

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: P182808

Luminaire Tested: **LDSQA4A09835D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182808
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: LDSQA4A09835D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1079.7 lumens
Efficiency: N/A
Efficacy: 78.0 lumens/watt
Spacing Criteria (0/90/45): 2.37 / 0.61 / 1.19
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

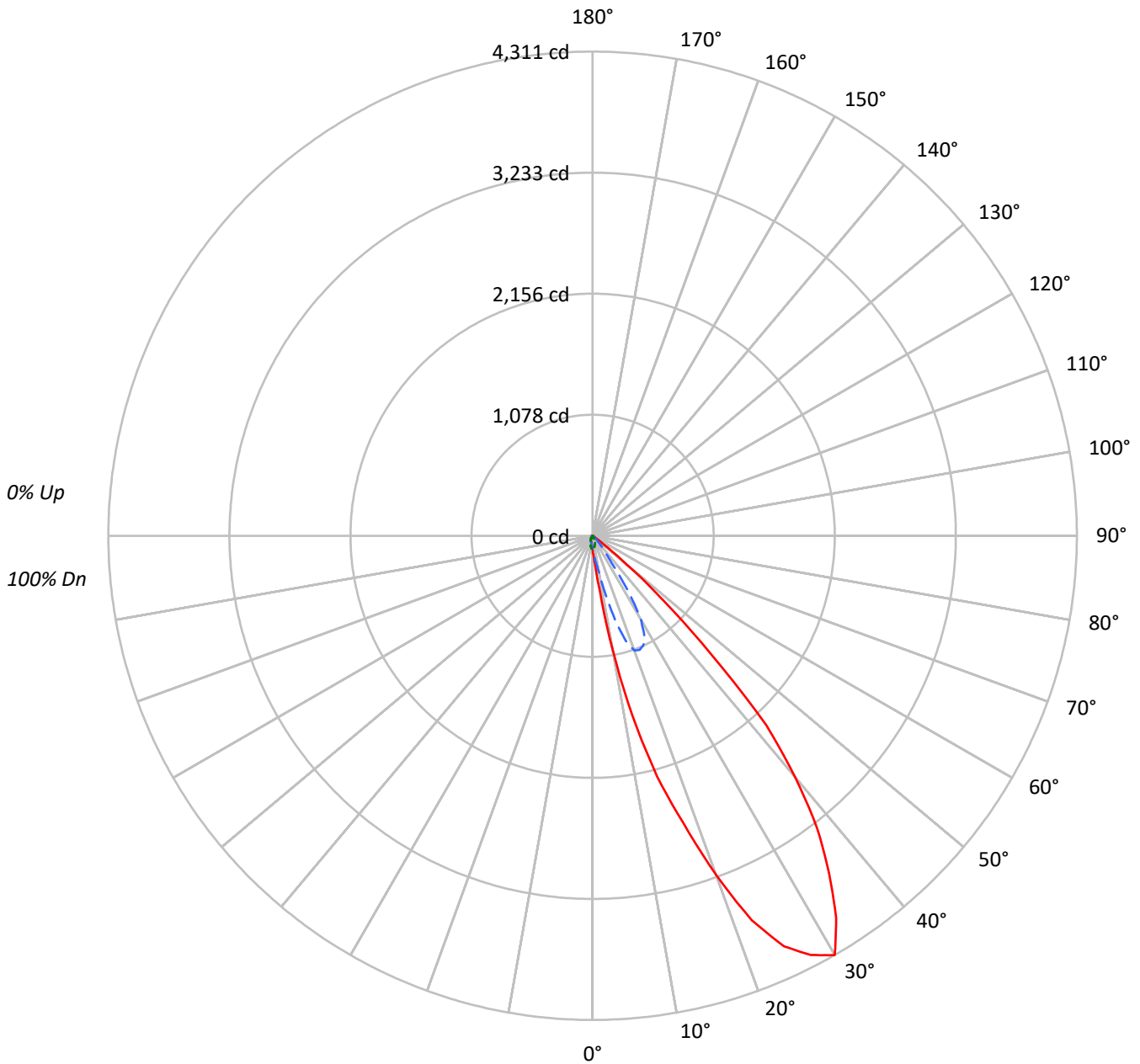
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	83	76	72	80	75	71	78	74	70	76	72	69	67																			
5	87	77	70	65	85	76	69	64	74	68	64	72	67	63	70	66	63	61																			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	57	55																			
7	76	65	57	52	74	64	57	52	62	56	52	61	56	52	60	55	51	50																			
8	71	59	52	47	69	59	52	47	58	51	47	57	51	47	55	50	47	45																			
9	66	55	48	43	65	54	48	43	53	47	43	52	47	43	51	46	42	41																			
10	62	51	44	39	61	50	44	39	49	43	39	48	43	39	48	42	39	37																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	11654	11654	11654
5°	26091	10969	7857
10°	102334	9601	6187
15°	222149	7773	5386
20°	331402	5753	4866
25°	431045	4051	4233
30°	482204	2729	3703
35°	433954	1608	3146
40°	354144	1100	2744
45°	203339	740	2233
50°	59471	573	1884
55°	6874	456	1554
60°	1473	523	1259
65°	504	504	871
70°	453	623	623
75°	412	823	599
80°	0	1227	614
85°	0	2445	556



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	17.2	1.6
10°-20°	147.8	13.7
20°-30°	352.6	32.7
30°-40°	372.1	34.5
40°-50°	168.7	15.6
50°-60°	14.8	1.4
60°-70°	3.1	0.3
70°-80°	2.0	0.2
80°-90°	1.3	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°	517.6	47.9
0°-40°	889.7	82.4
0°-60°	1073.3	99.4
0°-90°	1079.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1079.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	120	120	120	120	120	
5°	268	197	113	87	81	48
15°	2215	779	78	53	54	644
25°	4033	1072	38	32	40	1832
35°	3669	296	14	18	27	2266
45°	1484	42	5	10	16	1177
55°	41	6	3	6	9	81
65°	2	2	2	4	4	3
75°	1	1	2	3	2	1
85°	0	1	2	2	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°	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3
2.5°	178.9	180.0	175.1	175.6	170.8	172.9	171.3	167.0	163.7	158.3	156.1
5°	268.3	270.0	259.1	255.9	244.5	244.5	239.6	228.2	217.9	205.5	196.8
7.5°	490.6	497.1	464.6	440.2	404.4	395.7	378.9	339.9	307.9	275.4	251.0
10°	1040.3	1028.3	961.1	905.8	813.7	779.5	734.0	621.8	518.8	416.3	336.1
12.5°	1640.4	1678.9	1549.3	1504.3	1358.5	1327.6	1230.5	1047.3	873.3	692.2	531.8
15°	2215.0	2226.4	2113.1	2039.9	1862.1	1822.0	1702.7	1487.5	1253.3	1000.7	779.0
17.5°	2676.3	2721.8	2555.4	2476.8	2245.9	2181.4	2041.0	1779.1	1518.4	1242.5	979.6
20°	3214.6	3226.5	3029.2	2878.0	2576.0	2477.9	2309.8	1985.1	1674.5	1359.6	1088.0
22.5°	3704.1	3701.4	3447.7	3234.1	2851.9	2734.8	2527.2	2142.3	1781.3	1411.6	1098.3
25°	4032.6	4041.3	3769.7	3517.1	3048.2	2889.9	2655.7	2224.2	1817.6	1410.0	1072.3
27.5°	4207.7	4199.0	3907.9	3638.0	3120.3	2943.0	2688.8	2226.9	1784.6	1354.7	994.2
30°	4310.7	4194.7	3884.1	3603.8	3071.5	2889.3	2630.8	2141.3	1674.5	1231.1	854.9
32.5°	4035.3	3990.3	3719.8	3422.2	2903.4	2722.9	2467.6	1959.1	1500.0	1041.9	612.6
35°	3669.4	3671.0	3407.0	3128.9	2640.0	2482.8	2219.3	1737.4	1286.9	724.2	296.0
37.5°	3285.6	3291.0	3040.0	2781.5	2346.2	2180.8	1934.2	1484.8	925.9	368.6	178.3
40°	2800.4	2811.8	2595.5	2387.9	1986.2	1826.8	1606.8	1123.8	517.7	206.0	120.9
42.5°	2288.2	2302.3	2110.4	1926.0	1584.5	1453.3	1258.2	696.0	257.0	133.4	71.0
45°	1484.2	1524.9	1382.3	1304.8	1106.9	1028.9	821.3	355.1	155.0	78.1	41.7
47.5°	849.5	850.0	729.7	584.4	479.2	416.9	325.8	161.5	90.5	43.9	25.5
50°	394.6	404.4	320.4	266.7	190.8	161.5	132.8	87.3	47.7	25.5	15.7
52.5°	114.9	121.4	110.0	99.7	84.6	75.4	64.5	42.8	24.9	15.2	9.8
55°	40.7	43.4	40.7	37.9	34.2	30.9	27.6	20.6	14.1	9.2	6.5
57.5°	16.8	17.3	16.8	16.3	15.2	15.2	13.6	11.4	8.7	6.0	4.3
60°	7.6	8.1	7.6	8.1	7.6	7.6	7.6	8.1	5.4	3.8	3.3
62.5°	3.3	3.8	3.8	3.8	3.8	4.3	4.3	3.8	3.3	2.7	2.2
65°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.1	1.1	1.6	1.6	1.6
72.5°	1.6	1.6	1.6	1.6	1.1	1.1	1.1	1.1	1.1	1.6	1.6
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.1	1.1	1.1
80°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1
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°	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3
2.5°	153.4	148.5	140.9	136.1	133.9	130.6	128.5	123.1	120.9	116.5	114.9
5°	188.6	178.9	167.5	158.3	152.3	145.8	136.1	125.2	119.8	112.8	109.0
7.5°	228.8	207.6	187.6	171.3	163.7	155.0	142.6	125.8	115.5	106.2	100.8
10°	279.7	236.4	204.9	178.9	167.5	156.1	140.9	121.4	108.4	97.6	91.6
12.5°	399.0	285.1	220.6	183.2	168.6	154.5	135.5	115.5	100.3	87.8	81.3
15°	574.1	398.4	262.9	187.0	164.8	147.4	125.8	105.7	90.0	77.5	71.0
17.5°	729.1	507.9	321.5	201.1	163.7	139.3	113.8	93.2	78.1	66.1	60.7
20°	813.7	565.4	360.5	209.8	158.8	126.8	100.3	80.8	66.1	55.8	51.0
22.5°	815.3	562.1	346.4	190.8	139.9	110.0	86.7	68.3	55.3	46.1	42.3
25°	766.5	501.4	288.9	150.2	114.4	93.2	72.6	56.9	45.0	37.9	34.7
27.5°	675.4	407.7	212.5	108.4	89.4	75.4	58.5	45.5	35.2	30.9	28.2
30°	531.2	265.6	124.1	80.8	69.4	58.0	44.5	32.0	27.6	24.4	22.2
32.5°	285.1	129.0	86.7	59.6	49.3	40.7	29.3	23.3	20.1	17.9	17.3
35°	149.1	94.3	58.0	37.9	31.4	26.6	20.1	16.3	14.6	13.6	13.6
37.5°	106.8	59.1	36.9	24.4	20.6	16.8	14.1	11.9	10.8	10.8	10.8
40°	63.4	36.3	22.2	15.7	13.6	11.9	10.3	8.7	8.7	8.7	8.7
42.5°	38.5	22.8	15.7	10.8	9.8	8.7	7.6	7.0	6.5	6.5	7.0
45°	23.9	15.7	10.3	8.1	7.6	6.5	6.0	5.4	5.4	5.4	6.0
47.5°	15.2	11.4	7.6	5.4	4.9	4.3	3.8	3.8	4.3	4.3	4.9
50°	11.4	7.0	4.9	3.8	3.3	3.3	2.7	3.3	3.3	3.8	4.3
52.5°	6.5	4.3	3.3	2.7	2.7	2.2	2.2	2.7	2.7	3.3	3.8
55°	4.3	3.3	2.7	2.2	2.2	2.2	2.2	2.2	2.7	2.7	3.3
57.5°	3.3	2.7	2.2	2.2	2.2	1.6	2.2	2.2	2.2	2.7	3.3
60°	2.7	2.2	2.2	2.2	2.2	1.6	1.6	2.2	2.2	2.7	2.7
62.5°	2.2	2.2	2.2	2.2	2.2	1.6	2.2	2.2	2.2	2.2	2.7
65°	1.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.7
67.5°	1.6	1.6	2.2	2.2	2.2	1.6	2.2	2.2	2.2	2.2	2.7
70°	1.6	1.6	1.6	2.2	2.2	1.6	2.2	2.2	2.2	2.2	2.2
72.5°	1.6	1.6	1.6	2.2	2.2	1.6	2.2	2.2	2.2	2.2	2.2
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2
77.5°	1.6	1.6	1.6	1.6	2.2	1.6	2.2	2.2	2.2	2.2	2.2
80°	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2	2.2	2.2
82.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2	2.2
85°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2	2.2
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3
2.5°	110.6	109.0	105.7	105.2	104.6	102.5	100.8	99.2	99.2	97.6	96.5
5°	102.5	99.7	95.9	94.3	93.8	91.1	88.9	87.3	86.7	85.1	83.5
7.5°	93.8	90.5	86.2	84.6	84.0	81.3	79.1	77.5	76.4	74.8	73.7
10°	84.6	80.8	77.0	75.4	74.8	72.1	70.5	68.8	67.8	66.7	65.6
12.5°	74.8	71.6	67.8	66.1	65.6	63.4	61.8	60.7	60.2	59.1	58.5
15°	65.1	61.8	58.5	57.5	56.9	55.3	54.2	53.7	53.1	53.1	52.6
17.5°	55.3	52.6	49.9	49.3	48.8	47.7	47.2	46.6	47.2	47.2	47.7
20°	46.1	43.9	41.7	41.7	41.2	40.7	40.7	40.7	41.7	42.3	43.4
22.5°	37.9	36.3	34.7	34.7	34.7	34.7	34.7	35.8	36.9	37.9	38.5
25°	31.4	29.8	29.3	29.3	29.3	29.8	30.4	31.4	32.5	33.6	34.7
27.5°	25.5	24.4	24.4	24.4	24.9	25.5	26.0	27.1	28.7	29.8	30.9
30°	20.6	20.1	20.1	20.6	21.1	21.7	22.8	23.9	24.9	26.0	27.1
32.5°	16.3	16.8	16.8	17.3	17.9	18.4	19.5	20.6	21.7	22.8	23.3
35°	13.6	13.6	14.1	14.6	15.2	15.7	16.8	17.9	18.4	19.5	20.6
37.5°	10.8	11.4	11.9	12.5	13.0	13.6	14.1	15.2	15.7	16.8	17.9
40°	9.2	9.8	10.3	10.8	10.8	11.9	11.9	13.0	13.6	14.6	15.7
42.5°	7.6	8.1	8.7	9.2	9.2	9.8	10.3	10.8	11.9	12.5	13.6
45°	6.0	6.5	7.0	7.6	8.1	8.7	8.7	9.8	10.3	10.8	11.9
47.5°	5.4	6.0	6.5	6.5	7.0	7.6	7.6	8.7	9.2	9.8	10.3
50°	4.3	4.9	5.4	6.0	6.0	6.5	7.0	7.6	8.1	8.7	8.7
52.5°	3.8	4.3	4.9	4.9	5.4	6.0	6.0	6.5	7.0	7.0	7.6
55°	3.8	4.3	4.3	4.9	4.9	5.4	5.4	6.0	6.0	6.5	6.5
57.5°	3.3	3.8	3.8	4.3	4.3	4.9	4.9	5.4	5.4	5.4	6.0
60°	3.3	3.3	3.8	3.8	4.3	4.3	4.3	4.9	4.9	4.9	5.4
62.5°	2.7	3.3	3.3	3.8	3.8	3.8	4.3	4.3	4.3	4.9	4.9
65°	2.7	3.3	3.3	3.8	3.8	3.8	3.8	3.8	4.3	4.3	4.3
67.5°	2.7	2.7	3.3	3.3	3.3	3.3	3.8	3.8	3.8	3.8	3.8
70°	2.7	2.7	2.7	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
72.5°	2.2	2.7	2.7	2.7	2.7	3.3	3.3	3.3	3.3	3.3	2.7
75°	2.2	2.2	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
77.5°	2.2	2.2	2.2	2.7	2.7	2.7	2.7	2.7	2.7	2.2	2.2
80°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.6
82.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.6	1.6	1.6
85°	2.2	1.6	2.2	2.2	2.2	1.6	1.6	1.6	1.6	1.6	1.1
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.1	1.1
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°	120.3	120.3	120.3	120.3	120.3	120.3	120.3	120.3
2.5°	95.4	94.3	94.9	94.9	93.8	93.2	93.2	93.8
5°	82.4	81.3	81.9	81.9	80.8	80.2	80.2	80.8
7.5°	72.6	71.6	72.1	72.1	71.0	71.0	71.0	71.0
10°	65.1	64.5	64.5	64.5	63.4	64.0	63.4	62.9
12.5°	58.0	58.0	58.0	58.0	57.5	58.0	57.5	57.5
15°	52.6	52.6	53.1	53.1	53.1	53.7	53.7	53.7
17.5°	48.2	48.8	49.3	49.9	49.9	50.4	50.4	50.4
20°	43.9	45.0	45.5	46.1	46.1	47.2	46.6	47.2
22.5°	39.6	40.7	41.2	41.7	42.3	42.8	42.8	43.4
25°	35.8	36.9	37.4	37.9	38.5	39.6	39.6	39.6
27.5°	32.0	33.1	33.6	34.7	35.2	36.3	36.3	36.3
30°	28.2	29.3	29.8	30.4	31.4	32.5	32.5	33.1
32.5°	24.4	26.0	26.6	27.1	28.2	29.3	29.8	29.8
35°	21.7	22.8	23.3	24.4	24.9	26.6	26.6	26.6
37.5°	19.0	20.1	21.1	21.7	22.2	23.3	23.9	24.4
40°	16.8	17.9	18.4	19.0	20.1	21.1	21.7	21.7
42.5°	14.6	15.7	16.3	16.8	17.3	18.4	18.4	18.4
45°	13.0	13.6	14.1	14.6	15.2	15.7	16.3	16.3
47.5°	10.8	11.9	11.9	12.5	13.0	14.1	14.1	14.6
50°	9.2	10.3	10.3	10.8	11.4	11.9	12.5	12.5
52.5°	8.1	8.7	9.2	9.2	9.8	10.3	10.8	10.8
55°	7.0	7.6	7.6	8.1	8.1	8.7	9.2	9.2
57.5°	6.0	6.5	7.0	7.0	7.0	7.6	7.6	8.1
60°	5.4	6.0	6.0	6.0	6.0	6.5	6.5	6.5
62.5°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
65°	4.3	4.3	4.3	4.3	3.8	3.8	3.8	3.8
67.5°	3.8	3.8	3.8	3.8	3.3	3.3	3.3	3.3
70°	3.3	3.3	3.3	3.3	2.7	2.7	2.7	2.2
72.5°	2.7	2.7	2.7	2.7	2.7	2.2	2.2	2.2
75°	2.7	2.2	2.2	2.2	2.2	2.2	1.6	1.6
77.5°	2.2	2.2	2.2	1.6	1.6	1.6	1.6	1.6
80°	1.6	1.6	1.6	1.6	1.6	1.1	1.1	1.1
82.5°	1.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	1.1	1.1	1.1	1.1	0.5	0.5	0.5	0.5
87.5°	1.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)