

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: P182815

Luminaire Tested: **LDSQA4A13830D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182815
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: LDSQA4A13830D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1570.7 lumens
Efficiency: N/A
Efficacy: 70.5 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

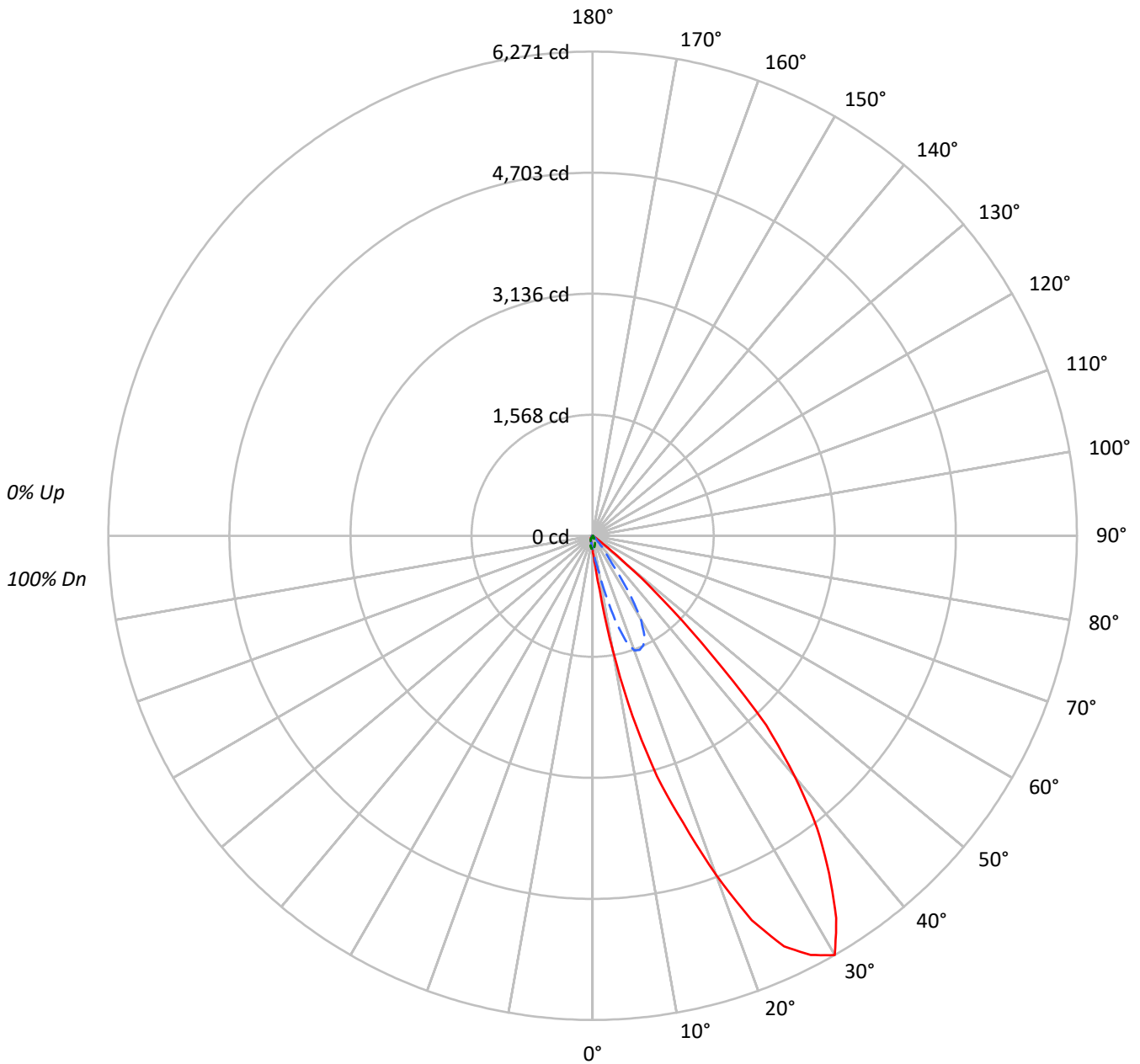
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				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			
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°	16963	16963	16963
5°	37965	15948	11426
10°	148863	13969	9001
15°	323174	11313	7833
20°	482113	8371	7072
25°	627071	5900	6157
30°	701487	3971	5381
35°	631300	2330	4565
40°	515206	1593	3984
45°	295816	1082	3247
50°	86523	829	2728
55°	9982	659	2263
60°	2131	756	1841
65°	734	734	1261
70°	680	906	906
75°	599	1198	898
80°	0	1785	893
85°	0	3557	889



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	25.1	1.6
10°-20°	215.0	13.7
20°-30°	512.9	32.7
30°-40°	541.3	34.5
40°-50°	245.5	15.6
50°-60°	21.5	1.4
60°-70°	4.5	0.3
70°-80°	3.0	0.2
80°-90°	1.9	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°	753.0	47.9
0°-40°	1294.4	82.4
0°-60°	1561.4	99.4
0°-90°	1570.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1570.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	175	175	175	175	175	
5°	390	286	164	126	118	70
15°	3222	1133	113	77	78	938
25°	5866	1560	55	47	58	2665
35°	5338	431	20	27	39	3297
45°	2159	61	8	15	24	1712
55°	59	10	4	9	13	118
65°	3	3	3	6	6	4
75°	2	2	3	4	2	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°	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1
2.5°	260.2	261.8	254.7	255.5	248.4	251.6	249.2	242.9	238.2	230.3	227.1
5°	390.4	392.7	377.0	372.2	355.7	355.7	348.6	332.0	317.0	298.9	286.3
7.5°	713.7	723.2	675.8	640.4	588.3	575.7	551.2	494.5	447.9	400.6	365.1
10°	1513.3	1496.0	1398.2	1317.8	1183.7	1134.0	1067.8	904.5	754.7	605.7	488.9
12.5°	2386.3	2442.3	2253.9	2188.4	1976.3	1931.3	1790.1	1523.6	1270.5	1007.1	773.6
15°	3222.3	3238.8	3074.0	2967.5	2708.9	2650.5	2477.0	2164.0	1823.3	1455.8	1133.2
17.5°	3893.4	3959.6	3717.5	3603.2	3267.2	3173.4	2969.1	2588.2	2208.9	1807.5	1425.0
20°	4676.5	4693.8	4406.8	4186.7	3747.5	3604.7	3360.3	2887.9	2436.0	1977.8	1582.7
22.5°	5388.6	5384.6	5015.6	4704.9	4148.9	3978.5	3676.5	3116.6	2591.4	2053.5	1597.7
25°	5866.5	5879.1	5484.0	5116.5	4434.4	4204.1	3863.4	3235.7	2644.2	2051.2	1559.9
27.5°	6121.2	6108.6	5685.1	5292.4	4539.3	4281.4	3911.5	3239.6	2596.1	1970.7	1446.3
30°	6271.0	6102.3	5650.4	5242.7	4468.3	4203.3	3827.1	3115.0	2436.0	1790.9	1243.6
32.5°	5870.4	5805.0	5411.5	4978.5	4223.8	3961.2	3589.8	2850.0	2182.1	1515.7	891.1
35°	5338.1	5340.5	4956.4	4551.9	3840.5	3611.8	3228.6	2527.5	1872.2	1053.6	430.6
37.5°	4779.8	4787.7	4422.5	4046.4	3413.1	3172.6	2813.8	2160.0	1346.9	536.3	259.5
40°	4074.0	4090.5	3775.9	3473.8	2889.5	2657.6	2337.4	1634.8	753.1	299.7	175.9
42.5°	3328.7	3349.2	3070.1	2801.9	2305.1	2114.3	1830.4	1012.6	373.8	194.0	103.3
45°	2159.2	2218.4	2011.0	1898.2	1610.3	1496.8	1194.7	516.5	225.5	113.6	60.7
47.5°	1235.8	1236.5	1061.5	850.1	697.1	606.4	474.0	235.0	131.7	63.9	37.1
50°	574.1	588.3	466.1	388.0	277.6	235.0	193.2	127.0	69.4	37.1	22.9
52.5°	167.2	176.6	160.1	145.1	123.0	109.6	93.8	62.3	36.3	22.1	14.2
55°	59.1	63.1	59.1	55.2	49.7	45.0	40.2	30.0	20.5	13.4	9.5
57.5°	24.4	25.2	24.4	23.7	22.1	22.1	19.7	16.6	12.6	8.7	6.3
60°	11.0	11.8	11.0	11.8	11.0	11.0	11.0	11.8	7.9	5.5	4.7
62.5°	4.7	5.5	5.5	5.5	5.5	6.3	6.3	5.5	4.7	3.9	3.2
65°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
70°	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	2.4	2.4	2.4
72.5°	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	2.4	2.4
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
80°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6
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°	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1
2.5°	223.2	216.1	205.0	197.9	194.8	190.1	186.9	179.0	175.9	169.6	167.2
5°	274.4	260.2	243.7	230.3	221.6	212.1	197.9	182.2	174.3	164.0	158.5
7.5°	332.8	302.0	272.9	249.2	238.2	225.5	207.4	183.0	168.0	154.6	146.7
10°	406.9	343.8	298.1	260.2	243.7	227.1	205.0	176.6	157.7	142.0	133.3
12.5°	580.4	414.8	321.0	266.6	245.3	224.8	197.2	168.0	145.9	127.8	118.3
15°	835.1	579.6	382.5	272.1	239.7	214.5	183.0	153.8	130.9	112.8	103.3
17.5°	1060.7	738.9	467.6	292.6	238.2	202.7	165.6	135.6	113.6	96.2	88.3
20°	1183.7	822.5	524.4	305.2	231.1	184.5	145.9	117.5	96.2	81.2	74.1
22.5°	1186.1	817.8	503.9	277.6	203.5	160.1	126.2	99.4	80.4	67.0	61.5
25°	1115.1	729.5	420.3	218.4	166.4	135.6	105.7	82.8	65.5	55.2	50.5
27.5°	982.6	593.0	309.1	157.7	130.1	109.6	85.2	66.2	51.3	45.0	41.0
30°	772.8	386.4	180.6	117.5	100.9	84.4	64.7	46.5	40.2	35.5	32.3
32.5°	414.8	187.7	126.2	86.7	71.8	59.1	42.6	33.9	29.2	26.0	25.2
35°	216.9	137.2	84.4	55.2	45.7	38.6	29.2	23.7	21.3	19.7	19.7
37.5°	155.4	86.0	53.6	35.5	30.0	24.4	20.5	17.3	15.8	15.8	15.8
40°	92.3	52.8	32.3	22.9	19.7	17.3	15.0	12.6	12.6	12.6	12.6
42.5°	56.0	33.1	22.9	15.8	14.2	12.6	11.0	10.3	9.5	9.5	10.3
45°	34.7	22.9	15.0	11.8	11.0	9.5	8.7	7.9	7.9	7.9	8.7
47.5°	22.1	16.6	11.0	7.9	7.1	6.3	5.5	5.5	6.3	6.3	7.1
50°	16.6	10.3	7.1	5.5	4.7	4.7	3.9	4.7	4.7	5.5	6.3
52.5°	9.5	6.3	4.7	3.9	3.9	3.2	3.2	3.9	3.9	4.7	5.5
55°	6.3	4.7	3.9	3.2	3.2	3.2	3.2	3.2	3.9	3.9	4.7
57.5°	4.7	3.9	3.2	3.2	3.2	2.4	3.2	3.2	3.2	3.9	4.7
60°	3.9	3.2	3.2	3.2	3.2	2.4	2.4	3.2	3.2	3.9	3.9
62.5°	3.2	3.2	3.2	3.2	3.2	2.4	3.2	3.2	3.2	3.2	3.9
65°	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.9
67.5°	2.4	2.4	3.2	3.2	3.2	2.4	3.2	3.2	3.2	3.2	3.9
70°	2.4	2.4	2.4	3.2	3.2	2.4	3.2	3.2	3.2	3.2	3.2
72.5°	2.4	2.4	2.4	3.2	3.2	2.4	3.2	3.2	3.2	3.2	3.2
75°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2
77.5°	2.4	2.4	2.4	2.4	3.2	2.4	3.2	3.2	3.2	3.2	3.2
80°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2
82.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2
85°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2
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°	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1
2.5°	160.9	158.5	153.8	153.0	152.2	149.0	146.7	144.3	144.3	142.0	140.4
5°	149.0	145.1	139.6	137.2	136.4	132.5	129.3	127.0	126.2	123.8	121.4
7.5°	136.4	131.7	125.4	123.0	122.2	118.3	115.1	112.8	111.2	108.8	107.3
10°	123.0	117.5	112.0	109.6	108.8	104.9	102.5	100.2	98.6	97.0	95.4
12.5°	108.8	104.1	98.6	96.2	95.4	92.3	89.9	88.3	87.5	86.0	85.2
15°	94.6	89.9	85.2	83.6	82.8	80.4	78.9	78.1	77.3	77.3	76.5
17.5°	80.4	76.5	72.6	71.8	71.0	69.4	68.6	67.8	68.6	68.6	69.4
20°	67.0	63.9	60.7	60.7	59.9	59.1	59.1	59.1	60.7	61.5	63.1
22.5°	55.2	52.8	50.5	50.5	50.5	50.5	50.5	52.0	53.6	55.2	56.0
25°	45.7	43.4	42.6	42.6	42.6	43.4	44.2	45.7	47.3	48.9	50.5
27.5°	37.1	35.5	35.5	35.5	36.3	37.1	37.9	39.4	41.8	43.4	45.0
30°	30.0	29.2	29.2	30.0	30.8	31.5	33.1	34.7	36.3	37.9	39.4
32.5°	23.7	24.4	24.4	25.2	26.0	26.8	28.4	30.0	31.5	33.1	33.9
35°	19.7	19.7	20.5	21.3	22.1	22.9	24.4	26.0	26.8	28.4	30.0
37.5°	15.8	16.6	17.3	18.1	18.9	19.7	20.5	22.1	22.9	24.4	26.0
40°	13.4	14.2	15.0	15.8	15.8	17.3	17.3	18.9	19.7	21.3	22.9
42.5°	11.0	11.8	12.6	13.4	13.4	14.2	15.0	15.8	17.3	18.1	19.7
45°	8.7	9.5	10.3	11.0	11.8	12.6	12.6	14.2	15.0	15.8	17.3
47.5°	7.9	8.7	9.5	9.5	10.3	11.0	11.0	12.6	13.4	14.2	15.0
50°	6.3	7.1	7.9	8.7	8.7	9.5	10.3	11.0	11.8	12.6	12.6
52.5°	5.5	6.3	7.1	7.1	7.9	8.7	8.7	9.5	10.3	10.3	11.0
55°	5.5	6.3	6.3	7.1	7.1	7.9	7.9	8.7	8.7	9.5	9.5
57.5°	4.7	5.5	5.5	6.3	6.3	7.1	7.1	7.9	7.9	7.9	8.7
60°	4.7	4.7	5.5	5.5	6.3	6.3	6.3	7.1	7.1	7.1	7.9
62.5°	3.9	4.7	4.7	5.5	5.5	5.5	6.3	6.3	6.3	7.1	7.1
65°	3.9	4.7	4.7	5.5	5.5	5.5	5.5	5.5	6.3	6.3	6.3
67.5°	3.9	3.9	4.7	4.7	4.7	4.7	5.5	5.5	5.5	5.5	5.5
70°	3.9	3.9	3.9	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
72.5°	3.2	3.9	3.9	3.9	3.9	4.7	4.7	4.7	4.7	4.7	3.9
75°	3.2	3.2	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
77.5°	3.2	3.2	3.2	3.9	3.9	3.9	3.9	3.9	3.9	3.2	3.2
80°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4
82.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4
85°	3.2	2.4	3.2	3.2	3.2	2.4	2.4	2.4	2.4	2.4	1.6
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
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°	175.1	175.1	175.1	175.1	175.1	175.1	175.1	175.1
2.5°	138.8	137.2	138.0	138.0	136.4	135.6	135.6	136.4
5°	119.9	118.3	119.1	119.1	117.5	116.7	116.7	117.5
7.5°	105.7	104.1	104.9	104.9	103.3	103.3	103.3	103.3
10°	94.6	93.8	93.8	93.8	92.3	93.1	92.3	91.5
12.5°	84.4	84.4	84.4	84.4	83.6	84.4	83.6	83.6
15°	76.5	76.5	77.3	77.3	77.3	78.1	78.1	78.1
17.5°	70.2	71.0	71.8	72.6	72.6	73.3	73.3	73.3
20°	63.9	65.5	66.2	67.0	67.0	68.6	67.8	68.6
22.5°	57.6	59.1	59.9	60.7	61.5	62.3	62.3	63.1
25°	52.0	53.6	54.4	55.2	56.0	57.6	57.6	57.6
27.5°	46.5	48.1	48.9	50.5	51.3	52.8	52.8	52.8
30°	41.0	42.6	43.4	44.2	45.7	47.3	47.3	48.1
32.5°	35.5	37.9	38.6	39.4	41.0	42.6	43.4	43.4
35°	31.5	33.1	33.9	35.5	36.3	38.6	38.6	38.6
37.5°	27.6	29.2	30.8	31.5	32.3	33.9	34.7	35.5
40°	24.4	26.0	26.8	27.6	29.2	30.8	31.5	31.5
42.5°	21.3	22.9	23.7	24.4	25.2	26.8	26.8	26.8
45°	18.9	19.7	20.5	21.3	22.1	22.9	23.7	23.7
47.5°	15.8	17.3	17.3	18.1	18.9	20.5	20.5	21.3
50°	13.4	15.0	15.0	15.8	16.6	17.3	18.1	18.1
52.5°	11.8	12.6	13.4	13.4	14.2	15.0	15.8	15.8
55°	10.3	11.0	11.0	11.8	11.8	12.6	13.4	13.4
57.5°	8.7	9.5	10.3	10.3	10.3	11.0	11.0	11.8
60°	7.9	8.7	8.7	8.7	8.7	9.5	9.5	9.5
62.5°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
65°	6.3	6.3	6.3	6.3	5.5	5.5	5.5	5.5
67.5°	5.5	5.5	5.5	5.5	4.7	4.7	4.7	4.7
70°	4.7	4.7	4.7	4.7	3.9	3.9	3.9	3.2
72.5°	3.9	3.9	3.9	3.9	3.9	3.2	3.2	3.2
75°	3.9	3.2	3.2	3.2	3.2	3.2	2.4	2.4
77.5°	3.2	3.2	3.2	2.4	2.4	2.4	2.4	2.4
80°	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6
82.5°	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6
85°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
87.5°	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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)