

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: P219487

Luminaire Tested: **LDSQ4B10D010 EU4B10209050 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219487
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 EU4B10209050 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 730.0 lumens
Efficiency: N/A
Efficacy: 72.6 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

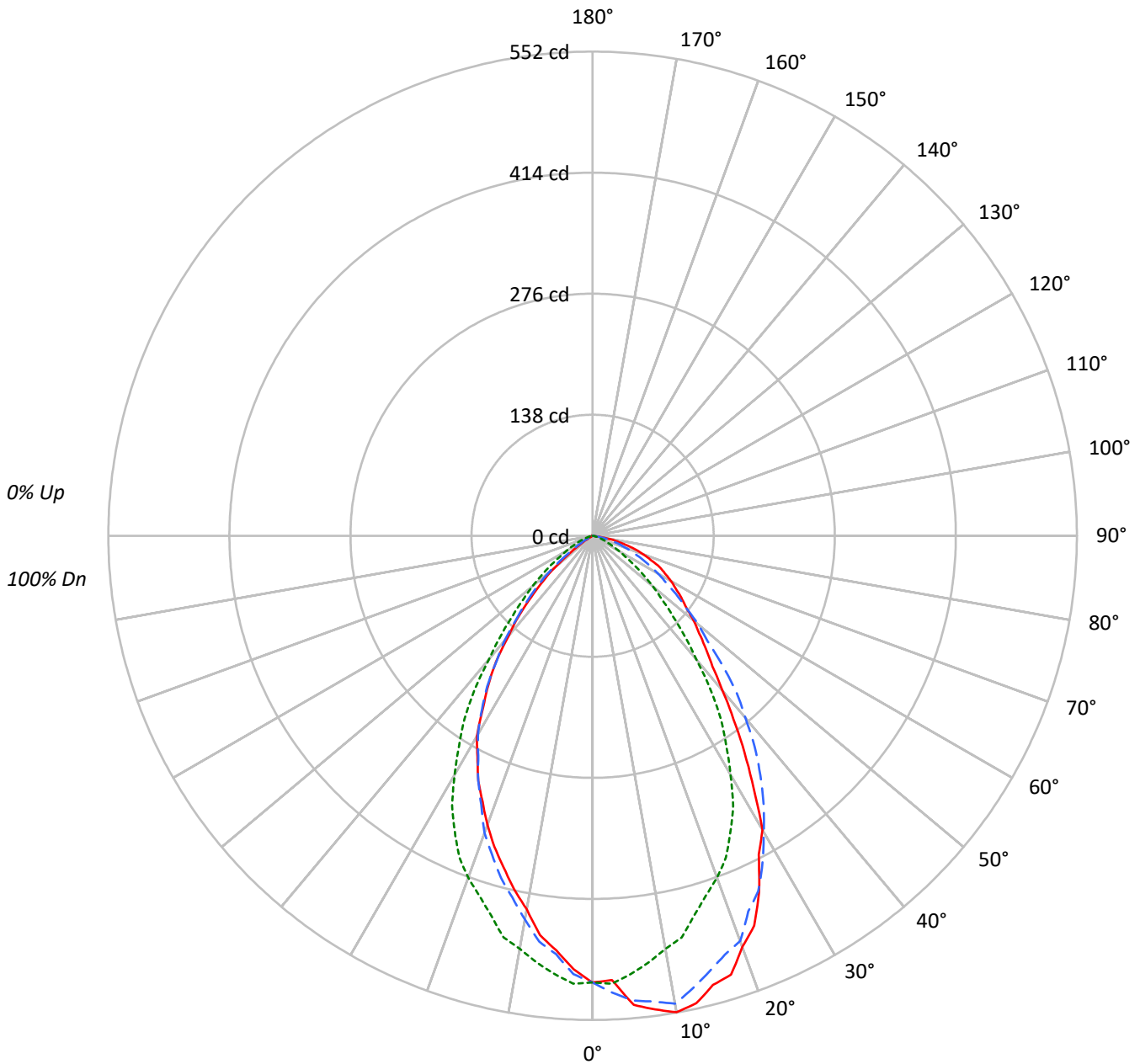
Input Watts (W): 10.05
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P219487

CATALOG NUMBER: LDSQ4B10D010 EU4B10209050 4LBSQLWWLI

Luminous Intensity Polar Plot





TEST NUMBER: P219487

CATALOG NUMBER: LDSQ4B10D010 EU4B10209050 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°	49339	49339	49339
5°	52201	48759	46143
10°	54251	47040	42535
15°	53165	44891	39265
20°	51433	42753	36134
25°	47983	39752	32965
30°	43313	35181	29509
35°	35680	30122	24480
40°	29112	23244	18843
45°	25017	17660	13550
50°	22637	13443	8560
55°	20842	9695	3091
60°	19995	6626	465
65°	19324	4470	138
70°	17306	3116	170
75°	14186	1609	0
80°	8870	669	0
85°	0	0	0



TEST NUMBER: P219487

CATALOG NUMBER: LDSQ4B10D010 EU4B10209050 4LBSQLWWLI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	47.7	6.5
10°-20°	128.6	17.6
20°-30°	171.7	23.5
30°-40°	163.0	22.3
40°-50°	112.6	15.4
50°-60°	62.2	8.5
60°-70°	30.9	4.2
70°-80°	12.2	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°	348.0	47.7
0°-40°	510.9	70.0
0°-60°	685.8	93.9
0°-90°	730.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	730.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	509	509	509	509	509	
5°	537	532	501	479	474	51
15°	530	514	448	404	392	150
25°	449	447	372	308	308	205
35°	302	333	255	210	207	189
45°	183	210	129	106	99	142
55°	123	116	57	29	18	111
65°	84	61	20	1	1	82
75°	38	23	4	0	0	40
85°	0	1	0	0	0	3
90°	0	0	0	0	0	



TEST NUMBER: P219487

CATALOG NUMBER: LDSQ4B10D010 EU4B10209050 4LBSQLWWLI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3
2.5°	506.9	520.9	522.1	520.9	522.8	522.1	525.2	522.1	525.8	520.3	521.5
5°	536.8	531.3	542.9	536.8	536.8	536.2	534.4	533.7	536.2	528.2	531.9
7.5°	544.7	552.7	563.1	550.2	550.8	550.8	547.2	546.0	546.0	531.3	535.6
10°	551.5	546.6	552.1	547.2	551.5	550.8	553.3	545.3	550.8	542.3	541.7
12.5°	546.0	544.1	551.5	543.5	541.1	541.7	538.6	536.8	538.6	528.9	528.2
15°	530.1	531.9	542.9	534.4	533.1	531.9	528.2	522.1	527.0	513.6	514.2
17.5°	524.6	521.5	523.4	516.0	517.9	516.6	516.0	510.5	509.3	500.8	500.8
20°	498.9	505.7	505.7	500.8	500.8	500.2	492.2	497.1	491.6	489.2	491.6
22.5°	481.2	481.8	481.8	477.6	478.2	475.7	471.5	468.4	471.5	468.4	463.5
25°	448.9	450.1	457.4	449.5	448.2	450.7	447.0	445.2	444.6	437.3	447.0
27.5°	409.8	422.0	421.4	418.3	422.0	417.1	415.3	415.9	417.7	417.1	419.5
30°	387.2	389.0	390.8	388.4	389.0	387.2	387.2	387.8	392.7	390.8	390.2
32.5°	341.4	347.5	352.4	352.4	353.0	354.8	354.2	367.0	370.1	364.0	362.8
35°	301.7	306.0	310.2	310.8	318.8	319.4	320.0	323.7	332.2	334.0	333.4
37.5°	263.8	268.1	269.3	274.8	279.1	283.4	288.2	293.1	300.5	306.6	303.5
40°	230.2	232.1	235.1	237.6	246.1	246.1	248.6	258.3	266.3	271.1	270.5
42.5°	202.1	202.7	205.2	209.5	217.4	215.6	217.4	224.1	235.7	236.3	243.1
45°	182.6	182.0	183.8	184.4	189.3	191.8	193.0	197.9	207.6	208.9	209.5
47.5°	164.9	164.3	167.3	168.6	170.4	172.8	172.8	173.4	177.1	180.2	177.7
50°	150.2	150.2	150.2	151.5	154.5	153.9	154.5	156.9	158.8	157.6	156.9
52.5°	134.4	136.8	138.6	139.2	139.8	139.8	140.5	139.2	138.6	136.8	133.1
55°	123.4	125.8	125.8	125.8	125.8	128.2	125.2	125.8	125.8	120.9	116.0
57.5°	112.4	114.8	116.6	114.2	116.6	114.2	113.0	112.4	111.1	106.3	98.9
60°	103.2	104.4	103.8	103.2	104.4	102.6	101.4	98.9	97.7	91.0	86.1
62.5°	92.8	93.4	94.0	92.8	91.6	91.0	88.6	84.9	82.4	76.9	72.7
65°	84.3	82.4	81.8	81.2	80.0	78.2	76.3	72.1	70.2	65.3	61.1
67.5°	71.5	70.8	72.1	70.2	67.2	67.2	65.3	61.7	57.4	54.4	50.1
70°	61.1	60.5	59.2	57.4	56.8	54.4	54.4	50.1	48.9	43.4	39.7
72.5°	50.1	50.1	48.2	46.4	44.6	43.4	42.7	39.7	37.9	34.8	31.8
75°	37.9	37.9	37.3	35.4	34.2	33.0	32.4	29.9	28.1	25.0	23.2
77.5°	26.9	26.9	24.4	23.2	23.8	22.6	21.4	20.8	20.2	18.3	15.9
80°	15.9	15.3	13.4	14.0	13.4	13.4	12.8	12.2	11.0	9.8	8.5
82.5°	4.3	4.9	4.9	4.9	5.5	4.3	4.3	4.3	4.9	4.9	3.1
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: P219487

CATALOG NUMBER: LDSQ4B10D010 EU4B10209050 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3
2.5°	515.4	514.8	515.4	511.1	520.9	513.6	512.4	511.1	515.4	511.1	505.0
5°	526.4	520.3	518.5	516.6	522.1	513.6	511.8	512.4	509.3	501.4	502.0
7.5°	530.1	524.6	519.1	507.5	512.4	510.5	505.7	502.0	497.1	490.4	489.2
10°	531.3	525.2	517.3	513.6	506.3	503.8	502.0	495.9	489.8	478.2	475.1
12.5°	527.6	520.3	510.5	507.5	502.0	494.0	489.8	483.7	478.2	469.0	462.3
15°	511.8	505.7	502.6	492.2	489.8	484.9	476.3	467.8	459.9	447.6	444.0
17.5°	493.4	491.0	487.9	480.0	479.4	474.5	466.6	459.2	448.9	429.9	423.8
20°	474.5	474.5	464.7	461.7	467.8	458.0	451.9	445.2	423.8	414.7	403.7
22.5°	460.5	453.7	448.2	443.4	444.0	437.9	429.3	415.9	407.9	396.9	384.1
25°	433.0	435.4	423.2	421.4	423.2	409.2	404.9	393.9	382.3	371.9	362.1
27.5°	415.9	409.2	401.2	394.5	394.5	389.0	376.8	374.4	356.6	346.9	334.7
30°	390.2	385.3	378.6	368.9	367.6	363.4	353.6	347.5	329.2	314.5	307.8
32.5°	357.9	356.0	350.5	339.5	335.9	331.0	318.8	308.4	299.8	283.4	275.4
35°	334.7	327.9	316.3	307.2	304.1	295.6	285.8	278.5	269.3	254.7	244.3
37.5°	299.8	293.1	282.1	271.1	271.1	262.6	249.2	241.8	229.0	220.5	211.9
40°	269.3	260.8	249.8	236.9	235.1	222.9	217.4	205.2	197.3	183.8	182.6
42.5°	235.1	227.2	217.4	207.6	200.3	194.2	180.2	171.0	162.4	155.7	153.9
45°	204.0	193.6	185.0	172.8	165.5	158.2	149.0	142.9	136.2	128.9	124.6
47.5°	177.1	168.6	156.3	145.3	138.0	134.4	124.0	117.3	111.8	106.9	103.8
50°	149.6	139.2	132.5	120.3	119.1	110.5	102.0	96.5	93.4	89.2	84.9
52.5°	128.9	119.1	109.9	100.8	95.9	92.8	84.9	79.4	75.1	72.1	69.6
55°	108.7	100.2	92.8	83.7	80.6	76.3	67.2	66.0	61.7	57.4	54.4
57.5°	93.4	85.5	76.9	70.8	65.3	62.3	55.0	50.1	47.6	44.0	40.9
60°	79.4	70.8	64.1	56.8	54.4	50.1	44.6	40.3	37.3	34.2	31.1
62.5°	66.6	59.2	51.9	45.8	42.1	39.7	35.4	31.8	28.7	26.3	23.8
65°	55.0	48.2	42.1	36.0	34.2	31.1	28.1	25.0	22.6	19.5	17.1
67.5°	45.2	39.1	33.0	28.7	26.9	25.6	22.0	18.9	17.1	15.3	12.8
70°	35.4	31.1	26.3	22.6	20.8	18.9	16.5	14.7	12.2	11.0	9.2
72.5°	27.5	23.8	19.5	16.5	15.3	14.0	11.6	9.8	8.5	7.3	6.1
75°	19.5	16.5	14.0	11.0	10.4	9.8	7.9	6.7	5.5	4.3	3.7
77.5°	13.4	11.0	8.5	7.3	6.7	5.5	4.9	3.7	3.1	2.4	1.8
80°	7.3	5.5	4.3	3.7	3.1	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: P219487

CATALOG NUMBER: LDSQ4B10D010 EU4B10209050 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3
2.5°	508.7	502.0	503.8	503.8	502.6	502.6	501.4	499.5	500.2	496.5	488.6
5°	503.2	494.7	493.4	494.7	489.8	488.6	486.1	489.8	478.8	483.1	478.2
7.5°	487.3	479.4	477.6	481.8	475.7	472.1	471.5	476.3	466.6	461.7	456.2
10°	469.6	466.6	461.1	458.0	456.2	456.8	451.9	445.8	444.0	442.8	437.9
12.5°	453.7	447.0	442.1	438.5	437.3	437.3	429.3	428.1	422.6	421.4	414.0
15°	434.8	426.9	423.8	418.9	414.7	417.1	407.9	405.5	403.7	395.7	396.9
17.5°	418.3	409.8	402.4	399.4	395.7	392.1	383.5	385.3	381.1	381.1	370.1
20°	396.9	387.8	382.3	376.2	376.2	371.3	365.2	365.8	360.3	354.8	345.0
22.5°	374.4	364.6	357.9	355.4	349.3	348.1	340.8	338.9	331.6	332.2	323.7
25°	350.5	340.8	331.6	332.2	326.7	324.3	320.0	311.5	308.4	304.7	302.3
27.5°	322.4	315.7	307.8	307.2	296.8	297.4	291.9	289.5	282.1	284.0	278.5
30°	296.8	287.0	279.7	277.9	273.6	272.4	263.8	260.2	261.4	256.5	253.4
32.5°	270.5	255.9	252.8	249.2	246.7	243.7	237.6	240.0	234.5	235.7	230.8
35°	235.7	229.6	221.7	221.7	219.2	216.8	212.5	215.0	209.5	207.0	202.1
37.5°	206.4	200.9	193.0	195.4	191.1	187.5	183.8	184.4	179.5	178.9	174.0
40°	174.7	171.6	166.1	166.1	163.1	163.1	161.2	159.4	156.3	152.7	147.2
42.5°	144.7	142.3	139.8	140.5	136.2	139.8	135.0	138.0	128.2	127.6	124.0
45°	122.7	117.3	117.9	115.4	113.0	114.2	109.9	111.1	105.6	104.4	100.8
47.5°	99.5	97.7	94.0	92.8	92.8	91.0	89.2	88.6	86.1	83.1	78.2
50°	81.8	75.1	73.9	72.1	70.8	70.8	68.4	64.7	65.3	62.3	57.4
52.5°	64.1	58.6	56.2	55.6	53.1	51.9	48.9	46.4	44.6	43.4	40.3
55°	49.5	44.6	41.5	41.5	37.9	37.9	33.6	31.8	29.3	26.9	25.0
57.5°	37.3	34.8	31.8	29.3	28.1	25.0	22.6	19.5	17.7	14.0	11.6
60°	28.1	25.6	22.6	20.8	19.5	16.5	13.4	11.0	6.7	5.5	4.9
62.5°	20.8	18.3	15.3	14.0	12.8	10.4	7.3	3.7	1.8	1.8	1.8
65°	15.3	12.2	9.8	8.5	7.3	5.5	2.4	1.2	0.6	0.6	0.6
67.5°	10.4	7.9	5.5	4.9	3.7	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: P219487

CATALOG NUMBER: LDSQ4B10D010 EU4B10209050 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	509.3	509.3	509.3	509.3	509.3	509.3	509.3	509.3
2.5°	497.1	492.8	495.3	489.8	492.2	496.5	493.4	494.7
5°	480.0	477.6	474.5	466.6	472.7	477.6	475.1	474.5
7.5°	461.7	453.1	457.4	455.0	453.7	458.6	453.1	459.2
10°	442.8	436.6	436.0	431.8	431.8	435.4	436.0	432.4
12.5°	414.7	411.6	411.6	411.0	410.4	414.0	414.7	412.8
15°	394.5	393.3	390.2	389.6	386.0	391.5	392.1	391.5
17.5°	370.1	370.7	367.6	367.6	370.1	371.9	367.0	371.9
20°	353.6	350.5	349.3	343.8	346.9	349.9	349.9	350.5
22.5°	329.8	324.9	326.7	323.7	321.8	326.1	326.1	327.9
25°	302.9	302.9	304.1	302.3	303.5	306.0	304.1	308.4
27.5°	277.3	279.7	279.7	277.3	278.5	285.8	288.9	284.0
30°	253.4	254.0	255.9	254.7	258.3	260.8	260.2	263.8
32.5°	226.6	229.6	230.8	229.0	230.2	235.7	232.7	232.1
35°	205.8	200.3	199.7	200.3	202.7	204.0	202.7	207.0
37.5°	175.9	174.0	171.6	172.2	174.0	176.5	177.7	180.8
40°	147.2	144.7	144.7	144.1	142.3	149.0	149.0	149.0
42.5°	122.1	121.5	118.5	118.5	120.9	122.7	121.5	125.8
45°	100.2	97.7	95.9	95.9	97.7	97.7	99.5	98.9
47.5°	78.8	76.3	76.9	75.1	76.9	79.4	76.3	76.9
50°	59.2	59.2	58.0	59.2	58.6	59.2	58.0	56.8
52.5°	40.3	45.8	46.4	44.0	38.5	33.6	30.5	33.0
55°	23.2	20.8	20.8	20.2	18.9	18.3	16.5	18.3
57.5°	11.6	10.4	10.4	10.4	9.8	9.2	7.9	7.9
60°	4.9	4.3	4.3	3.7	3.1	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)