

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: P182726

Luminaire Tested: **LDSQA4A28827D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182726
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: LDSQA4A28827D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2827.8 lumens
Efficiency: N/A
Efficacy: 63.6 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

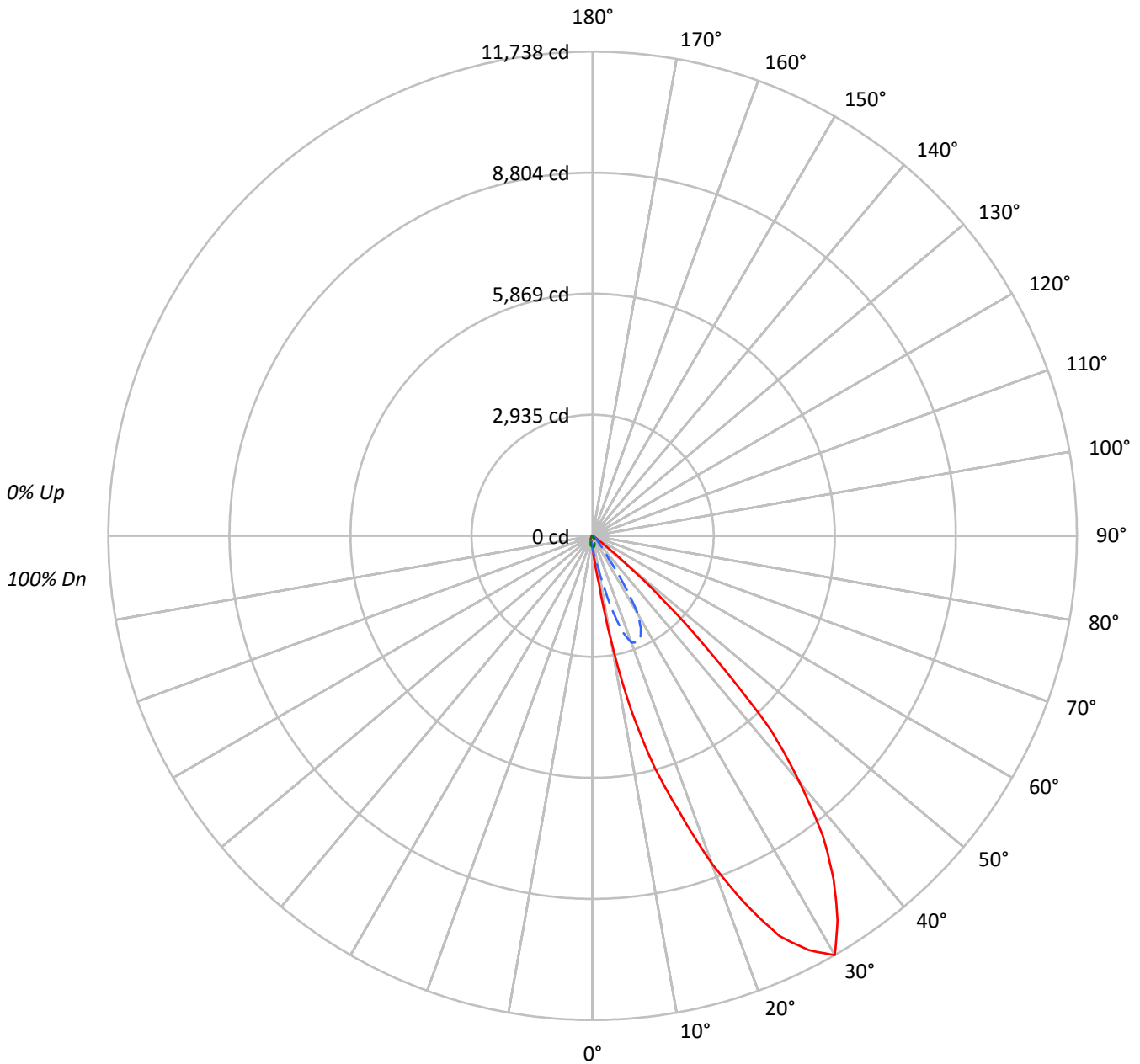
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	28607	28607	28607
5°	63307	27063	19021
10°	253460	23501	15877
15°	584236	18695	13951
20°	872133	13258	12454
25°	1143896	8840	11085
30°	1313093	5582	9687
35°	1203977	3572	8385
40°	987326	2327	7132
45°	572397	1617	5754
50°	162211	1191	4747
55°	14846	1115	3986
60°	2286	1279	3313
65°	596	1215	2407
70°	736	1501	1869
75°	973	1984	1984
80°	0	2957	1450
85°	0	5891	1445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.0	1.5
10°-20°	376.1	13.3
20°-30°	916.2	32.4
30°-40°	993.0	35.1
40°-50°	449.9	15.9
50°-60°	34.8	1.2
60°-70°	7.2	0.3
70°-80°	5.3	0.2
80°-90°	3.3	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°	1334.2	47.2
0°-40°	2327.3	82.3
0°-60°	2812.0	99.4
0°-90°	2827.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2827.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	295	295	295	295	295	
5°	651	480	278	210	196	117
15°	5825	1906	186	135	139	1693
25°	10702	2737	83	81	104	4878
35°	10180	696	30	47	71	6262
45°	4178	88	12	26	42	3298
55°	88	12	7	16	24	201
65°	3	4	5	10	10	4
75°	3	4	5	8	5	2
85°	0	4	5	4	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°	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3
2.5°	442.3	434.5	438.4	427.9	421.3	416.1	418.7	416.1	399.0	395.1	382.0
5°	651.0	639.2	639.2	616.9	593.3	578.9	578.9	561.8	525.0	508.0	480.4
7.5°	1166.9	1143.3	1123.6	1054.0	963.4	912.3	899.1	826.9	733.7	674.7	605.1
10°	2576.6	2478.2	2408.6	2227.5	1984.6	1833.7	1769.4	1520.0	1223.3	1000.2	798.1
12.5°	4332.9	4199.0	4076.9	3780.3	3431.1	3193.5	3066.2	2698.7	2122.5	1710.3	1279.8
15°	5825.3	5680.9	5536.5	5175.6	4806.7	4600.6	4367.0	3880.0	3118.7	2533.3	1905.9
17.5°	7049.9	6968.6	6820.2	6291.3	5826.6	5505.0	5262.2	4625.6	3842.0	3173.9	2463.7
20°	8459.7	8258.8	7993.7	7351.8	6716.6	6313.6	5972.3	5196.6	4290.9	3523.0	2759.1
22.5°	9646.3	9503.2	9122.5	8275.9	7341.3	6997.4	6580.0	5646.8	4579.6	3671.3	2793.2
25°	10701.6	10477.1	9999.4	8992.6	8035.7	7450.3	6938.4	5890.9	4686.0	3681.8	2736.8
27.5°	11319.8	11027.1	10465.3	9368.0	8275.9	7628.8	7061.8	5932.9	4619.0	3542.7	2530.7
30°	11738.5	11155.7	10534.9	9371.9	8199.8	7538.2	6950.2	5721.6	4340.8	3225.0	2184.2
32.5°	11048.1	10710.8	10117.5	8999.2	7785.0	7139.2	6555.1	5263.5	3906.3	2753.8	1520.0
35°	10180.5	9907.5	9391.6	8281.2	7162.8	6553.8	5934.2	4675.5	3340.6	1892.8	695.7
37.5°	9172.4	8958.5	8403.2	7388.6	6404.2	5808.2	5187.4	3985.0	2352.2	938.5	422.7
40°	7807.3	7626.2	7170.7	6355.6	5448.6	4881.5	4309.3	2980.9	1277.2	523.7	275.6
42.5°	6417.3	6265.0	5850.2	5145.4	4348.6	3881.3	3377.3	1816.6	635.3	329.5	153.6
45°	4178.0	3987.7	3764.5	3441.6	3047.8	2760.4	2165.8	876.8	376.7	183.8	87.9
47.5°	2395.5	2269.5	1903.3	1501.6	1219.4	1113.1	809.9	408.2	207.4	106.3	53.8
50°	1076.3	994.9	834.8	679.9	492.2	384.6	326.8	204.8	102.4	57.8	36.8
52.5°	265.1	270.4	256.0	224.5	199.5	169.3	147.0	95.8	53.8	35.4	23.6
55°	87.9	89.3	81.4	77.4	70.9	65.6	60.4	43.3	32.8	31.5	11.8
57.5°	31.5	31.5	32.8	30.2	28.9	27.6	26.3	22.3	19.7	11.8	6.6
60°	11.8	11.8	11.8	13.1	13.1	13.1	14.4	13.1	9.2	6.6	5.3
62.5°	5.3	5.3	5.3	5.3	6.6	6.6	7.9	6.6	5.3	5.3	3.9
65°	2.6	2.6	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
67.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.9	3.9
70°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.9	3.9
72.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.9	3.9
75°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.9
77.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	2.6	2.6	3.9
80°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	2.6	2.6	3.9
82.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	2.6	2.6	3.9
85°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	2.6	3.9
87.5°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	2.6	2.6
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°	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3
2.5°	368.8	361.0	345.2	333.4	324.2	322.9	315.0	301.9	296.6	287.5	279.6
5°	454.2	434.5	409.5	385.9	368.8	359.7	332.1	307.1	292.7	278.3	265.1
7.5°	546.0	501.4	458.1	420.0	396.4	382.0	349.2	308.5	282.2	261.2	244.1
10°	661.5	569.7	494.8	435.8	404.3	384.6	345.2	296.6	263.8	238.9	221.8
12.5°	925.4	674.7	529.0	443.7	404.3	376.7	329.5	280.9	244.1	214.0	195.6
15°	1376.9	942.4	627.4	447.6	391.2	359.7	305.8	254.6	217.9	186.4	169.3
17.5°	1802.2	1240.4	783.6	475.2	383.3	334.7	274.3	224.5	186.4	156.2	141.8
20°	2022.7	1388.7	870.3	496.2	370.2	303.2	237.6	191.6	154.9	128.6	116.8
22.5°	2028.0	1375.6	828.2	447.6	321.6	259.9	203.5	157.5	126.0	103.7	94.5
25°	1903.3	1216.8	681.2	349.2	259.9	217.9	169.3	128.6	98.4	82.7	76.1
27.5°	1668.3	984.4	502.7	252.0	203.5	173.3	132.6	98.4	74.8	64.3	60.4
30°	1290.3	609.0	278.3	186.4	153.6	129.9	95.8	65.6	56.4	49.9	47.3
32.5°	640.5	298.0	196.9	132.6	105.0	82.7	60.4	48.6	43.3	39.4	38.1
35°	347.8	214.0	123.4	80.1	63.0	52.5	40.7	34.1	31.5	30.2	30.2
37.5°	242.8	127.3	74.8	48.6	39.4	35.4	28.9	24.9	23.6	23.6	23.6
40°	133.9	76.1	45.9	31.5	26.3	23.6	19.7	18.4	18.4	18.4	19.7
42.5°	77.4	47.3	31.5	22.3	18.4	17.1	14.4	13.1	14.4	14.4	15.8
45°	49.9	35.4	21.0	15.8	13.1	11.8	10.5	10.5	11.8	11.8	13.1
47.5°	35.4	24.9	14.4	10.5	7.9	7.9	7.9	7.9	9.2	10.5	11.8
50°	21.0	13.1	7.9	6.6	5.3	5.3	5.3	6.6	7.9	7.9	9.2
52.5°	11.8	7.9	5.3	5.3	3.9	3.9	5.3	5.3	6.6	7.9	9.2
55°	6.6	5.3	3.9	3.9	3.9	3.9	3.9	5.3	5.3	6.6	7.9
57.5°	5.3	3.9	3.9	3.9	3.9	3.9	3.9	5.3	5.3	6.6	6.6
60°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	5.3	5.3	6.6	6.6
62.5°	3.9	3.9	3.9	3.9	3.9	3.9	5.3	5.3	5.3	5.3	6.6
65°	3.9	3.9	3.9	5.3	3.9	5.3	5.3	5.3	5.3	5.3	6.6
67.5°	3.9	3.9	3.9	5.3	5.3	5.3	5.3	5.3	5.3	5.3	6.6
70°	3.9	3.9	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	6.6
72.5°	3.9	3.9	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	6.6
75°	3.9	3.9	3.9	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
77.5°	3.9	3.9	3.9	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
80°	3.9	3.9	3.9	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
82.5°	3.9	3.9	3.9	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
85°	3.9	3.9	3.9	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
87.5°	3.9	3.9	3.9	3.9	5.3	5.3	5.3	5.3	5.3	5.3	5.3
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°	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3
2.5°	277.0	267.8	261.2	258.6	253.3	254.6	250.7	248.1	240.2	240.2	235.0
5°	256.0	244.1	236.3	232.3	227.1	225.8	221.8	217.9	210.0	208.7	204.8
7.5°	233.6	221.8	212.6	208.7	203.5	202.1	196.9	194.3	187.7	186.4	182.5
10°	210.0	196.9	189.0	185.1	179.8	179.8	175.9	173.3	168.0	168.0	165.4
12.5°	185.1	173.3	168.0	162.8	160.1	160.1	157.5	154.9	150.9	152.3	150.9
15°	158.8	149.6	144.4	141.8	140.4	140.4	139.1	137.8	135.2	137.8	135.2
17.5°	133.9	127.3	123.4	122.1	120.8	120.8	120.8	122.1	120.8	123.4	123.4
20°	110.3	105.0	102.4	102.4	101.1	103.7	103.7	106.3	106.3	110.3	111.6
22.5°	90.6	86.6	85.3	85.3	85.3	87.9	89.3	91.9	93.2	97.1	99.8
25°	72.2	70.9	70.9	70.9	72.2	74.8	77.4	80.1	81.4	86.6	87.9
27.5°	59.1	57.8	59.1	59.1	60.4	64.3	66.9	69.6	72.2	76.1	78.8
30°	47.3	47.3	48.6	49.9	51.2	53.8	57.8	60.4	63.0	66.9	69.6
32.5°	38.1	39.4	40.7	42.0	42.0	45.9	48.6	52.5	53.8	57.8	60.4
35°	31.5	32.8	34.1	35.4	35.4	39.4	42.0	44.6	47.3	49.9	52.5
37.5°	24.9	26.3	28.9	30.2	30.2	34.1	35.4	38.1	40.7	43.3	45.9
40°	21.0	22.3	24.9	24.9	26.3	28.9	30.2	32.8	35.4	38.1	40.7
42.5°	17.1	18.4	21.0	22.3	22.3	24.9	26.3	28.9	30.2	32.8	34.1
45°	15.8	15.8	18.4	18.4	19.7	21.0	23.6	24.9	26.3	28.9	30.2
47.5°	13.1	14.4	15.8	17.1	17.1	18.4	19.7	21.0	22.3	24.9	26.3
50°	10.5	11.8	14.4	14.4	14.4	17.1	18.4	19.7	19.7	21.0	22.3
52.5°	10.5	10.5	11.8	13.1	13.1	14.4	15.8	17.1	17.1	18.4	19.7
55°	9.2	9.2	10.5	11.8	11.8	13.1	14.4	14.4	15.8	15.8	17.1
57.5°	7.9	9.2	10.5	10.5	10.5	11.8	13.1	13.1	14.4	14.4	15.8
60°	7.9	9.2	9.2	10.5	10.5	11.8	11.8	11.8	13.1	13.1	13.1
62.5°	7.9	7.9	9.2	9.2	9.2	10.5	10.5	11.8	11.8	11.8	11.8
65°	7.9	7.9	9.2	9.2	9.2	10.5	10.5	10.5	10.5	10.5	10.5
67.5°	6.6	7.9	7.9	7.9	9.2	9.2	9.2	9.2	9.2	9.2	9.2
70°	6.6	6.6	7.9	7.9	7.9	9.2	9.2	9.2	9.2	9.2	9.2
72.5°	6.6	6.6	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
75°	6.6	6.6	6.6	6.6	6.6	7.9	7.9	7.9	7.9	6.6	6.6
77.5°	5.3	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	5.3
80°	5.3	5.3	6.6	5.3	6.6	6.6	6.6	6.6	5.3	5.3	5.3
82.5°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	3.9	3.9
85°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	3.9	3.9	3.9	2.6
87.5°	5.3	5.3	5.3	5.3	5.3	5.3	3.9	3.9	3.9	2.6	2.6
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°	295.3	295.3	295.3	295.3	295.3	295.3	295.3	295.3
2.5°	232.3	235.0	232.3	235.0	228.4	231.0	233.6	227.1
5°	202.1	199.5	200.8	203.5	198.2	199.5	200.8	195.6
7.5°	181.1	182.5	179.8	182.5	178.5	179.8	181.1	177.2
10°	164.1	165.4	164.1	165.4	161.4	164.1	165.4	161.4
12.5°	148.3	150.9	149.6	152.3	148.3	150.9	153.6	148.3
15°	136.5	139.1	137.8	140.4	137.8	140.4	143.1	139.1
17.5°	124.7	127.3	127.3	129.9	128.6	131.3	133.9	129.9
20°	112.9	116.8	116.8	119.4	119.4	120.8	124.7	120.8
22.5°	102.4	106.3	106.3	108.9	108.9	111.6	114.2	111.6
25°	90.6	95.8	97.1	99.8	99.8	102.4	106.3	103.7
27.5°	82.7	86.6	87.9	90.6	91.9	94.5	97.1	94.5
30°	72.2	77.4	78.8	81.4	82.7	86.6	87.9	86.6
32.5°	64.3	68.3	69.6	72.2	74.8	77.4	80.1	78.8
35°	56.4	60.4	61.7	64.3	65.6	69.6	72.2	70.9
37.5°	49.9	53.8	55.1	56.4	57.8	61.7	64.3	63.0
40°	43.3	45.9	47.3	49.9	51.2	53.8	56.4	56.4
42.5°	38.1	40.7	42.0	43.3	44.6	47.3	49.9	48.6
45°	32.8	35.4	36.8	38.1	39.4	40.7	43.3	42.0
47.5°	27.6	30.2	31.5	32.8	34.1	35.4	38.1	36.8
50°	23.6	26.3	26.3	27.6	28.9	30.2	32.8	31.5
52.5°	21.0	22.3	23.6	23.6	24.9	26.3	28.9	27.6
55°	18.4	19.7	19.7	21.0	21.0	22.3	23.6	23.6
57.5°	15.8	17.1	17.1	18.4	18.4	19.7	21.0	21.0
60°	14.4	14.4	15.8	15.8	15.8	17.1	17.1	17.1
62.5°	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
65°	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
67.5°	9.2	9.2	9.2	9.2	9.2	7.9	7.9	7.9
70°	7.9	7.9	7.9	7.9	7.9	6.6	6.6	6.6
72.5°	7.9	7.9	6.6	6.6	6.6	6.6	6.6	5.3
75°	6.6	6.6	6.6	6.6	5.3	5.3	5.3	5.3
77.5°	5.3	5.3	5.3	5.3	3.9	3.9	3.9	3.9
80°	5.3	3.9	3.9	3.9	3.9	3.9	3.9	2.6
82.5°	3.9	3.9	3.9	2.6	2.6	2.6	2.6	2.6
85°	2.6	2.6	2.6	2.6	1.3	1.3	1.3	1.3
87.5°	2.6	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)