

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: P182722

Luminaire Tested: **LDSQA4A13927D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182722
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: LDSQA4A13927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1330.1 lumens
Efficiency: N/A
Efficacy: 59.7 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

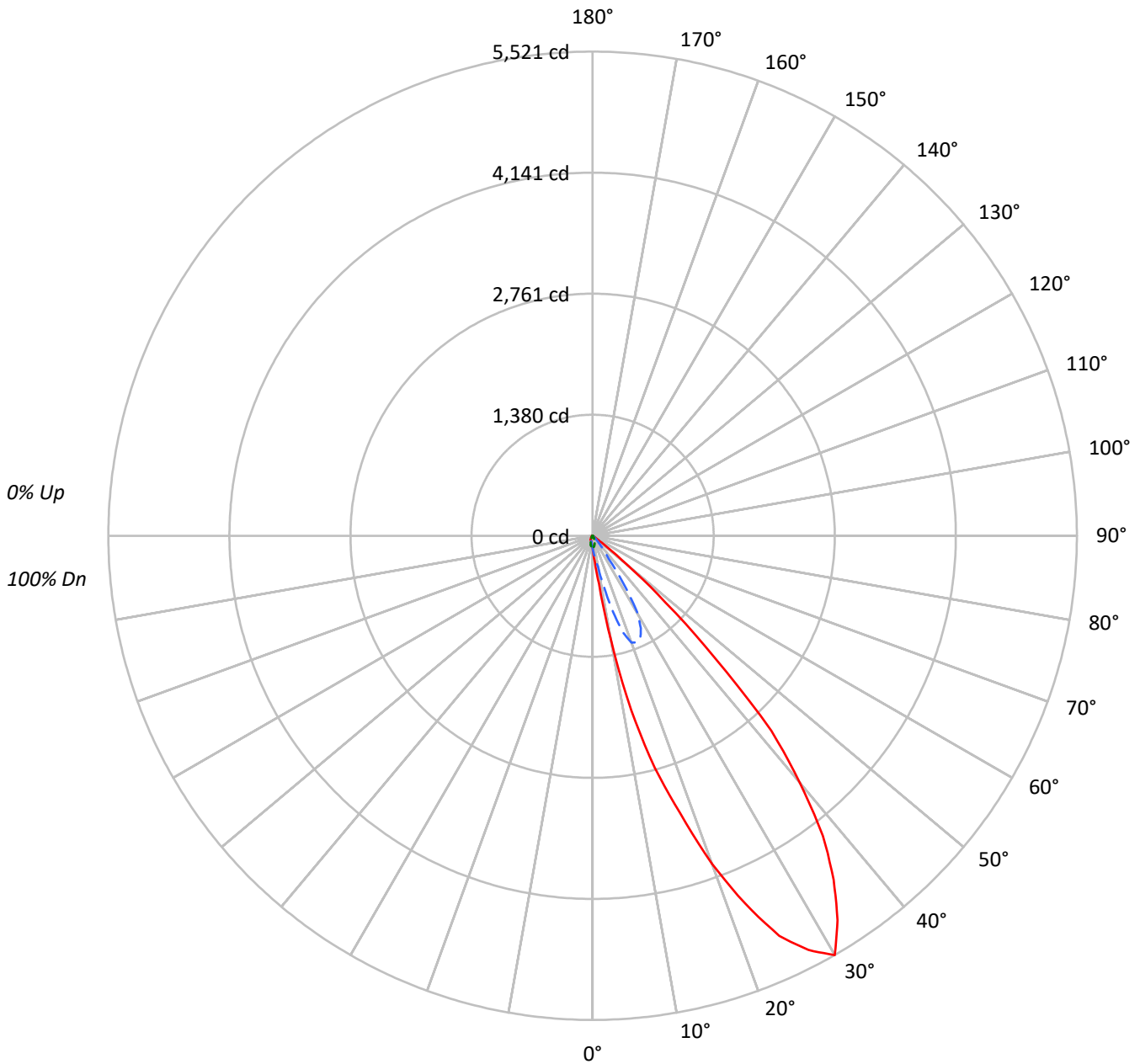
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	13456	13456	13456
5°	29777	12729	8947
10°	119214	11057	7466
15°	274792	8796	6559
20°	410206	6237	5856
25°	538032	4158	5216
30°	617613	2629	4553
35°	566291	1679	3938
40°	464393	1088	3351
45°	269224	767	2713
50°	76290	558	2231
55°	6992	524	1875
60°	1085	601	1550
65°	275	573	1123
70°	340	708	878
75°	449	936	936
80°	0	1395	669
85°	0	2779	667



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	19.7	1.5
10°-20°	176.9	13.3
20°-30°	430.9	32.4
30°-40°	467.1	35.1
40°-50°	211.6	15.9
50°-60°	16.4	1.2
60°-70°	3.4	0.3
70°-80°	2.5	0.2
80°-90°	1.6	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°	627.6	47.2
0°-40°	1094.6	82.3
0°-60°	1322.6	99.4
0°-90°	1330.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1330.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	139	139	139	139	139	
5°	306	226	131	99	92	55
15°	2740	896	88	64	65	796
25°	5034	1287	39	38	49	2294
35°	4788	327	14	22	33	2945
45°	1965	41	6	12	20	1551
55°	41	6	3	7	11	95
65°	1	2	2	5	5	2
75°	1	2	2	4	2	1
85°	0	2	2	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°	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9
2.5°	208.1	204.4	206.2	201.3	198.2	195.7	196.9	195.7	187.7	185.8	179.7
5°	306.2	300.7	300.7	290.2	279.1	272.3	272.3	264.2	247.0	238.9	226.0
7.5°	548.8	537.7	528.5	495.8	453.2	429.1	422.9	388.9	345.1	317.3	284.6
10°	1211.9	1165.6	1132.9	1047.7	933.5	862.5	832.2	714.9	575.4	470.4	375.4
12.5°	2038.0	1975.0	1917.6	1778.0	1613.8	1502.1	1442.2	1269.3	998.3	804.4	601.9
15°	2739.9	2672.0	2604.1	2434.3	2260.8	2163.9	2054.0	1825.0	1466.9	1191.5	896.4
17.5°	3315.9	3277.7	3207.9	2959.1	2740.5	2589.3	2475.1	2175.6	1807.1	1492.8	1158.8
20°	3979.0	3884.5	3759.8	3457.9	3159.1	2969.6	2809.1	2444.2	2018.2	1657.0	1297.7
22.5°	4537.1	4469.8	4290.8	3892.6	3453.0	3291.2	3094.9	2656.0	2154.0	1726.8	1313.8
25°	5033.5	4927.9	4703.2	4229.6	3779.6	3504.2	3263.5	2770.8	2204.0	1731.7	1287.2
27.5°	5324.3	5186.6	4922.3	4406.2	3892.6	3588.2	3321.5	2790.5	2172.5	1666.3	1190.3
30°	5521.2	5247.1	4955.1	4408.1	3856.8	3545.6	3269.0	2691.1	2041.7	1516.9	1027.3
32.5°	5196.5	5037.8	4758.7	4232.7	3661.7	3357.9	3083.2	2475.7	1837.3	1295.3	714.9
35°	4788.4	4660.0	4417.3	3895.0	3369.0	3082.6	2791.2	2199.1	1571.2	890.3	327.2
37.5°	4314.2	4213.6	3952.4	3475.2	3012.2	2731.9	2439.9	1874.4	1106.3	441.4	198.8
40°	3672.2	3587.0	3372.7	2989.3	2562.7	2296.0	2026.8	1402.1	600.7	246.3	129.6
42.5°	3018.4	2946.7	2751.6	2420.1	2045.4	1825.6	1588.5	854.4	298.8	155.0	72.2
45°	1965.1	1875.6	1770.6	1618.8	1433.5	1298.3	1018.7	412.4	177.2	86.4	41.4
47.5°	1126.7	1067.4	895.2	706.3	573.5	523.5	380.9	192.0	97.5	50.0	25.3
50°	506.2	468.0	392.7	319.8	231.5	180.9	153.7	96.3	48.2	27.2	17.3
52.5°	124.7	127.2	120.4	105.6	93.8	79.6	69.1	45.1	25.3	16.7	11.1
55°	41.4	42.0	38.3	36.4	33.3	30.9	28.4	20.4	15.4	14.8	5.6
57.5°	14.8	14.8	15.4	14.2	13.6	13.0	12.3	10.5	9.3	5.6	3.1
60°	5.6	5.6	5.6	6.2	6.2	6.2	6.8	6.2	4.3	3.1	2.5
62.5°	2.5	2.5	2.5	2.5	3.1	3.1	3.7	3.1	2.5	2.5	1.9
65°	1.2	1.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
67.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9	1.9
70°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9	1.9
72.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9	1.9
75°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9
77.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.9
80°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.9
82.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.9
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.9
87.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2
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°	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9
2.5°	173.5	169.8	162.4	156.8	152.5	151.9	148.2	142.0	139.5	135.2	131.5
5°	213.6	204.4	192.6	181.5	173.5	169.2	156.2	144.5	137.7	130.9	124.7
7.5°	256.8	235.8	215.5	197.6	186.4	179.7	164.2	145.1	132.7	122.9	114.8
10°	311.2	267.9	232.8	205.0	190.2	180.9	162.4	139.5	124.1	112.4	104.3
12.5°	435.3	317.3	248.8	208.7	190.2	177.2	155.0	132.1	114.8	100.6	92.0
15°	647.6	443.3	295.1	210.5	184.0	169.2	143.8	119.8	102.5	87.7	79.6
17.5°	847.7	583.4	368.6	223.5	180.3	157.4	129.0	105.6	87.7	73.5	66.7
20°	951.4	653.2	409.3	233.4	174.1	142.6	111.7	90.1	72.9	60.5	54.9
22.5°	953.8	647.0	389.6	210.5	151.3	122.2	95.7	74.1	59.3	48.8	44.5
25°	895.2	572.3	320.4	164.2	122.2	102.5	79.6	60.5	46.3	38.9	35.8
27.5°	784.7	463.0	236.5	118.5	95.7	81.5	62.4	46.3	35.2	30.3	28.4
30°	606.9	286.5	130.9	87.7	72.2	61.1	45.1	30.9	26.5	23.5	22.2
32.5°	301.3	140.1	92.6	62.4	49.4	38.9	28.4	22.8	20.4	18.5	17.9
35°	163.6	100.6	58.0	37.7	29.6	24.7	19.1	16.1	14.8	14.2	14.2
37.5°	114.2	59.9	35.2	22.8	18.5	16.7	13.6	11.7	11.1	11.1	11.1
40°	63.0	35.8	21.6	14.8	12.3	11.1	9.3	8.6	8.6	8.6	9.3
42.5°	36.4	22.2	14.8	10.5	8.6	8.0	6.8	6.2	6.8	6.8	7.4
45°	23.5	16.7	9.9	7.4	6.2	5.6	4.9	4.9	5.6	5.6	6.2
47.5°	16.7	11.7	6.8	4.9	3.7	3.7	3.7	3.7	4.3	4.9	5.6
50°	9.9	6.2	3.7	3.1	2.5	2.5	2.5	3.1	3.7	3.7	4.3
52.5°	5.6	3.7	2.5	2.5	1.9	1.9	2.5	2.5	3.1	3.7	4.3
55°	3.1	2.5	1.9	1.9	1.9	1.9	1.9	2.5	2.5	3.1	3.7
57.5°	2.5	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	3.1	3.1
60°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	3.1	3.1
62.5°	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5	3.1
65°	1.9	1.9	1.9	2.5	1.9	2.5	2.5	2.5	2.5	2.5	3.1
67.5°	1.9	1.9	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.1
70°	1.9	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.1
72.5°	1.9	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.1
75°	1.9	1.9	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
77.5°	1.9	1.9	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
80°	1.9	1.9	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
82.5°	1.9	1.9	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
85°	1.9	1.9	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
87.5°	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9
2.5°	130.3	125.9	122.9	121.6	119.2	119.8	117.9	116.7	113.0	113.0	110.5
5°	120.4	114.8	111.1	109.3	106.8	106.2	104.3	102.5	98.8	98.2	96.3
7.5°	109.9	104.3	100.0	98.2	95.7	95.1	92.6	91.4	88.3	87.7	85.8
10°	98.8	92.6	88.9	87.1	84.6	84.6	82.7	81.5	79.0	79.0	77.8
12.5°	87.1	81.5	79.0	76.6	75.3	75.3	74.1	72.9	71.0	71.6	71.0
15°	74.7	70.4	67.9	66.7	66.1	66.1	65.4	64.8	63.6	64.8	63.6
17.5°	63.0	59.9	58.0	57.4	56.8	56.8	56.8	57.4	56.8	58.0	58.0
20°	51.9	49.4	48.2	48.2	47.5	48.8	48.8	50.0	50.0	51.9	52.5
22.5°	42.6	40.7	40.1	40.1	40.1	41.4	42.0	43.2	43.8	45.7	46.9
25°	34.0	33.3	33.3	33.3	34.0	35.2	36.4	37.7	38.3	40.7	41.4
27.5°	27.8	27.2	27.8	27.8	28.4	30.3	31.5	32.7	34.0	35.8	37.0
30°	22.2	22.2	22.8	23.5	24.1	25.3	27.2	28.4	29.6	31.5	32.7
32.5°	17.9	18.5	19.1	19.8	19.8	21.6	22.8	24.7	25.3	27.2	28.4
35°	14.8	15.4	16.1	16.7	16.7	18.5	19.8	21.0	22.2	23.5	24.7
37.5°	11.7	12.3	13.6	14.2	14.2	16.1	16.7	17.9	19.1	20.4	21.6
40°	9.9	10.5	11.7	11.7	12.3	13.6	14.2	15.4	16.7	17.9	19.1
42.5°	8.0	8.6	9.9	10.5	10.5	11.7	12.3	13.6	14.2	15.4	16.1
45°	7.4	7.4	8.6	8.6	9.3	9.9	11.1	11.7	12.3	13.6	14.2
47.5°	6.2	6.8	7.4	8.0	8.0	8.6	9.3	9.9	10.5	11.7	12.3
50°	4.9	5.6	6.8	6.8	6.8	8.0	8.6	9.3	9.3	9.9	10.5
52.5°	4.9	4.9	5.6	6.2	6.2	6.8	7.4	8.0	8.0	8.6	9.3
55°	4.3	4.3	4.9	5.6	5.6	6.2	6.8	6.8	7.4	7.4	8.0
57.5°	3.7	4.3	4.9	4.9	4.9	5.6	6.2	6.2	6.8	6.8	7.4
60°	3.7	4.3	4.3	4.9	4.9	5.6	5.6	5.6	6.2	6.2	6.2
62.5°	3.7	3.7	4.3	4.3	4.3	4.9	4.9	5.6	5.6	5.6	5.6
65°	3.7	3.7	4.3	4.3	4.3	4.9	4.9	4.9	4.9	4.9	4.9
67.5°	3.1	3.7	3.7	3.7	4.3	4.3	4.3	4.3	4.3	4.3	4.3
70°	3.1	3.1	3.7	3.7	3.7	4.3	4.3	4.3	4.3	4.3	4.3
72.5°	3.1	3.1	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
75°	3.1	3.1	3.1	3.1	3.1	3.7	3.7	3.7	3.7	3.1	3.1
77.5°	2.5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.5
80°	2.5	2.5	3.1	2.5	3.1	3.1	3.1	3.1	2.5	2.5	2.5
82.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9
85°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.2
87.5°	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.2	1.2
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°	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.9
2.5°	109.3	110.5	109.3	110.5	107.4	108.7	109.9	106.8
5°	95.1	93.8	94.5	95.7	93.2	93.8	94.5	92.0
7.5°	85.2	85.8	84.6	85.8	84.0	84.6	85.2	83.3
10°	77.2	77.8	77.2	77.8	75.9	77.2	77.8	75.9
12.5°	69.8	71.0	70.4	71.6	69.8	71.0	72.2	69.8
15°	64.2	65.4	64.8	66.1	64.8	66.1	67.3	65.4
17.5°	58.7	59.9	59.9	61.1	60.5	61.7	63.0	61.1
20°	53.1	54.9	54.9	56.2	56.2	56.8	58.7	56.8
22.5°	48.2	50.0	50.0	51.2	51.2	52.5	53.7	52.5
25°	42.6	45.1	45.7	46.9	46.9	48.2	50.0	48.8
27.5°	38.9	40.7	41.4	42.6	43.2	44.5	45.7	44.5
30°	34.0	36.4	37.0	38.3	38.9	40.7	41.4	40.7
32.5°	30.3	32.1	32.7	34.0	35.2	36.4	37.7	37.0
35°	26.5	28.4	29.0	30.3	30.9	32.7	34.0	33.3
37.5°	23.5	25.3	25.9	26.5	27.2	29.0	30.3	29.6
40°	20.4	21.6	22.2	23.5	24.1	25.3	26.5	26.5
42.5°	17.9	19.1	19.8	20.4	21.0	22.2	23.5	22.8
45°	15.4	16.7	17.3	17.9	18.5	19.1	20.4	19.8
47.5°	13.0	14.2	14.8	15.4	16.1	16.7	17.9	17.3
50°	11.1	12.3	12.3	13.0	13.6	14.2	15.4	14.8
52.5°	9.9	10.5	11.1	11.1	11.7	12.3	13.6	13.0
55°	8.6	9.3	9.3	9.9	9.9	10.5	11.1	11.1
57.5°	7.4	8.0	8.0	8.6	8.6	9.3	9.9	9.9
60°	6.8	6.8	7.4	7.4	7.4	8.0	8.0	8.0
62.5°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
65°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
67.5°	4.3	4.3	4.3	4.3	4.3	3.7	3.7	3.7
70°	3.7	3.7	3.7	3.7	3.7	3.1	3.1	3.1
72.5°	3.7	3.7	3.1	3.1	3.1	3.1	3.1	2.5
75°	3.1	3.1	3.1	3.1	2.5	2.5	2.5	2.5
77.5°	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9
80°	2.5	1.9	1.9	1.9	1.9	1.9	1.9	1.2
82.5°	1.9	1.9	1.9	1.2	1.2	1.2	1.2	1.2
85°	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6
87.5°	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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)