

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: P219478

Luminaire Tested: **LDSQ4B10D010 EU4B10208030 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219478
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35471)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQ4B10D010 EU4B10208030 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 837.9 lumens
Efficiency: N/A
Efficacy: 83.4 lumens/watt
Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

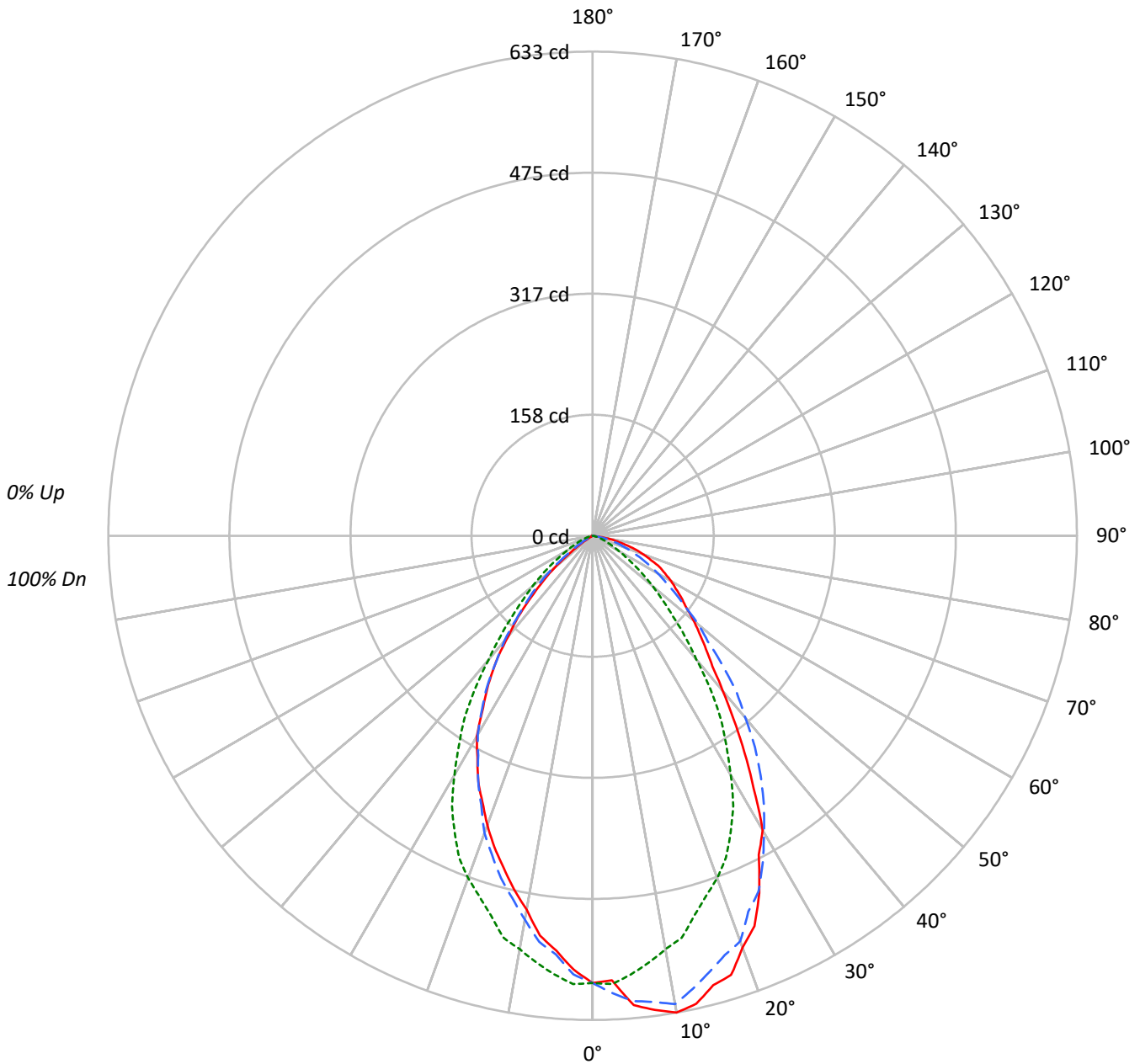
Input Watts (W): 10.05
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P219478

CATALOG NUMBER: LDSQ4B10D010 EU4B10208030 4LBSQLWWLI

Luminous Intensity Polar Plot





TEST NUMBER: P219478

CATALOG NUMBER: LDSQ4B10D010 EU4B10208030 4LBSQLWWLI

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	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90																			
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80																			
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72																			
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64																			
5	85	75	67	62	83	74	67	62	72	66	61	70	65	60	68	64	60	58																			
6	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53																			
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48																			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44																			
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41																			
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	56633	56633	56633
5°	59913	55965	52960
10°	62258	53985	48821
15°	61018	51530	45062
20°	59041	49062	41474
25°	55070	45631	37839
30°	49712	40382	33872
35°	40954	34568	28099
40°	33424	26683	21625
45°	28716	20263	15563
50°	25983	15418	9826
55°	23916	11130	3547
60°	22959	7614	543
65°	22166	5135	160
70°	19855	3569	198
75°	16282	1834	0
80°	10153	781	0
85°	0	0	0



TEST NUMBER: P219478

CATALOG NUMBER: LDSQ4B10D010 EU4B10208030 4LBSQLWWLI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.8	6.5
10°-20°	147.6	17.6
20°-30°	197.0	23.5
30°-40°	187.1	22.3
40°-50°	129.3	15.4
50°-60°	71.4	8.5
60°-70°	35.5	4.2
70°-80°	14.0	1.7
80°-90°	1.3	0.2
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°	399.4	47.7
0°-40°	586.4	70.0
0°-60°	787.2	93.9
0°-90°	837.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	837.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	585	585	585	585	585	
5°	616	610	576	550	545	59
15°	608	590	514	463	449	172
25°	515	513	427	354	354	235
35°	346	383	292	240	238	217
45°	210	240	148	121	114	163
55°	142	133	66	34	21	127
65°	97	70	22	1	1	94
75°	44	27	5	0	0	46
85°	0	1	0	0	0	4
90°	0	0	0	0	0	



TEST NUMBER: P219478

CATALOG NUMBER: LDSQ4B10D010 EU4B10208030 4LBSQLWWLI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6
2.5°	581.8	597.9	599.3	597.9	600.0	599.3	602.8	599.3	603.5	597.2	598.6
5°	616.1	609.8	623.1	616.1	616.1	615.4	613.3	612.6	615.4	606.3	610.5
7.5°	625.2	634.3	646.3	631.5	632.2	632.2	628.0	626.6	626.6	609.8	614.7
10°	632.9	627.3	633.6	628.0	632.9	632.2	635.0	625.9	632.2	622.4	621.7
12.5°	626.6	624.5	632.9	623.8	621.0	621.7	618.2	616.1	618.2	607.0	606.3
15°	608.4	610.5	623.1	613.3	611.9	610.5	606.3	599.3	604.9	589.5	590.2
17.5°	602.1	598.6	600.7	592.3	594.4	593.0	592.3	586.0	584.6	574.8	574.8
20°	572.7	580.4	580.4	574.8	574.8	574.1	564.9	570.6	564.2	561.4	564.2
22.5°	552.3	553.0	553.0	548.1	548.8	546.0	541.1	537.6	541.1	537.6	532.0
25°	515.2	516.6	525.0	515.9	514.5	517.3	513.1	511.0	510.3	501.9	513.1
27.5°	470.3	484.3	483.6	480.1	484.3	478.7	476.6	477.3	479.4	478.7	481.5
30°	444.4	446.5	448.6	445.8	446.5	444.4	444.4	445.1	450.7	448.6	447.9
32.5°	391.8	398.8	404.4	404.4	405.1	407.2	406.5	421.3	424.8	417.8	416.4
35°	346.3	351.2	356.1	356.8	365.9	366.6	367.3	371.5	381.3	383.4	382.7
37.5°	302.8	307.7	309.1	315.4	320.3	325.2	330.8	336.4	344.9	351.9	348.4
40°	264.3	266.4	269.9	272.7	282.5	282.5	285.3	296.5	305.6	311.2	310.5
42.5°	232.0	232.7	235.5	240.4	249.5	247.4	249.5	257.2	270.6	271.3	279.0
45°	209.6	208.9	211.0	211.7	217.3	220.1	221.5	227.1	238.3	239.7	240.4
47.5°	189.3	188.6	192.1	193.5	195.6	198.4	198.4	199.1	203.3	206.8	204.0
50°	172.4	172.4	172.4	173.8	177.3	176.6	177.3	180.1	182.2	180.8	180.1
52.5°	154.2	157.0	159.1	159.8	160.5	160.5	161.2	159.8	159.1	157.0	152.8
55°	141.6	144.4	144.4	144.4	144.4	147.2	143.7	144.4	144.4	138.8	133.2
57.5°	129.0	131.8	133.9	131.1	133.9	131.1	129.7	129.0	127.6	122.0	113.6
60°	118.5	119.9	119.2	118.5	119.9	117.8	116.4	113.6	112.1	104.4	98.8
62.5°	106.5	107.2	107.9	106.5	105.1	104.4	101.6	97.4	94.6	88.3	83.4
65°	96.7	94.6	93.9	93.2	91.8	89.7	87.6	82.7	80.6	75.0	70.1
67.5°	82.0	81.3	82.7	80.6	77.1	77.1	75.0	70.8	65.9	62.4	57.5
70°	70.1	69.4	68.0	65.9	65.2	62.4	62.4	57.5	56.1	49.8	45.6
72.5°	57.5	57.5	55.4	53.3	51.2	49.8	49.1	45.6	43.5	40.0	36.4
75°	43.5	43.5	42.8	40.7	39.3	37.9	37.1	34.3	32.2	28.7	26.6
77.5°	30.8	30.8	28.0	26.6	27.3	25.9	24.5	23.8	23.1	21.0	18.2
80°	18.2	17.5	15.4	16.1	15.4	15.4	14.7	14.0	12.6	11.2	9.8
82.5°	4.9	5.6	5.6	5.6	6.3	4.9	4.9	4.9	5.6	5.6	3.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7
87.5°	0.7	1.4	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.1	1.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P219478

CATALOG NUMBER: LDSQ4B10D010 EU4B10208030 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6
2.5°	591.6	590.9	591.6	586.7	597.9	589.5	588.1	586.7	591.6	586.7	579.7
5°	604.2	597.2	595.1	593.0	599.3	589.5	587.4	588.1	584.6	575.5	576.2
7.5°	608.4	602.1	595.8	582.5	588.1	586.0	580.4	576.2	570.6	562.8	561.4
10°	609.8	602.8	593.7	589.5	581.1	578.3	576.2	569.2	562.1	548.8	545.3
12.5°	605.6	597.2	586.0	582.5	576.2	567.1	562.1	555.1	548.8	538.3	530.6
15°	587.4	580.4	576.9	564.9	562.1	556.5	546.7	536.9	527.8	513.8	509.6
17.5°	566.4	563.5	560.0	550.9	550.2	544.6	535.5	527.1	515.2	493.5	486.4
20°	544.6	544.6	533.4	529.9	536.9	525.7	518.7	511.0	486.4	475.9	463.3
22.5°	528.5	520.8	514.5	508.9	509.6	502.6	492.8	477.3	468.2	455.6	440.9
25°	497.0	499.8	485.7	483.6	485.7	469.6	464.7	452.1	438.8	426.9	415.7
27.5°	477.3	469.6	460.5	452.8	452.8	446.5	432.5	429.7	409.3	398.1	384.1
30°	447.9	442.3	434.6	423.4	422.0	417.1	405.8	398.8	377.8	361.0	353.3
32.5°	410.7	408.6	402.3	389.7	385.5	379.9	365.9	354.0	344.2	325.2	316.1
35°	384.1	376.4	363.1	352.6	349.1	339.3	328.0	319.6	309.1	292.3	280.4
37.5°	344.2	336.4	323.8	311.2	311.2	301.4	286.0	277.6	262.8	253.0	243.2
40°	309.1	299.3	286.7	272.0	269.9	255.8	249.5	235.5	226.4	211.0	209.6
42.5°	269.9	260.7	249.5	238.3	229.9	222.9	206.8	196.3	186.4	178.7	176.6
45°	234.1	222.2	212.4	198.4	190.0	181.5	171.0	164.0	156.3	147.9	143.0
47.5°	203.3	193.5	179.4	166.8	158.4	154.2	142.3	134.6	128.3	122.7	119.2
50°	171.7	159.8	152.1	138.1	136.7	126.9	117.1	110.7	107.2	102.3	97.4
52.5°	147.9	136.7	126.2	115.7	110.0	106.5	97.4	91.1	86.2	82.7	79.9
55°	124.8	115.0	106.5	96.0	92.5	87.6	77.1	75.7	70.8	65.9	62.4
57.5°	107.2	98.1	88.3	81.3	75.0	71.5	63.1	57.5	54.7	50.5	47.0
60°	91.1	81.3	73.6	65.2	62.4	57.5	51.2	46.3	42.8	39.3	35.7
62.5°	76.4	68.0	59.6	52.6	48.4	45.6	40.7	36.4	32.9	30.1	27.3
65°	63.1	55.4	48.4	41.4	39.3	35.7	32.2	28.7	25.9	22.4	19.6
67.5°	51.9	44.9	37.9	32.9	30.8	29.4	25.2	21.7	19.6	17.5	14.7
70°	40.7	35.7	30.1	25.9	23.8	21.7	18.9	16.8	14.0	12.6	10.5
72.5°	31.5	27.3	22.4	18.9	17.5	16.1	13.3	11.2	9.8	8.4	7.0
75°	22.4	18.9	16.1	12.6	11.9	11.2	9.1	7.7	6.3	4.9	4.2
77.5°	15.4	12.6	9.8	8.4	7.7	6.3	5.6	4.2	3.5	2.8	2.1
80°	8.4	6.3	4.9	4.2	3.5	2.8	2.8	2.1	1.4	1.4	0.7
82.5°	2.8	2.1	1.4	0.7	0.7	0.7	0.7	0.7	0.7	0.0	0.7
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P219478

CATALOG NUMBER: LDSQ4B10D010 EU4B10208030 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6
2.5°	583.9	576.2	578.3	578.3	576.9	576.9	575.5	573.4	574.1	569.9	560.7
5°	577.6	567.8	566.4	567.8	562.1	560.7	557.9	562.1	549.5	554.4	548.8
7.5°	559.3	550.2	548.1	553.0	546.0	541.8	541.1	546.7	535.5	529.9	523.6
10°	539.0	535.5	529.2	525.7	523.6	524.3	518.7	511.7	509.6	508.2	502.6
12.5°	520.8	513.1	507.5	503.3	501.9	501.9	492.8	491.4	485.0	483.6	475.2
15°	499.1	490.0	486.4	480.8	475.9	478.7	468.2	465.4	463.3	454.2	455.6
17.5°	480.1	470.3	461.9	458.4	454.2	450.0	440.2	442.3	437.4	437.4	424.8
20°	455.6	445.1	438.8	431.8	431.8	426.2	419.2	419.9	413.5	407.2	396.0
22.5°	429.7	418.5	410.7	407.9	400.9	399.5	391.1	389.0	380.6	381.3	371.5
25°	402.3	391.1	380.6	381.3	375.0	372.2	367.3	357.5	354.0	349.8	347.0
27.5°	370.1	362.4	353.3	352.6	340.7	341.4	335.0	332.2	323.8	325.9	319.6
30°	340.7	329.4	321.0	318.9	314.0	312.6	302.8	298.6	300.0	294.4	290.9
32.5°	310.5	293.7	290.2	286.0	283.2	279.7	272.7	275.5	269.2	270.6	265.0
35°	270.6	263.5	254.4	254.4	251.6	248.8	243.9	246.7	240.4	237.6	232.0
37.5°	236.9	230.6	221.5	224.3	219.4	215.2	211.0	211.7	206.1	205.4	199.8
40°	200.5	197.0	190.7	190.7	187.1	187.1	185.0	182.9	179.4	175.2	168.9
42.5°	166.1	163.3	160.5	161.2	156.3	160.5	154.9	158.4	147.2	146.5	142.3
45°	140.9	134.6	135.3	132.5	129.7	131.1	126.2	127.6	121.3	119.9	115.7
47.5°	114.3	112.1	107.9	106.5	106.5	104.4	102.3	101.6	98.8	95.3	89.7
50°	93.9	86.2	84.8	82.7	81.3	81.3	78.5	74.3	75.0	71.5	65.9
52.5°	73.6	67.3	64.5	63.8	61.0	59.6	56.1	53.3	51.2	49.8	46.3
55°	56.8	51.2	47.7	47.7	43.5	43.5	38.6	36.4	33.6	30.8	28.7
57.5°	42.8	40.0	36.4	33.6	32.2	28.7	25.9	22.4	20.3	16.1	13.3
60°	32.2	29.4	25.9	23.8	22.4	18.9	15.4	12.6	7.7	6.3	5.6
62.5°	23.8	21.0	17.5	16.1	14.7	11.9	8.4	4.2	2.1	2.1	2.1
65°	17.5	14.0	11.2	9.8	8.4	6.3	2.8	1.4	0.7	0.7	0.7
67.5°	11.9	9.1	6.3	5.6	4.2	2.1	0.7	0.7	0.7	0.7	0.7
70°	7.7	5.6	2.8	2.1	1.4	0.7	0.7	0.7	0.7	0.7	0.7
72.5°	4.9	2.8	1.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.8	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P219478

CATALOG NUMBER: LDSQ4B10D010 EU4B10208030 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	584.6	584.6	584.6	584.6	584.6	584.6	584.6	584.6
2.5°	570.6	565.7	568.5	562.1	564.9	569.9	566.4	567.8
5°	550.9	548.1	544.6	535.5	542.5	548.1	545.3	544.6
7.5°	529.9	520.1	525.0	522.2	520.8	526.4	520.1	527.1
10°	508.2	501.2	500.5	495.6	495.6	499.8	500.5	496.3
12.5°	475.9	472.4	472.4	471.7	471.0	475.2	475.9	473.8
15°	452.8	451.4	447.9	447.2	443.0	449.3	450.0	449.3
17.5°	424.8	425.5	422.0	422.0	424.8	426.9	421.3	426.9
20°	405.8	402.3	400.9	394.6	398.1	401.6	401.6	402.3
22.5°	378.5	372.9	375.0	371.5	369.4	374.3	374.3	376.4
25°	347.7	347.7	349.1	347.0	348.4	351.2	349.1	354.0
27.5°	318.2	321.0	321.0	318.2	319.6	328.0	331.5	325.9
30°	290.9	291.6	293.7	292.3	296.5	299.3	298.6	302.8
32.5°	260.0	263.5	265.0	262.8	264.3	270.6	267.1	266.4
35°	236.2	229.9	229.2	229.9	232.7	234.1	232.7	237.6
37.5°	201.9	199.8	197.0	197.7	199.8	202.6	204.0	207.5
40°	168.9	166.1	166.1	165.4	163.3	171.0	171.0	171.0
42.5°	140.2	139.5	136.0	136.0	138.8	140.9	139.5	144.4
45°	115.0	112.1	110.0	110.0	112.1	112.1	114.3	113.6
47.5°	90.4	87.6	88.3	86.2	88.3	91.1	87.6	88.3
50°	68.0	68.0	66.6	68.0	67.3	68.0	66.6	65.2
52.5°	46.3	52.6	53.3	50.5	44.2	38.6	35.0	37.9
55°	26.6	23.8	23.8	23.1	21.7	21.0	18.9	21.0
57.5°	13.3	11.9	11.9	11.9	11.2	10.5	9.1	9.1
60°	5.6	4.9	4.9	4.2	3.5	2.8	2.1	2.8
62.5°	2.1	1.4	1.4	1.4	1.4	1.4	1.4	1.4
65°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
67.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
70°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - - 90°-270°













(END OF REPORT)