17.5°	44.9	42.7	41.4	41.0	40.5	40.5	40.5	41.0	40.5	41.4	41.4
20°	37.0	35.2	34.3	34.3	33.9	34.8	34.8	35.7	35.7	37.0	37.4
22.5°	30.4	29.1	28.6	28.6	28.6	29.5	29.9	30.8	31.3	32.6	33.5
25°	24.2	23.8	23.8	23.8	24.2	25.1	26.0	26.9	27.3	29.1	29.5
27.5°	19.8	19.4	19.8	19.8	20.3	21.6	22.5	23.3	24.2	25.5	26.4
30°	15.9	15.9	16.3	16.7	17.2	18.1	19.4	20.3	21.1	22.5	23.3
32.5°	12.8	13.2	13.7	14.1	14.1	15.4	16.3	17.6	18.1	19.4	20.3
35°	10.6	11.0	11.4	11.9	11.9	13.2	14.1	15.0	15.9	16.7	17.6
37.5°	8.4	8.8	9.7	10.1	10.1	11.4	11.9	12.8	13.7	14.5	15.4
40°	7.0	7.5	8.4	8.4	8.8	9.7	10.1	11.0	11.9	12.8	13.7
42.5°	5.7	6.2	7.0	7.5	7.5	8.4	8.8	9.7	10.1	11.0	11.4
45°	5.3	5.3	6.2	6.2	6.6	7.0	7.9	8.4	8.8	9.7	10.1
47.5°	4.4	4.8	5.3	5.7	5.7	6.2	6.6	7.0	7.5	8.4	8.8
50°	3.5	4.0	4.8	4.8	4.8	5.7	6.2	6.6	6.6	7.0	7.5
52.5°	3.5	3.5	4.0	4.4	4.4	4.8	5.3	5.7	5.7	6.2	6.6
55°	3.1	3.1	3.5	4.0	4.0	4.4	4.8	4.8	5.3	5.3	5.7
57.5°	2.6	3.1	3.5	3.5	3.5	4.0	4.4	4.4	4.8	4.8	5.3
60°	2.6	3.1	3.1	3.5	3.5	4.0	4.0	4.0	4.4	4.4	4.4
62.5°	2.6	2.6	3.1	3.1	3.1	3.5	3.5	4.0	4.0	4.0	4.0
65°	2.6	2.6	3.1	3.1	3.1	3.5	3.5	3.5	3.5	3.5	3.5
67.5°	2.2	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1	3.1	3.1
70°	2.2	2.2	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1	3.1
72.5°	2.2	2.2	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
75°	2.2	2.2	2.2	2.2	2.2	2.6	2.6	2.6	2.6	2.2	2.2
77.5°	1.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.8
80°	1.8	1.8	2.2	1.8	2.2	2.2	2.2	2.2	1.8	1.8	1.8
82.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.3	1.3
85°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.3	1.3	1.3	0.9
87.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.3	1.3	1.3	0.9	0.9
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°	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1
2.5°	77.9	78.8	77.9	78.8	76.6	77.5	78.4	76.2
5°	67.8	66.9	67.4	68.3	66.5	66.9	67.4	65.6
7.5°	60.8	61.2	60.3	61.2	59.9	60.3	60.8	59.4
10°	55.0	55.5	55.0	55.5	54.2	55.0	55.5	54.2
12.5°	49.8	50.6	50.2	51.1	49.8	50.6	51.5	49.8
15°	45.8	46.7	46.2	47.1	46.2	47.1	48.0	46.7
17.5°	41.8	42.7	42.7	43.6	43.2	44.0	44.9	43.6
20°	37.9	39.2	39.2	40.1	40.1	40.5	41.8	40.5
22.5°	34.3	35.7	35.7	36.6	36.6	37.4	38.3	37.4
25°	30.4	32.1	32.6	33.5	33.5	34.3	35.7	34.8
27.5°	27.7	29.1	29.5	30.4	30.8	31.7	32.6	31.7
30°	24.2	26.0	26.4	27.3	27.7	29.1	29.5	29.1
32.5°	21.6	22.9	23.3	24.2	25.1	26.0	26.9	26.4
35°	18.9	20.3	20.7	21.6	22.0	23.3	24.2	23.8
37.5°	16.7	18.1	18.5	18.9	19.4	20.7	21.6	21.1
40°	14.5	15.4	15.9	16.7	17.2	18.1	18.9	18.9
42.5°	12.8	13.7	14.1	14.5	15.0	15.9	16.7	16.3
45°	11.0	11.9	12.3	12.8	13.2	13.7	14.5	14.1
47.5°	9.2	10.1	10.6	11.0	11.4	11.9	12.8	12.3
50°	7.9	8.8	8.8	9.2	9.7	10.1	11.0	10.6
52.5°	7.0	7.5	7.9	7.9	8.4	8.8	9.7	9.2
55°	6.2	6.6	6.6	7.0	7.0	7.5	7.9	7.9
57.5°	5.3	5.7	5.7	6.2	6.2	6.6	7.0	7.0
60°	4.8	4.8	5.3	5.3	5.3	5.7	5.7	5.7
62.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
65°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
67.5°	3.1	3.1	3.1	3.1	3.1	2.6	2.6	2.6
70°	2.6	2.6	2.6	2.6	2.6	2.2	2.2	2.2
72.5°	2.6	2.6	2.2	2.2	2.2	2.2	2.2	1.8
75°	2.2	2.2	2.2	2.2	1.8	1.8	1.8	1.8
77.5°	1.8	1.8	1.8	1.8	1.3	1.3	1.3	1.3
80°	1.8	1.3	1.3	1.3	1.3	1.3	1.3	0.9
82.5°	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9
85°	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4
87.5°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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)