

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: P182723

Luminaire Tested: **LDSQA4A13930D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182723
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: LDSQA4A13930D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1391.6 lumens
Efficiency: N/A
Efficacy: 62.5 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

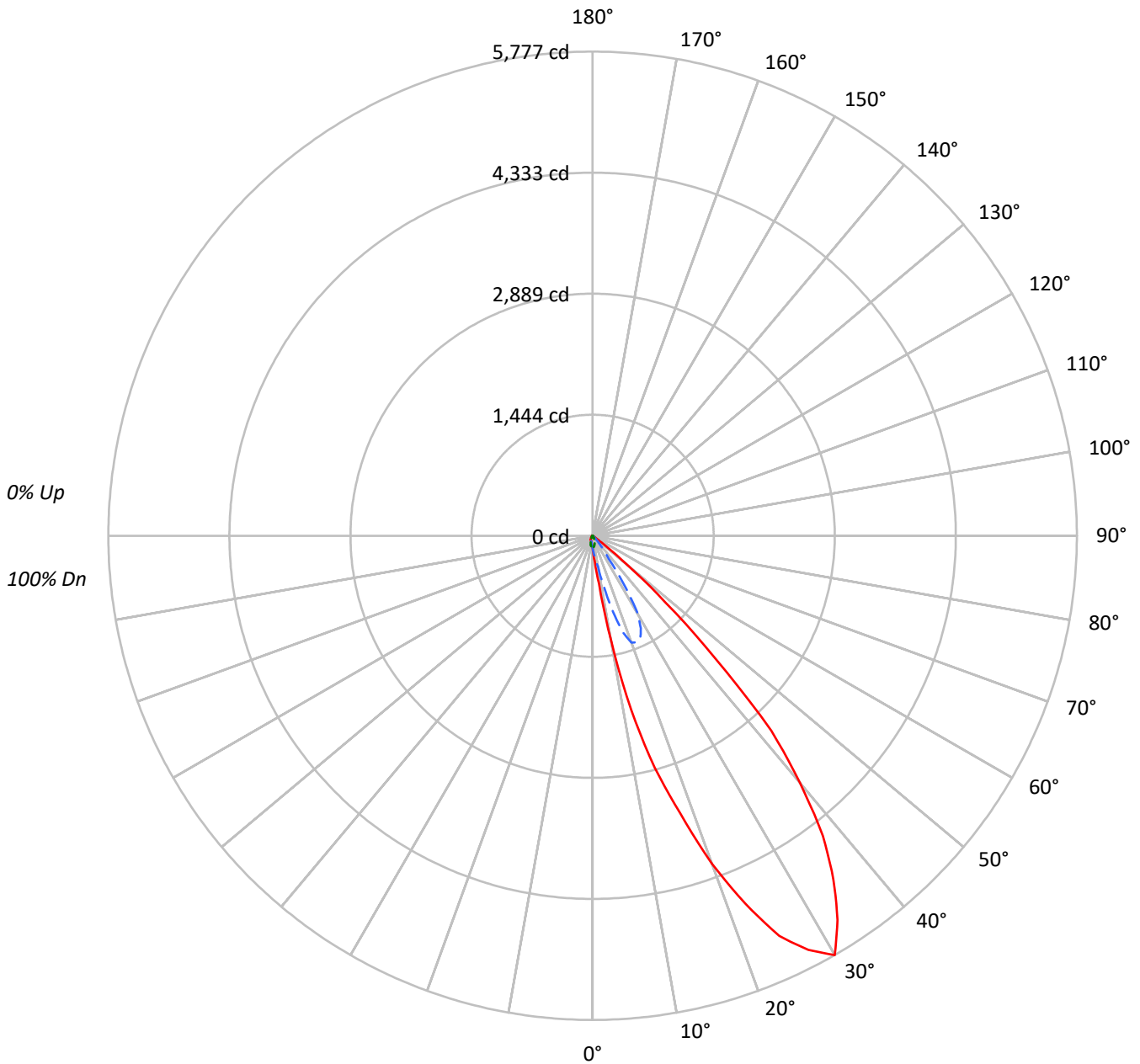
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	85	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°	14076	14076	14076
5°	31157	13313	9355
10°	124733	11568	7820
15°	287519	9197	6870
20°	429195	6526	6124
25°	562937	4350	5451
30°	646205	2741	4765
35°	592498	1762	4127
40°	485879	1138	3516
45°	281691	795	2836
50°	79832	588	2336
55°	7313	540	1959
60°	1124	620	1628
65°	298	596	1192
70°	368	736	906
75°	487	973	973
80°	0	1450	725
85°	0	2890	667



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	20.6	1.5
10°-20°	185.1	13.3
20°-30°	450.9	32.4
30°-40°	488.7	35.1
40°-50°	221.4	15.9
50°-60°	17.1	1.2
60°-70°	3.5	0.3
70°-80°	2.6	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°	656.6	47.2
0°-40°	1145.3	82.3
0°-60°	1383.8	99.4
0°-90°	1391.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1391.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	145	145	145	145	145	
5°	320	236	137	103	96	58
15°	2867	938	92	66	68	833
25°	5266	1347	41	40	51	2401
35°	5010	342	15	23	35	3082
45°	2056	43	6	13	21	1623
55°	43	6	3	8	12	99
65°	1	2	3	5	5	2
75°	1	2	3	4	3	1
85°	0	2	3	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°	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3
2.5°	217.7	213.8	215.7	210.6	207.4	204.8	206.1	204.8	196.4	194.4	188.0
5°	320.4	314.6	314.6	303.6	292.0	284.9	284.9	276.5	258.4	250.0	236.4
7.5°	574.3	562.6	552.9	518.7	474.1	448.9	442.5	407.0	361.1	332.0	297.8
10°	1268.0	1219.6	1185.3	1096.2	976.7	902.4	870.7	748.0	602.0	492.2	392.7
12.5°	2132.3	2066.4	2006.3	1860.4	1688.5	1571.6	1509.0	1328.1	1044.5	841.7	629.8
15°	2866.8	2795.7	2724.6	2547.0	2365.5	2264.1	2149.1	1909.4	1534.8	1246.7	937.9
17.5°	3469.4	3429.4	3356.4	3096.1	2867.4	2709.1	2589.6	2276.3	1890.7	1561.9	1212.5
20°	4163.2	4064.4	3933.9	3618.0	3305.4	3107.0	2939.1	2557.3	2111.6	1733.7	1357.8
22.5°	4747.1	4676.7	4489.4	4072.8	3612.8	3443.6	3238.2	2778.9	2253.7	1806.7	1374.6
25°	5266.5	5156.0	4920.9	4425.4	3954.5	3666.4	3414.5	2899.0	2306.1	1811.9	1346.8
27.5°	5570.7	5426.7	5150.2	4610.2	4072.8	3754.3	3475.2	2919.7	2273.1	1743.4	1245.4
30°	5776.8	5490.0	5184.4	4612.1	4035.3	3709.7	3420.3	2815.7	2136.2	1587.1	1074.9
32.5°	5437.0	5271.0	4979.0	4428.7	3831.2	3513.4	3225.9	2590.3	1922.4	1355.2	748.0
35°	5010.0	4875.7	4621.8	4075.3	3525.0	3225.3	2920.4	2300.9	1644.0	931.5	342.4
37.5°	4513.9	4408.6	4135.4	3636.1	3151.6	2858.4	2552.8	1961.1	1157.6	461.9	208.0
40°	3842.1	3753.0	3528.9	3127.7	2681.4	2402.3	2120.7	1467.0	628.5	257.7	135.7
42.5°	3158.1	3083.1	2879.0	2532.1	2140.1	1910.1	1662.0	894.0	312.6	162.1	75.6
45°	2056.1	1962.4	1852.6	1693.7	1499.9	1358.4	1065.8	431.5	185.4	90.4	43.3
47.5°	1178.9	1116.9	936.6	739.0	600.1	547.8	398.6	200.9	102.1	52.3	26.5
50°	529.7	489.6	410.8	334.6	242.2	189.3	160.8	100.8	50.4	28.4	18.1
52.5°	130.5	133.1	126.0	110.5	98.2	83.3	72.3	47.2	26.5	17.4	11.6
55°	43.3	43.9	40.0	38.1	34.9	32.3	29.7	21.3	16.1	15.5	5.8
57.5°	15.5	15.5	16.1	14.9	14.2	13.6	12.9	11.0	9.7	5.8	3.2
60°	5.8	5.8	5.8	6.5	6.5	6.5	7.1	6.5	4.5	3.2	2.6
62.5°	2.6	2.6	2.6	2.6	3.2	3.2	3.9	3.2	2.6	2.6	1.9
65°	1.3	1.3	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.9	1.9
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.9	1.9
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.9	1.9
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.9
77.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.3	1.3	1.3	1.9
80°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.3	1.3	1.3	1.9
82.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.3	1.3	1.3	1.9
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.3	1.3	1.9
87.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.3	1.3	1.3
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3
2.5°	181.5	177.6	169.9	164.1	159.6	158.9	155.0	148.6	146.0	141.5	137.6
5°	223.5	213.8	201.5	189.9	181.5	177.0	163.4	151.2	144.0	136.9	130.5
7.5°	268.7	246.8	225.4	206.7	195.1	188.0	171.8	151.8	138.9	128.5	120.1
10°	325.6	280.3	243.5	214.5	199.0	189.3	169.9	146.0	129.8	117.6	109.2
12.5°	455.4	332.0	260.3	218.3	199.0	185.4	162.1	138.2	120.1	105.3	96.2
15°	677.6	463.8	308.8	220.3	192.5	177.0	150.5	125.3	107.2	91.7	83.3
17.5°	886.9	610.4	385.6	233.8	188.6	164.7	135.0	110.5	91.7	76.9	69.8
20°	995.4	683.4	428.3	244.2	182.2	149.2	116.9	94.3	76.2	63.3	57.5
22.5°	998.0	677.0	407.6	220.3	158.3	127.9	100.1	77.5	62.0	51.0	46.5
25°	936.6	598.8	335.3	171.8	127.9	107.2	83.3	63.3	48.4	40.7	37.5
27.5°	821.0	484.5	247.4	124.0	100.1	85.3	65.2	48.4	36.8	31.7	29.7
30°	635.0	299.7	136.9	91.7	75.6	63.9	47.2	32.3	27.8	24.5	23.3
32.5°	315.2	146.6	96.9	65.2	51.7	40.7	29.7	23.9	21.3	19.4	18.7
35°	171.2	105.3	60.7	39.4	31.0	25.8	20.0	16.8	15.5	14.9	14.9
37.5°	119.5	62.7	36.8	23.9	19.4	17.4	14.2	12.3	11.6	11.6	11.6
40°	65.9	37.5	22.6	15.5	12.9	11.6	9.7	9.0	9.0	9.0	9.7
42.5°	38.1	23.3	15.5	11.0	9.0	8.4	7.1	6.5	7.1	7.1	7.8
45°	24.5	17.4	10.3	7.8	6.5	5.8	5.2	5.2	5.8	5.8	6.5
47.5°	17.4	12.3	7.1	5.2	3.9	3.9	3.9	3.9	4.5	5.2	5.8
50°	10.3	6.5	3.9	3.2	2.6	2.6	2.6	3.2	3.9	3.9	4.5
52.5°	5.8	3.9	2.6	2.6	1.9	1.9	2.6	2.6	3.2	3.9	4.5
55°	3.2	2.6	1.9	1.9	1.9	1.9	1.9	2.6	2.6	3.2	3.9
57.5°	2.6	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	3.2	3.2
60°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	3.2	3.2
62.5°	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6	2.6	3.2
65°	1.9	1.9	1.9	2.6	1.9	2.6	2.6	2.6	2.6	2.6	3.2
67.5°	1.9	1.9	1.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.2
70°	1.9	1.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.2
72.5°	1.9	1.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.2
75°	1.9	1.9	1.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
77.5°	1.9	1.9	1.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
80°	1.9	1.9	1.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
82.5°	1.9	1.9	1.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
85°	1.9	1.9	1.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
87.5°	1.9	1.9	1.9	1.9	2.6	2.6	2.6	2.6	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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3
2.5°	136.3	131.8	128.5	127.3	124.7	125.3	123.4	122.1	118.2	118.2	115.6
5°	126.0	120.1	116.3	114.3	111.8	111.1	109.2	107.2	103.4	102.7	100.8
7.5°	115.0	109.2	104.6	102.7	100.1	99.5	96.9	95.6	92.4	91.7	89.8
10°	103.4	96.9	93.0	91.1	88.5	88.5	86.6	85.3	82.7	82.7	81.4
12.5°	91.1	85.3	82.7	80.1	78.8	78.8	77.5	76.2	74.3	74.9	74.3
15°	78.2	73.6	71.1	69.8	69.1	69.1	68.5	67.8	66.5	67.8	66.5
17.5°	65.9	62.7	60.7	60.1	59.4	59.4	59.4	60.1	59.4	60.7	60.7
20°	54.3	51.7	50.4	50.4	49.7	51.0	51.0	52.3	52.3	54.3	54.9
22.5°	44.6	42.6	42.0	42.0	42.0	43.3	43.9	45.2	45.9	47.8	49.1
25°	35.5	34.9	34.9	34.9	35.5	36.8	38.1	39.4	40.0	42.6	43.3
27.5°	29.1	28.4	29.1	29.1	29.7	31.7	32.9	34.2	35.5	37.5	38.8
30°	23.3	23.3	23.9	24.5	25.2	26.5	28.4	29.7	31.0	32.9	34.2
32.5°	18.7	19.4	20.0	20.7	20.7	22.6	23.9	25.8	26.5	28.4	29.7
35°	15.5	16.1	16.8	17.4	17.4	19.4	20.7	22.0	23.3	24.5	25.8
37.5°	12.3	12.9	14.2	14.9	14.9	16.8	17.4	18.7	20.0	21.3	22.6
40°	10.3	11.0	12.3	12.3	12.9	14.2	14.9	16.1	17.4	18.7	20.0
42.5°	8.4	9.0	10.3	11.0	11.0	12.3	12.9	14.2	14.9	16.1	16.8
45°	7.8	7.8	9.0	9.0	9.7	10.3	11.6	12.3	12.9	14.2	14.9
47.5°	6.5	7.1	7.8	8.4	8.4	9.0	9.7	10.3	11.0	12.3	12.9
50°	5.2	5.8	7.1	7.1	7.1	8.4	9.0	9.7	9.7	10.3	11.0
52.5°	5.2	5.2	5.8	6.5	6.5	7.1	7.8	8.4	8.4	9.0	9.7
55°	4.5	4.5	5.2	5.8	5.8	6.5	7.1	7.1	7.8	7.8	8.4
57.5°	3.9	4.5	5.2	5.2	5.2	5.8	6.5	6.5	7.1	7.1	7.8
60°	3.9	4.5	4.5	5.2	5.2	5.8	5.8	5.8	6.5	6.5	6.5
62.5°	3.9	3.9	4.5	4.5	4.5	5.2	5.2	5.8	5.8	5.8	5.8
65°	3.9	3.9	4.5	4.5	4.5	5.2	5.2	5.2	5.2	5.2	5.2
67.5°	3.2	3.9	3.9	3.9	4.5	4.5	4.5	4.5	4.5	4.5	4.5
70°	3.2	3.2	3.9	3.9	3.9	4.5	4.5	4.5	4.5	4.5	4.5
72.5°	3.2	3.2	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
75°	3.2	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9	3.2	3.2
77.5°	2.6	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.6
80°	2.6	2.6	3.2	2.6	3.2	3.2	3.2	3.2	2.6	2.6	2.6
82.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	1.9	1.9
85°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	1.9	1.9	1.9	1.3
87.5°	2.6	2.6	2.6	2.6	2.6	2.6	1.9	1.9	1.9	1.3	1.3
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):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	145.3	145.3	145.3	145.3	145.3	145.3	145.3	145.3
2.5°	114.3	115.6	114.3	115.6	112.4	113.7	115.0	111.8
5°	99.5	98.2	98.8	100.1	97.5	98.2	98.8	96.2
7.5°	89.1	89.8	88.5	89.8	87.8	88.5	89.1	87.2
10°	80.7	81.4	80.7	81.4	79.5	80.7	81.4	79.5
12.5°	73.0	74.3	73.6	74.9	73.0	74.3	75.6	73.0
15°	67.2	68.5	67.8	69.1	67.8	69.1	70.4	68.5
17.5°	61.4	62.7	62.7	63.9	63.3	64.6	65.9	63.9
20°	55.6	57.5	57.5	58.8	58.8	59.4	61.4	59.4
22.5°	50.4	52.3	52.3	53.6	53.6	54.9	56.2	54.9
25°	44.6	47.2	47.8	49.1	49.1	50.4	52.3	51.0
27.5°	40.7	42.6	43.3	44.6	45.2	46.5	47.8	46.5
30°	35.5	38.1	38.8	40.0	40.7	42.6	43.3	42.6
32.5°	31.7	33.6	34.2	35.5	36.8	38.1	39.4	38.8
35°	27.8	29.7	30.4	31.7	32.3	34.2	35.5	34.9
37.5°	24.5	26.5	27.1	27.8	28.4	30.4	31.7	31.0
40°	21.3	22.6	23.3	24.5	25.2	26.5	27.8	27.8
42.5°	18.7	20.0	20.7	21.3	22.0	23.3	24.5	23.9
45°	16.1	17.4	18.1	18.7	19.4	20.0	21.3	20.7
47.5°	13.6	14.9	15.5	16.1	16.8	17.4	18.7	18.1
50°	11.6	12.9	12.9	13.6	14.2	14.9	16.1	15.5
52.5°	10.3	11.0	11.6	11.6	12.3	12.9	14.2	13.6
55°	9.0	9.7	9.7	10.3	10.3	11.0	11.6	11.6
57.5°	7.8	8.4	8.4	9.0	9.0	9.7	10.3	10.3
60°	7.1	7.1	7.8	7.8	7.8	8.4	8.4	8.4
62.5°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
65°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
67.5°	4.5	4.5	4.5	4.5	4.5	3.9	3.9	3.9
70°	3.9	3.9	3.9	3.9	3.9	3.2	3.2	3.2
72.5°	3.9	3.9	3.2	3.2	3.2	3.2	3.2	2.6
75°	3.2	3.2	3.2	3.2	2.6	2.6	2.6	2.6
77.5°	2.6	2.6	2.6	2.6	1.9	1.9	1.9	1.9
80°	2.6	1.9	1.9	1.9	1.9	1.9	1.9	1.3
82.5°	1.9	1.9	1.9	1.3	1.3	1.3	1.3	1.3
85°	1.3	1.3	1.3	1.3	0.6	0.6	0.6	0.6
87.5°	1.3	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)