

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: P182811

Luminaire Tested: **LDSQA4A09930D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182811  
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: LDSQA4A09930D010TE LAR25NF 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 872.7 lumens  
Efficiency: N/A  
Efficacy: 63.1 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

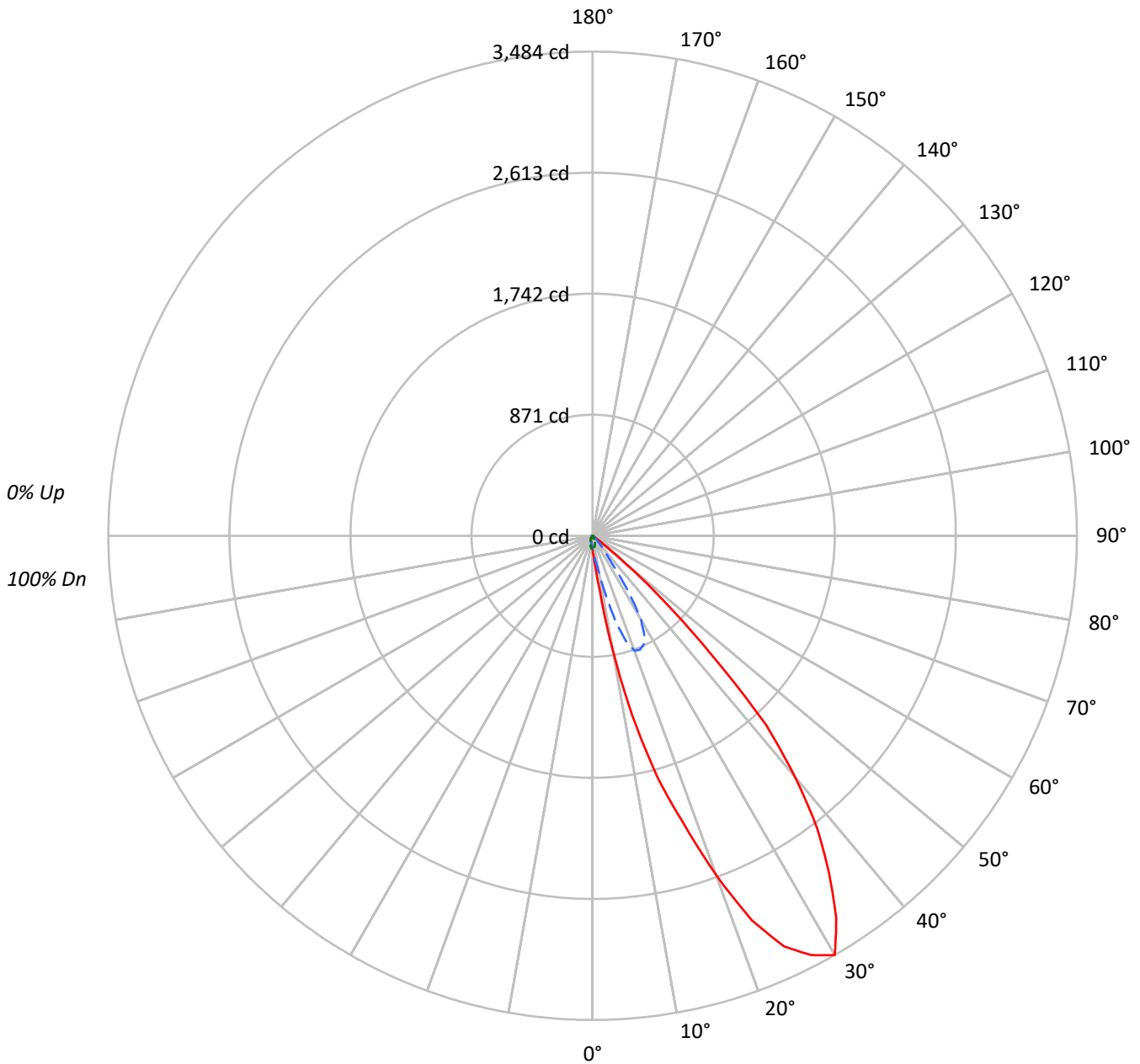
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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

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

	0°	90°	180°
0°	9426	9426	9426
5°	21093	8859	6350
10°	82709	7761	4997
15°	179554	6288	4353
20°	267866	4649	3928
25°	348398	3282	3420
30°	389750	2204	2987
35°	350756	1301	2543
40°	286246	885	2213
45°	164362	603	1795
50°	48077	467	1522
55°	5557	372	1250
60°	1182	426	1027
65°	413	413	711
70°	368	510	510
75°	337	674	487
80°	0	1004	502
85°	0	2001	445



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	13.9	1.6
10°-20°	119.5	13.7
20°-30°	285.0	32.7
30°-40°	300.8	34.5
40°-50°	136.4	15.6
50°-60°	12.0	1.4
60°-70°	2.5	0.3
70°-80°	1.7	0.2
80°-90°	1.0	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°	418.4	47.9
0°-40°	719.2	82.4
0°-60°	867.5	99.4
0°-90°	872.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	872.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	97	97	97	97	97	
5°	217	159	91	70	65	39
15°	1790	630	63	43	43	521
25°	3259	867	31	26	32	1481
35°	2966	239	11	15	22	1832
45°	1200	34	4	8	13	951
55°	33	5	2	5	7	66
65°	2	2	2	4	3	2
75°	1	1	2	2	1	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°	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3
2.5°	144.6	145.5	141.5	142.0	138.0	139.8	138.5	135.0	132.3	127.9	126.2
5°	216.9	218.2	209.4	206.8	197.6	197.6	193.7	184.5	176.1	166.1	159.1
7.5°	396.5	401.8	375.5	355.8	326.9	319.9	306.3	274.7	248.9	222.6	202.9
10°	840.8	831.2	776.9	732.2	657.7	630.1	593.3	502.6	419.3	336.5	271.7
12.5°	1325.9	1357.0	1252.3	1215.9	1098.0	1073.0	994.6	846.5	705.9	559.5	429.8
15°	1790.3	1799.5	1707.9	1648.8	1505.1	1472.6	1376.2	1202.3	1013.0	808.8	629.6
17.5°	2163.2	2200.0	2065.5	2001.9	1815.3	1763.1	1649.7	1438.0	1227.3	1004.3	791.7
20°	2598.3	2607.9	2448.4	2326.2	2082.1	2002.8	1867.0	1604.5	1353.5	1098.9	879.4
22.5°	2993.9	2991.7	2786.7	2614.0	2305.1	2210.5	2042.7	1731.6	1439.8	1141.0	887.7
25°	3259.4	3266.5	3046.9	2842.8	2463.8	2335.8	2146.5	1797.8	1469.1	1139.6	866.7
27.5°	3401.0	3394.0	3158.7	2940.5	2522.0	2378.8	2173.3	1799.9	1442.4	1095.0	803.6
30°	3484.2	3390.5	3139.4	2912.9	2482.6	2335.4	2126.4	1730.7	1353.5	995.1	691.0
32.5°	3261.6	3225.3	3006.6	2766.1	2346.8	2200.9	1994.5	1583.5	1212.4	842.1	495.1
35°	2965.9	2967.2	2753.8	2529.0	2133.8	2006.8	1793.8	1404.3	1040.2	585.4	239.2
37.5°	2655.7	2660.0	2457.2	2248.2	1896.3	1762.7	1563.3	1200.1	748.4	297.9	144.2
40°	2263.5	2272.7	2097.9	1930.1	1605.4	1476.6	1298.7	908.3	418.4	166.5	97.7
42.5°	1849.5	1860.8	1705.7	1556.8	1280.7	1174.7	1017.0	562.6	207.7	107.8	57.4
45°	1199.7	1232.5	1117.3	1054.6	894.7	831.6	663.8	287.0	125.3	63.1	33.7
47.5°	686.6	687.0	589.8	472.3	387.3	336.9	263.3	130.6	73.2	35.5	20.6
50°	319.0	326.9	259.0	215.6	154.2	130.6	107.3	70.5	38.6	20.6	12.7
52.5°	92.9	98.1	88.9	80.6	68.4	60.9	52.1	34.6	20.2	12.3	7.9
55°	32.9	35.1	32.9	30.7	27.6	25.0	22.3	16.6	11.4	7.4	5.3
57.5°	13.6	14.0	13.6	13.1	12.3	12.3	11.0	9.2	7.0	4.8	3.5
60°	6.1	6.6	6.1	6.6	6.1	6.1	6.1	6.6	4.4	3.1	2.6
62.5°	2.6	3.1	3.1	3.1	3.1	3.5	3.5	3.1	2.6	2.2	1.8
65°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
70°	1.3	1.3	1.3	1.3	1.3	1.3	0.9	0.9	1.3	1.3	1.3
72.5°	1.3	1.3	1.3	1.3	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	0.9
77.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9
80°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9
82.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9
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°	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3
2.5°	124.0	120.1	113.9	110.0	108.2	105.6	103.8	99.5	97.7	94.2	92.9
5°	152.5	144.6	135.4	127.9	123.1	117.9	110.0	101.2	96.8	91.1	88.1
7.5°	184.9	167.8	151.6	138.5	132.3	125.3	115.2	101.7	93.3	85.9	81.5
10°	226.1	191.0	165.6	144.6	135.4	126.2	113.9	98.1	87.6	78.9	74.0
12.5°	322.5	230.5	178.3	148.1	136.3	124.9	109.5	93.3	81.1	71.0	65.7
15°	464.0	322.0	212.5	151.2	133.2	119.2	101.7	85.4	72.7	62.7	57.4
17.5°	589.3	410.6	259.8	162.6	132.3	112.6	92.0	75.4	63.1	53.5	49.1
20°	657.7	457.0	291.4	169.6	128.4	102.5	81.1	65.3	53.5	45.1	41.2
22.5°	659.0	454.4	280.0	154.2	113.0	88.9	70.1	55.2	44.7	37.2	34.2
25°	619.6	405.3	233.5	121.4	92.5	75.4	58.7	46.0	36.4	30.7	28.0
27.5°	545.9	329.5	171.8	87.6	72.3	60.9	47.3	36.8	28.5	25.0	22.8
30°	429.4	214.7	100.3	65.3	56.1	46.9	35.9	25.9	22.3	19.7	18.0
32.5°	230.5	104.3	70.1	48.2	39.9	32.9	23.7	18.8	16.2	14.5	14.0
35°	120.5	76.2	46.9	30.7	25.4	21.5	16.2	13.1	11.8	11.0	11.0
37.5°	86.3	47.8	29.8	19.7	16.6	13.6	11.4	9.6	8.8	8.8	8.8
40°	51.3	29.4	18.0	12.7	11.0	9.6	8.3	7.0	7.0	7.0	7.0
42.5°	31.1	18.4	12.7	8.8	7.9	7.0	6.1	5.7	5.3	5.3	5.7
45°	19.3	12.7	8.3	6.6	6.1	5.3	4.8	4.4	4.4	4.4	4.8
47.5°	12.3	9.2	6.1	4.4	3.9	3.5	3.1	3.1	3.5	3.5	3.9
50°	9.2	5.7	3.9	3.1	2.6	2.6	2.2	2.6	2.6	3.1	3.5
52.5°	5.3	3.5	2.6	2.2	2.2	1.8	1.8	2.2	2.2	2.6	3.1
55°	3.5	2.6	2.2	1.8	1.8	1.8	1.8	1.8	2.2	2.2	2.6
57.5°	2.6	2.2	1.8	1.8	1.8	1.3	1.8	1.8	1.8	2.2	2.6
60°	2.2	1.8	1.8	1.8	1.8	1.3	1.3	1.8	1.8	2.2	2.2
62.5°	1.8	1.8	1.8	1.8	1.8	1.3	1.8	1.8	1.8	1.8	2.2
65°	1.3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.2
67.5°	1.3	1.3	1.8	1.8	1.8	1.3	1.8	1.8	1.8	1.8	2.2
70°	1.3	1.3	1.3	1.8	1.8	1.3	1.8	1.8	1.8	1.8	1.8
72.5°	1.3	1.3	1.3	1.8	1.8	1.3	1.8	1.8	1.8	1.8	1.8
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8
77.5°	1.3	1.3	1.3	1.3	1.8	1.3	1.8	1.8	1.8	1.8	1.8
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
85°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	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°	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3
2.5°	89.4	88.1	85.4	85.0	84.6	82.8	81.5	80.2	80.2	78.9	78.0
5°	82.8	80.6	77.6	76.2	75.8	73.6	71.9	70.5	70.1	68.8	67.5
7.5°	75.8	73.2	69.7	68.4	67.9	65.7	64.0	62.7	61.8	60.5	59.6
10°	68.4	65.3	62.2	60.9	60.5	58.3	57.0	55.6	54.8	53.9	53.0
12.5°	60.5	57.8	54.8	53.5	53.0	51.3	49.9	49.1	48.6	47.8	47.3
15°	52.6	49.9	47.3	46.4	46.0	44.7	43.8	43.4	42.9	42.9	42.5
17.5°	44.7	42.5	40.3	39.9	39.4	38.6	38.1	37.7	38.1	38.1	38.6
20°	37.2	35.5	33.7	33.7	33.3	32.9	32.9	32.9	33.7	34.2	35.1
22.5°	30.7	29.4	28.0	28.0	28.0	28.0	28.0	28.9	29.8	30.7	31.1
25°	25.4	24.1	23.7	23.7	23.7	24.1	24.5	25.4	26.3	27.2	28.0
27.5°	20.6	19.7	19.7	19.7	20.2	20.6	21.0	21.9	23.2	24.1	25.0
30°	16.6	16.2	16.2	16.6	17.1	17.5	18.4	19.3	20.2	21.0	21.9
32.5°	13.1	13.6	13.6	14.0	14.5	14.9	15.8	16.6	17.5	18.4	18.8
35°	11.0	11.0	11.4	11.8	12.3	12.7	13.6	14.5	14.9	15.8	16.6
37.5°	8.8	9.2	9.6	10.1	10.5	11.0	11.4	12.3	12.7	13.6	14.5
40°	7.4	7.9	8.3	8.8	8.8	9.6	9.6	10.5	11.0	11.8	12.7
42.5°	6.1	6.6	7.0	7.4	7.4	7.9	8.3	8.8	9.6	10.1	11.0
45°	4.8	5.3	5.7	6.1	6.6	7.0	7.0	7.9	8.3	8.8	9.6
47.5°	4.4	4.8	5.3	5.3	5.7	6.1	6.1	7.0	7.4	7.9	8.3
50°	3.5	3.9	4.4	4.8	4.8	5.3	5.7	6.1	6.6	7.0	7.0
52.5°	3.1	3.5	3.9	3.9	4.4	4.8	4.8	5.3	5.7	5.7	6.1
55°	3.1	3.5	3.5	3.9	3.9	4.4	4.4	4.8	4.8	5.3	5.3
57.5°	2.6	3.1	3.1	3.5	3.5	3.9	3.9	4.4	4.4	4.4	4.8
60°	2.6	2.6	3.1	3.1	3.5	3.5	3.5	3.9	3.9	3.9	4.4
62.5°	2.2	2.6	2.6	3.1	3.1	3.1	3.5	3.5	3.5	3.9	3.9
65°	2.2	2.6	2.6	3.1	3.1	3.1	3.1	3.1	3.5	3.5	3.5
67.5°	2.2	2.2	2.6	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1
70°	2.2	2.2	2.2	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
72.5°	1.8	2.2	2.2	2.2	2.2	2.6	2.6	2.6	2.6	2.6	2.2
75°	1.8	1.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
77.5°	1.8	1.8	1.8	2.2	2.2	2.2	2.2	2.2	2.2	1.8	1.8
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.3
82.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.3	1.3	1.3
85°	1.8	1.3	1.8	1.8	1.8	1.3	1.3	1.3	1.3	1.3	0.9
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	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°	97.3	97.3	97.3	97.3	97.3	97.3	97.3	97.3
2.5°	77.1	76.2	76.7	76.7	75.8	75.4	75.4	75.8
5°	66.6	65.7	66.2	66.2	65.3	64.8	64.8	65.3
7.5°	58.7	57.8	58.3	58.3	57.4	57.4	57.4	57.4
10°	52.6	52.1	52.1	52.1	51.3	51.7	51.3	50.8
12.5°	46.9	46.9	46.9	46.9	46.4	46.9	46.4	46.4
15°	42.5	42.5	42.9	42.9	42.9	43.4	43.4	43.4
17.5°	39.0	39.4	39.9	40.3	40.3	40.7	40.7	40.7
20°	35.5	36.4	36.8	37.2	37.2	38.1	37.7	38.1
22.5°	32.0	32.9	33.3	33.7	34.2	34.6	34.6	35.1
25°	28.9	29.8	30.2	30.7	31.1	32.0	32.0	32.0
27.5°	25.9	26.7	27.2	28.0	28.5	29.4	29.4	29.4
30°	22.8	23.7	24.1	24.5	25.4	26.3	26.3	26.7
32.5°	19.7	21.0	21.5	21.9	22.8	23.7	24.1	24.1
35°	17.5	18.4	18.8	19.7	20.2	21.5	21.5	21.5
37.5°	15.3	16.2	17.1	17.5	18.0	18.8	19.3	19.7
40°	13.6	14.5	14.9	15.3	16.2	17.1	17.5	17.5
42.5°	11.8	12.7	13.1	13.6	14.0	14.9	14.9	14.9
45°	10.5	11.0	11.4	11.8	12.3	12.7	13.1	13.1
47.5°	8.8	9.6	9.6	10.1	10.5	11.4	11.4	11.8
50°	7.4	8.3	8.3	8.8	9.2	9.6	10.1	10.1
52.5°	6.6	7.0	7.4	7.4	7.9	8.3	8.8	8.8
55°	5.7	6.1	6.1	6.6	6.6	7.0	7.4	7.4
57.5°	4.8	5.3	5.7	5.7	5.7	6.1	6.1	6.6
60°	4.4	4.8	4.8	4.8	4.8	5.3	5.3	5.3
62.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
65°	3.5	3.5	3.5	3.5	3.1	3.1	3.1	3.1
67.5°	3.1	3.1	3.1	3.1	2.6	2.6	2.6	2.6
70°	2.6	2.6	2.6	2.6	2.2	2.2	2.2	1.8
72.5°	2.2	2.2	2.2	2.2	2.2	1.8	1.8	1.8
75°	2.2	1.8	1.8	1.8	1.8	1.8	1.3	1.3
77.5°	1.8	1.8	1.8	1.3	1.3	1.3	1.3	1.3
80°	1.3	1.3	1.3	1.3	1.3	0.9	0.9	0.9
82.5°	1.3	0.9	0.9	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)