

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: P219486

Luminaire Tested: **LDSQ4B10D010 EU4B10209040 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219486
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 EU4B10209040 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 726.9 lumens
Efficiency: N/A
Efficacy: 72.3 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

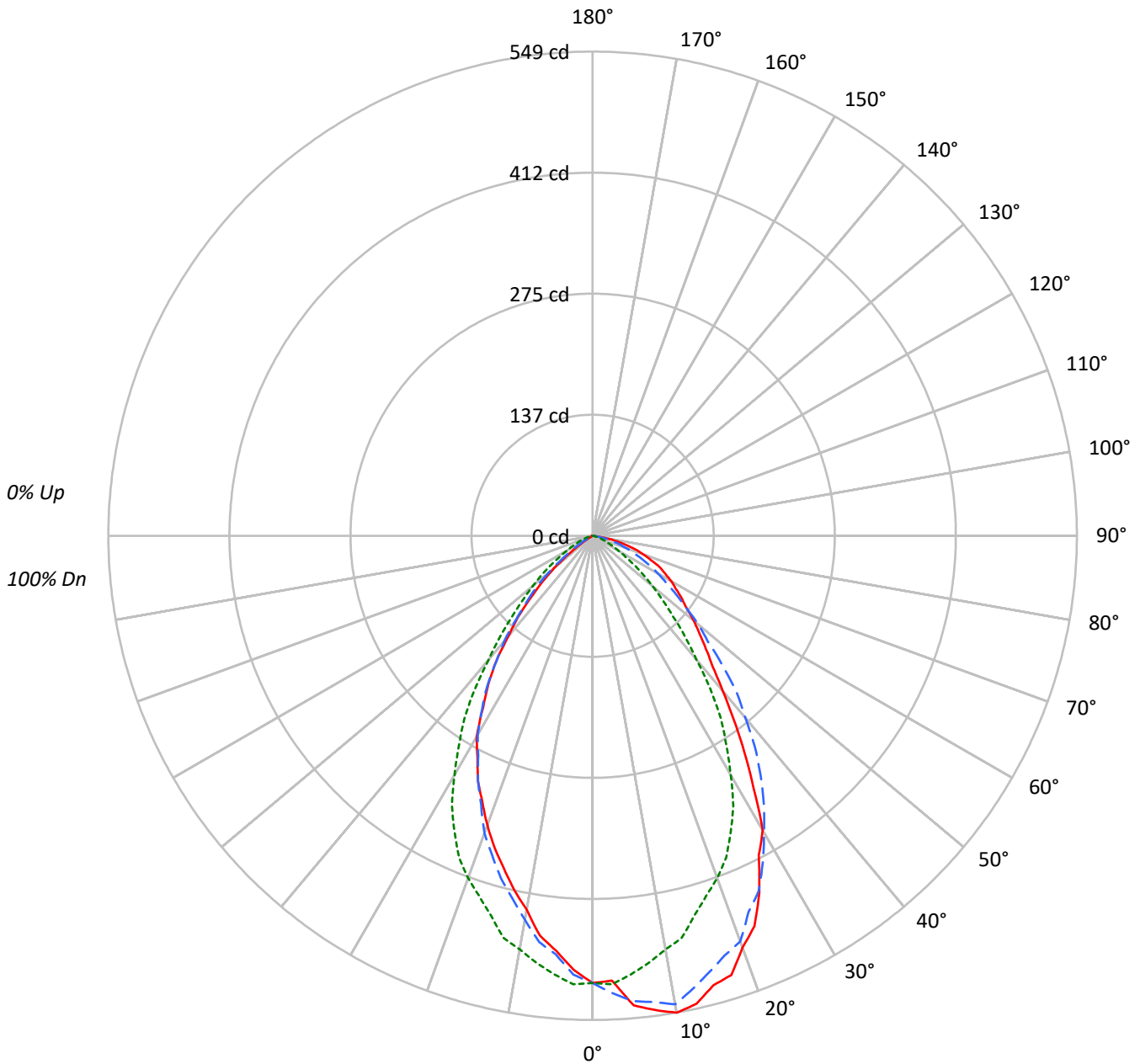
Input Watts (W): 10.05
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P219486

CATALOG NUMBER: LDSQ4B10D010 EU4B10209040 4LBSQLWWLI

Luminous Intensity Polar Plot





TEST NUMBER: P219486

CATALOG NUMBER: LDSQ4B10D010 EU4B10209040 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°	49126	49126	49126
5°	51978	48545	45948
10°	54015	46834	42348
15°	52935	44701	39094
20°	51216	42567	35979
25°	47769	39581	32826
30°	43123	35035	29386
35°	35526	29992	24374
40°	28985	23143	18767
45°	24907	17577	13495
50°	22546	13383	8530
55°	20741	9661	3074
60°	19918	6607	465
65°	19232	4470	138
70°	17221	3087	170
75°	14111	1609	0
80°	8815	669	0
85°	0	0	0



TEST NUMBER: P219486

CATALOG NUMBER: LDSQ4B10D010 EU4B10209040 4LBSQLWWLI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	47.5	6.5
10°-20°	128.0	17.6
20°-30°	170.9	23.5
30°-40°	162.3	22.3
40°-50°	112.2	15.4
50°-60°	62.0	8.5
60°-70°	30.8	4.2
70°-80°	12.1	1.7
80°-90°	1.2	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°	346.5	47.7
0°-40°	508.7	70.0
0°-60°	682.9	93.9
0°-90°	726.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	726.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	507	507	507	507	507	
5°	534	530	499	477	472	51
15°	528	512	446	402	390	149
25°	447	445	370	307	307	204
35°	300	332	254	209	206	188
45°	182	209	128	105	98	142
55°	123	116	57	29	18	111
65°	84	61	20	1	1	81
75°	38	23	4	0	0	40
85°	0	1	0	0	0	3
90°	0	0	0	0	0	



TEST NUMBER: P219486

CATALOG NUMBER: LDSQ4B10D010 EU4B10209040 4LBSQLWWLI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1
2.5°	504.7	518.7	519.9	518.7	520.5	519.9	522.9	519.9	523.5	518.1	519.3
5°	534.5	529.0	540.6	534.5	534.5	533.9	532.1	531.5	533.9	526.0	529.6
7.5°	542.4	550.3	560.6	547.9	548.5	548.5	544.8	543.6	543.6	529.0	533.3
10°	549.1	544.2	549.7	544.8	549.1	548.5	550.9	543.0	548.5	540.0	539.4
12.5°	543.6	541.8	549.1	541.2	538.7	539.4	536.3	534.5	536.3	526.6	526.0
15°	527.8	529.6	540.6	532.1	530.8	529.6	526.0	519.9	524.8	511.4	512.0
17.5°	522.3	519.3	521.1	513.8	515.6	514.4	513.8	508.3	507.1	498.6	498.6
20°	496.8	503.5	503.5	498.6	498.6	498.0	490.1	495.0	489.5	487.1	489.5
22.5°	479.2	479.8	479.8	475.5	476.1	473.7	469.4	466.4	469.4	466.4	461.5
25°	446.9	448.1	455.4	447.5	446.3	448.8	445.1	443.3	442.7	435.4	445.1
27.5°	408.0	420.2	419.6	416.5	420.2	415.3	413.5	414.1	415.9	415.3	417.7
30°	385.5	387.3	389.2	386.7	387.3	385.5	385.5	386.1	391.0	389.2	388.6
32.5°	339.9	346.0	350.9	350.9	351.5	353.3	352.7	365.4	368.5	362.4	361.2
35°	300.4	304.6	308.9	309.5	317.4	318.0	318.6	322.3	330.8	332.6	332.0
37.5°	262.7	266.9	268.2	273.6	277.9	282.1	287.0	291.9	299.2	305.2	302.2
40°	229.2	231.1	234.1	236.5	245.1	245.1	247.5	257.2	265.1	270.0	269.4
42.5°	201.3	201.9	204.3	208.6	216.5	214.6	216.5	223.2	234.7	235.3	242.0
45°	181.8	181.2	183.0	183.6	188.5	190.9	192.1	197.0	206.7	208.0	208.6
47.5°	164.2	163.6	166.6	167.8	169.7	172.1	172.1	172.7	176.3	179.4	176.9
50°	149.6	149.6	149.6	150.8	153.8	153.2	153.8	156.3	158.1	156.9	156.3
52.5°	133.8	136.2	138.0	138.6	139.2	139.2	139.9	138.6	138.0	136.2	132.6
55°	122.8	125.3	125.3	125.3	125.3	127.7	124.7	125.3	125.3	120.4	115.5
57.5°	111.9	114.3	116.1	113.7	116.1	113.7	112.5	111.9	110.7	105.8	98.5
60°	102.8	104.0	103.4	102.8	104.0	102.2	100.9	98.5	97.3	90.6	85.7
62.5°	92.4	93.0	93.6	92.4	91.2	90.6	88.2	84.5	82.1	76.6	72.4
65°	83.9	82.1	81.5	80.9	79.7	77.8	76.0	71.8	69.9	65.1	60.8
67.5°	71.1	70.5	71.8	69.9	66.9	66.9	65.1	61.4	57.2	54.1	49.9
70°	60.8	60.2	59.0	57.2	56.6	54.1	54.1	49.9	48.6	43.2	39.5
72.5°	49.9	49.9	48.0	46.2	44.4	43.2	42.6	39.5	37.7	34.7	31.6
75°	37.7	37.7	37.1	35.3	34.1	32.8	32.2	29.8	28.0	24.9	23.1
77.5°	26.8	26.8	24.3	23.1	23.7	22.5	21.3	20.7	20.1	18.2	15.8
80°	15.8	15.2	13.4	14.0	13.4	13.4	12.8	12.2	10.9	9.7	8.5
82.5°	4.3	4.9	4.9	4.9	5.5	4.3	4.3	4.3	4.9	4.9	3.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6
87.5°	0.6	1.2	2.4	2.4	2.4	2.4	2.4	1.8	1.8	1.8	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



TEST NUMBER: P219486

CATALOG NUMBER: LDSQ4B10D010 EU4B10209040 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1
2.5°	513.2	512.6	513.2	509.0	518.7	511.4	510.2	509.0	513.2	509.0	502.9
5°	524.2	518.1	516.2	514.4	519.9	511.4	509.6	510.2	507.1	499.2	499.8
7.5°	527.8	522.3	516.9	505.3	510.2	508.3	503.5	499.8	495.0	488.3	487.1
10°	529.0	522.9	515.0	511.4	504.1	501.7	499.8	493.8	487.7	476.1	473.1
12.5°	525.4	518.1	508.3	505.3	499.8	491.9	487.7	481.6	476.1	467.0	460.3
15°	509.6	503.5	500.4	490.1	487.7	482.8	474.3	465.8	457.9	445.7	442.1
17.5°	491.3	488.9	485.8	477.9	477.3	472.5	464.6	457.3	446.9	428.1	422.0
20°	472.5	472.5	462.7	459.7	465.8	456.1	450.0	443.3	422.0	412.9	401.9
22.5°	458.5	451.8	446.3	441.5	442.1	436.0	427.5	414.1	406.2	395.2	382.5
25°	431.1	433.6	421.4	419.6	421.4	407.4	403.1	392.2	380.7	370.3	360.6
27.5°	414.1	407.4	399.5	392.8	392.8	387.3	375.2	372.7	355.1	345.4	333.2
30°	388.6	383.7	377.0	367.3	366.1	361.8	352.1	346.0	327.7	313.2	306.5
32.5°	356.3	354.5	349.0	338.1	334.4	329.6	317.4	307.1	298.6	282.1	274.2
35°	333.2	326.5	315.0	305.9	302.8	294.3	284.6	277.3	268.2	253.6	243.2
37.5°	298.6	291.9	280.9	270.0	270.0	261.5	248.1	240.8	228.0	219.5	211.0
40°	268.2	259.6	248.7	235.9	234.1	221.9	216.5	204.3	196.4	183.0	181.8
42.5°	234.1	226.2	216.5	206.7	199.4	193.4	179.4	170.3	161.7	155.1	153.2
45°	203.1	192.8	184.2	172.1	164.8	157.5	148.4	142.3	135.6	128.3	124.0
47.5°	176.3	167.8	155.7	144.7	137.4	133.8	123.4	116.7	111.3	106.4	103.4
50°	149.0	138.6	132.0	119.8	118.6	110.1	101.5	96.1	93.0	88.8	84.5
52.5°	128.3	118.6	109.5	100.3	95.5	92.4	84.5	79.0	74.8	71.8	69.3
55°	108.2	99.7	92.4	83.3	80.3	76.0	66.9	65.7	61.4	57.2	54.1
57.5°	93.0	85.1	76.6	70.5	65.1	62.0	54.7	49.9	47.4	43.8	40.7
60°	79.0	70.5	63.8	56.6	54.1	49.9	44.4	40.1	37.1	34.1	31.0
62.5°	66.3	59.0	51.7	45.6	42.0	39.5	35.3	31.6	28.6	26.1	23.7
65°	54.7	48.0	42.0	35.9	34.1	31.0	28.0	24.9	22.5	19.5	17.0
67.5°	45.0	38.9	32.8	28.6	26.8	25.5	21.9	18.9	17.0	15.2	12.8
70°	35.3	31.0	26.1	22.5	20.7	18.9	16.4	14.6	12.2	10.9	9.1
72.5°	27.4	23.7	19.5	16.4	15.2	14.0	11.6	9.7	8.5	7.3	6.1
75°	19.5	16.4	14.0	10.9	10.3	9.7	7.9	6.7	5.5	4.3	3.6
77.5°	13.4	10.9	8.5	7.3	6.7	5.5	4.9	3.6	3.0	2.4	1.8
80°	7.3	5.5	4.3	3.6	3.0	2.4	2.4	1.8	1.2	1.2	0.6
82.5°	2.4	1.8	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.6
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°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	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: P219486

CATALOG NUMBER: LDSQ4B10D010 EU4B10209040 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1
2.5°	506.5	499.8	501.7	501.7	500.4	500.4	499.2	497.4	498.0	494.4	486.5
5°	501.0	492.5	491.3	492.5	487.7	486.5	484.0	487.7	476.7	481.0	476.1
7.5°	485.2	477.3	475.5	479.8	473.7	470.0	469.4	474.3	464.6	459.7	454.2
10°	467.6	464.6	459.1	456.1	454.2	454.8	450.0	443.9	442.1	440.8	436.0
12.5°	451.8	445.1	440.2	436.6	435.4	435.4	427.5	426.3	420.8	419.6	412.3
15°	432.9	425.0	422.0	417.1	412.9	415.3	406.2	403.8	401.9	394.0	395.2
17.5°	416.5	408.0	400.7	397.7	394.0	390.4	381.9	383.7	379.4	379.4	368.5
20°	395.2	386.1	380.7	374.6	374.6	369.7	363.6	364.2	358.8	353.3	343.6
22.5°	372.7	363.0	356.3	353.9	347.8	346.6	339.3	337.5	330.2	330.8	322.3
25°	349.0	339.3	330.2	330.8	325.3	322.9	318.6	310.1	307.1	303.4	301.0
27.5°	321.1	314.4	306.5	305.9	295.5	296.1	290.7	288.2	280.9	282.8	277.3
30°	295.5	285.8	278.5	276.7	272.4	271.2	262.7	259.0	260.3	255.4	252.3
32.5°	269.4	254.8	251.7	248.1	245.7	242.6	236.5	239.0	233.5	234.7	229.8
35°	234.7	228.6	220.7	220.7	218.3	215.9	211.6	214.0	208.6	206.1	201.3
37.5°	205.5	200.1	192.1	194.6	190.3	186.7	183.0	183.6	178.8	178.2	173.3
40°	173.9	170.9	165.4	165.4	162.4	162.4	160.5	158.7	155.7	152.0	146.5
42.5°	144.1	141.7	139.2	139.9	135.6	139.2	134.4	137.4	127.7	127.1	123.4
45°	122.2	116.7	117.4	114.9	112.5	113.7	109.5	110.7	105.2	104.0	100.3
47.5°	99.1	97.3	93.6	92.4	92.4	90.6	88.8	88.2	85.7	82.7	77.8
50°	81.5	74.8	73.6	71.8	70.5	70.5	68.1	64.5	65.1	62.0	57.2
52.5°	63.8	58.4	55.9	55.3	52.9	51.7	48.6	46.2	44.4	43.2	40.1
55°	49.3	44.4	41.3	41.3	37.7	37.7	33.4	31.6	29.2	26.8	24.9
57.5°	37.1	34.7	31.6	29.2	28.0	24.9	22.5	19.5	17.6	14.0	11.6
60°	28.0	25.5	22.5	20.7	19.5	16.4	13.4	10.9	6.7	5.5	4.9
62.5°	20.7	18.2	15.2	14.0	12.8	10.3	7.3	3.6	1.8	1.8	1.8
65°	15.2	12.2	9.7	8.5	7.3	5.5	2.4	1.2	0.6	0.6	0.6
67.5°	10.3	7.9	5.5	4.9	3.6	1.8	0.6	0.6	0.6	0.6	0.6
70°	6.7	4.9	2.4	1.8	1.2	0.6	0.6	0.6	0.6	0.6	0.6
72.5°	4.3	2.4	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	2.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.6	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	0.6	0.6	0.6
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: P219486

CATALOG NUMBER: LDSQ4B10D010 EU4B10209040 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	507.1	507.1	507.1	507.1	507.1	507.1	507.1	507.1
2.5°	495.0	490.7	493.1	487.7	490.1	494.4	491.3	492.5
5°	477.9	475.5	472.5	464.6	470.6	475.5	473.1	472.5
7.5°	459.7	451.2	455.4	453.0	451.8	456.7	451.2	457.3
10°	440.8	434.8	434.2	429.9	429.9	433.6	434.2	430.5
12.5°	412.9	409.8	409.8	409.2	408.6	412.3	412.9	411.1
15°	392.8	391.6	388.6	387.9	384.3	389.8	390.4	389.8
17.5°	368.5	369.1	366.1	366.1	368.5	370.3	365.4	370.3
20°	352.1	349.0	347.8	342.3	345.4	348.4	348.4	349.0
22.5°	328.4	323.5	325.3	322.3	320.5	324.7	324.7	326.5
25°	301.6	301.6	302.8	301.0	302.2	304.6	302.8	307.1
27.5°	276.1	278.5	278.5	276.1	277.3	284.6	287.6	282.8
30°	252.3	253.0	254.8	253.6	257.2	259.6	259.0	262.7
32.5°	225.6	228.6	229.8	228.0	229.2	234.7	231.7	231.1
35°	204.9	199.4	198.8	199.4	201.9	203.1	201.9	206.1
37.5°	175.1	173.3	170.9	171.5	173.3	175.7	176.9	180.0
40°	146.5	144.1	144.1	143.5	141.7	148.4	148.4	148.4
42.5°	121.6	121.0	118.0	118.0	120.4	122.2	121.0	125.3
45°	99.7	97.3	95.5	95.5	97.3	97.3	99.1	98.5
47.5°	78.4	76.0	76.6	74.8	76.6	79.0	76.0	76.6
50°	59.0	59.0	57.8	59.0	58.4	59.0	57.8	56.6
52.5°	40.1	45.6	46.2	43.8	38.3	33.4	30.4	32.8
55°	23.1	20.7	20.7	20.1	18.9	18.2	16.4	18.2
57.5°	11.6	10.3	10.3	10.3	9.7	9.1	7.9	7.9
60°	4.9	4.3	4.3	3.6	3.0	2.4	1.8	2.4
62.5°	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2
65°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
67.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
70°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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)