

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: P182712

Luminaire Tested: **LDSQA4A09835D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182712  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26800)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQA4A09835D010TE LAR25NF 4LSQA1H 30°  
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,  
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: 1162.6 lumens  
Efficiency: N/A  
Efficacy: 84.0 lumens/watt  
Spacing Criteria (0/90/45): 2.38 / 0.59 / 1.18  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

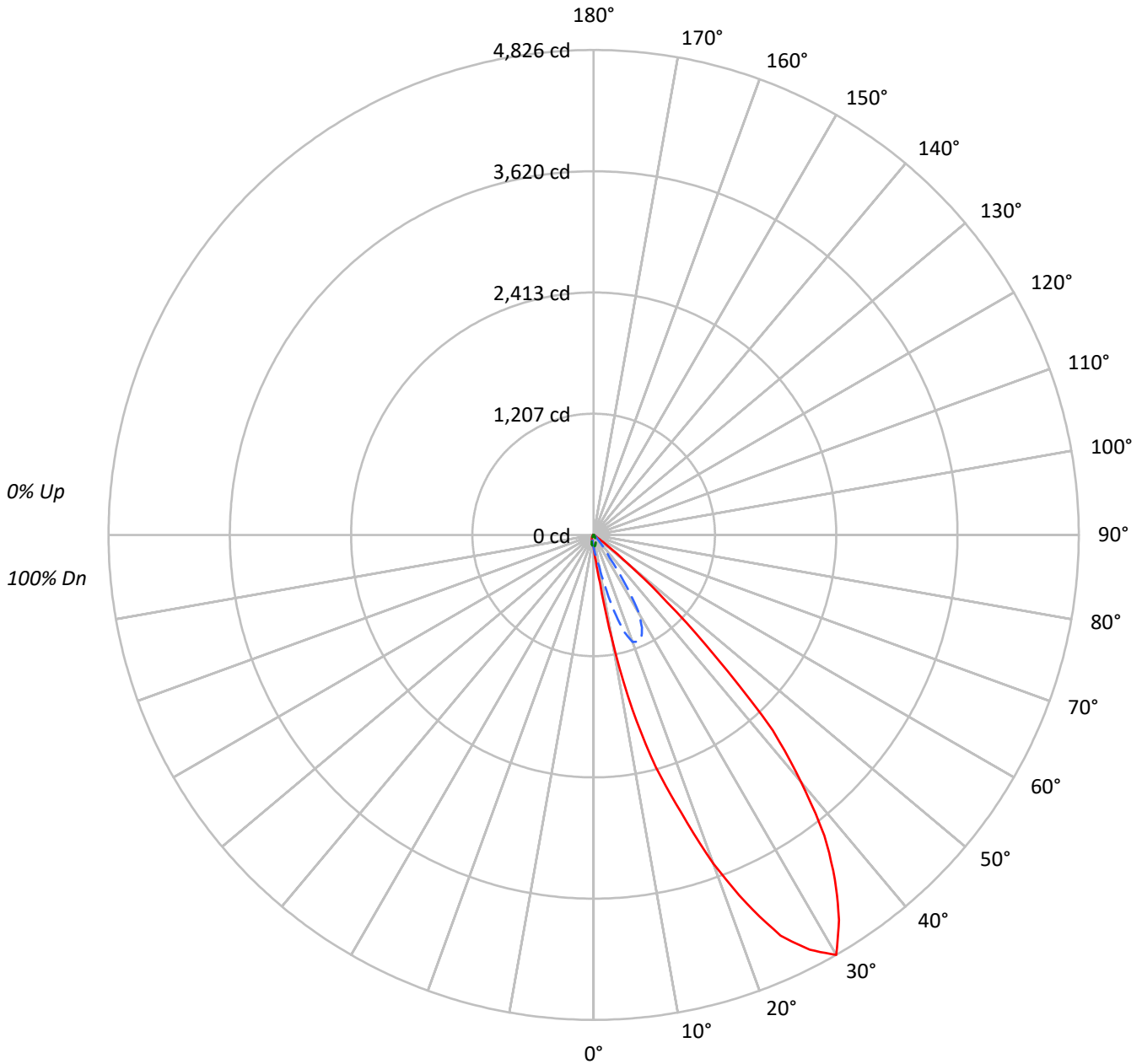
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P182712

CATALOG NUMBER: LDSQA4A09835D010TE LAR25NF 4LSQA1H 30°

### Luminous Intensity Polar Plot





TEST NUMBER: P182712

CATALOG NUMBER: LDSQA4A09835D010TE LAR25NF 4LSQA1H 30°

**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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91					91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83					83			
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75					75			
4	93	84	77	72	91	82	76	72	80	75	71	78	73	70	76	72	69	67					67			
5	87	77	70	64	85	76	69	64	74	68	64	72	67	63	70	66	62	61					61			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55					55			
7	76	64	57	52	74	64	57	52	62	56	52	61	56	51	60	55	51	49					49			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45					45			
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41					41			
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	38	37					37			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	11761	11761	11761
5°	26033	11125	7819
10°	104203	9660	6532
15°	240201	7682	5737
20°	358567	5454	5113
25°	470296	3634	4554
30°	539858	2293	3982
35°	494990	1466	3441
40°	405917	961	2934
45°	235329	671	2370
50°	66690	482	1959
55°	6114	456	1638
60°	949	523	1356
65°	252	504	986
70°	312	623	765
75°	412	823	823
80°	0	1227	614
85°	0	2445	556



TEST NUMBER: P182712

CATALOG NUMBER: LDSQA4A09835D010TE LAR25NF 4LSQA1H 30°

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	17.2	1.5
10°-20°	154.6	13.3
20°-30°	376.7	32.4
30°-40°	408.3	35.1
40°-50°	185.0	15.9
50°-60°	14.3	1.2
60°-70°	3.0	0.3
70°-80°	2.2	0.2
80°-90°	1.4	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°	548.5	47.2
0°-40°	956.8	82.3
0°-60°	1156.1	99.4
0°-90°	1162.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1162.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	121	121	121	121	121	
5°	268	198	114	86	80	48
15°	2395	784	77	56	57	696
25°	4400	1125	34	34	43	2005
35°	4186	286	12	19	29	2575
45°	1718	36	5	11	17	1356
55°	36	5	3	6	10	83
65°	1	2	2	4	4	2
75°	1	2	2	3	2	1
85°	0	2	2	2	0	0
90°	0	0	0	0	0	



TEST NUMBER: P182712

CATALOG NUMBER: LDSQA4A09835D010TE LAR25NF 4LSQA1H 30°

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4
2.5°	181.9	178.6	180.2	175.9	173.2	171.1	172.1	171.1	164.1	162.4	157.0
5°	267.7	262.8	262.8	253.6	243.9	238.0	238.0	231.0	215.9	208.8	197.5
7.5°	479.7	470.0	461.9	433.3	396.1	375.1	369.7	340.0	301.7	277.4	248.8
10°	1059.3	1018.9	990.3	915.8	816.0	753.9	727.4	624.9	503.0	411.2	328.1
12.5°	1781.4	1726.3	1676.2	1554.2	1410.6	1313.0	1260.6	1109.5	872.6	703.2	526.2
15°	2395.0	2335.6	2276.2	2127.8	1976.2	1891.5	1795.4	1595.2	1282.2	1041.5	783.6
17.5°	2898.5	2865.0	2804.0	2586.5	2395.5	2263.3	2163.5	1901.7	1579.6	1304.9	1012.9
20°	3478.1	3395.5	3286.5	3022.6	2761.4	2595.7	2455.4	2136.5	1764.1	1448.4	1134.3
22.5°	3965.9	3907.1	3750.6	3402.5	3018.3	2876.9	2705.3	2321.6	1882.8	1509.4	1148.4
25°	4399.8	4307.5	4111.1	3697.1	3303.7	3063.1	2852.6	2422.0	1926.6	1513.7	1125.2
27.5°	4653.9	4533.6	4302.6	3851.5	3402.5	3136.5	2903.3	2439.2	1899.0	1456.5	1040.4
30°	4826.1	4586.5	4331.2	3853.1	3371.2	3099.2	2857.5	2352.3	1784.6	1325.9	898.0
32.5°	4542.2	4403.6	4159.6	3699.8	3200.7	2935.2	2695.0	2164.0	1606.0	1132.2	624.9
35°	4185.5	4073.3	3861.2	3404.7	2944.9	2694.5	2439.8	1922.2	1373.4	778.2	286.0
37.5°	3771.1	3683.1	3454.8	3037.7	2633.0	2388.0	2132.7	1638.4	967.1	385.9	173.8
40°	3209.8	3135.4	2948.1	2613.0	2240.1	2007.0	1771.7	1225.5	525.1	215.3	113.3
42.5°	2638.4	2575.8	2405.2	2115.4	1787.9	1595.7	1388.5	746.9	261.2	135.5	63.1
45°	1717.7	1639.5	1547.7	1415.0	1253.1	1134.9	890.4	360.5	154.9	75.6	36.2
47.5°	984.9	933.1	782.5	617.4	501.3	457.6	333.0	167.8	85.3	43.7	22.1
50°	442.5	409.1	343.2	279.5	202.4	158.1	134.4	84.2	42.1	23.7	15.1
52.5°	109.0	111.2	105.2	92.3	82.0	69.6	60.4	39.4	22.1	14.6	9.7
55°	36.2	36.7	33.5	31.8	29.1	27.0	24.8	17.8	13.5	13.0	4.9
57.5°	13.0	13.0	13.5	12.4	11.9	11.3	10.8	9.2	8.1	4.9	2.7
60°	4.9	4.9	4.9	5.4	5.4	5.4	5.9	5.4	3.8	2.7	2.2
62.5°	2.2	2.2	2.2	2.2	2.7	2.7	3.2	2.7	2.2	2.2	1.6
65°	1.1	1.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
67.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6	1.6
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6	1.6
72.5°	1.1	1.1	1.1	1.1	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	1.6
77.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1	1.6
80°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1	1.6
82.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1	1.6
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.6
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



TEST NUMBER: P182712

CATALOG NUMBER: LDSQA4A09835D010TE LAR25NF 4LSQA1H 30°

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4
2.5°	151.6	148.4	141.9	137.1	133.3	132.8	129.5	124.1	122.0	118.2	114.9
5°	186.7	178.6	168.4	158.7	151.6	147.9	136.5	126.3	120.3	114.4	109.0
7.5°	224.5	206.1	188.3	172.7	163.0	157.0	143.5	126.8	116.0	107.4	100.4
10°	272.0	234.2	203.4	179.2	166.2	158.1	141.9	122.0	108.5	98.2	91.2
12.5°	380.5	277.4	217.5	182.4	166.2	154.9	135.5	115.5	100.4	88.0	80.4
15°	566.1	387.5	258.0	184.0	160.8	147.9	125.7	104.7	89.6	76.6	69.6
17.5°	740.9	510.0	322.2	195.4	157.6	137.6	112.8	92.3	76.6	64.2	58.3
20°	831.6	571.0	357.8	204.0	152.2	124.7	97.7	78.8	63.7	52.9	48.0
22.5°	833.8	565.6	340.5	184.0	132.2	106.9	83.6	64.8	51.8	42.6	38.9
25°	782.5	500.3	280.1	143.5	106.9	89.6	69.6	52.9	40.5	34.0	31.3
27.5°	685.9	404.7	206.7	103.6	83.6	71.2	54.5	40.5	30.8	26.4	24.8
30°	530.5	250.4	114.4	76.6	63.1	53.4	39.4	27.0	23.2	20.5	19.4
32.5°	263.3	122.5	80.9	54.5	43.2	34.0	24.8	20.0	17.8	16.2	15.6
35°	143.0	88.0	50.7	32.9	25.9	21.6	16.7	14.0	13.0	12.4	12.4
37.5°	99.8	52.3	30.8	20.0	16.2	14.6	11.9	10.3	9.7	9.7	9.7
40°	55.0	31.3	18.9	13.0	10.8	9.7	8.1	7.6	7.6	7.6	8.1
42.5°	31.8	19.4	13.0	9.2	7.6	7.0	5.9	5.4	5.9	5.9	6.5
45°	20.5	14.6	8.6	6.5	5.4	4.9	4.3	4.3	4.9	4.9	5.4
47.5°	14.6	10.3	5.9	4.3	3.2	3.2	3.2	3.2	3.8	4.3	4.9
50°	8.6	5.4	3.2	2.7	2.2	2.2	2.2	2.7	3.2	3.2	3.8
52.5°	4.9	3.2	2.2	2.2	1.6	1.6	2.2	2.2	2.7	3.2	3.8
55°	2.7	2.2	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.7	3.2
57.5°	2.2	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.7	2.7
60°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.7	2.7
62.5°	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2	2.2	2.7
65°	1.6	1.6	1.6	2.2	1.6	2.2	2.2	2.2	2.2	2.2	2.7
67.5°	1.6	1.6	1.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.7
70°	1.6	1.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.7
72.5°	1.6	1.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.7
75°	1.6	1.6	1.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
77.5°	1.6	1.6	1.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
80°	1.6	1.6	1.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
82.5°	1.6	1.6	1.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
85°	1.6	1.6	1.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
87.5°	1.6	1.6	1.6	1.6	2.2	2.2	2.2	2.2	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



TEST NUMBER: P182712

CATALOG NUMBER: LDSQA4A09835D010TE LAR25NF 4LSQA1H 30°

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4
2.5°	113.9	110.1	107.4	106.3	104.2	104.7	103.1	102.0	98.8	98.8	96.6
5°	105.2	100.4	97.1	95.5	93.4	92.8	91.2	89.6	86.3	85.8	84.2
7.5°	96.1	91.2	87.4	85.8	83.6	83.1	80.9	79.9	77.2	76.6	75.0
10°	86.3	80.9	77.7	76.1	73.9	73.9	72.3	71.2	69.1	69.1	68.0
12.5°	76.1	71.2	69.1	66.9	65.8	65.8	64.8	63.7	62.1	62.6	62.1
15°	65.3	61.5	59.4	58.3	57.7	57.7	57.2	56.7	55.6	56.7	55.6
17.5°	55.0	52.3	50.7	50.2	49.6	49.6	49.6	50.2	49.6	50.7	50.7
20°	45.3	43.2	42.1	42.1	41.6	42.6	42.6	43.7	43.7	45.3	45.9
22.5°	37.2	35.6	35.1	35.1	35.1	36.2	36.7	37.8	38.3	39.9	41.0
25°	29.7	29.1	29.1	29.1	29.7	30.8	31.8	32.9	33.5	35.6	36.2
27.5°	24.3	23.7	24.3	24.3	24.8	26.4	27.5	28.6	29.7	31.3	32.4
30°	19.4	19.4	20.0	20.5	21.0	22.1	23.7	24.8	25.9	27.5	28.6
32.5°	15.6	16.2	16.7	17.3	17.3	18.9	20.0	21.6	22.1	23.7	24.8
35°	13.0	13.5	14.0	14.6	14.6	16.2	17.3	18.3	19.4	20.5	21.6
37.5°	10.3	10.8	11.9	12.4	12.4	14.0	14.6	15.6	16.7	17.8	18.9
40°	8.6	9.2	10.3	10.3	10.8	11.9	12.4	13.5	14.6	15.6	16.7
42.5°	7.0	7.6	8.6	9.2	9.2	10.3	10.8	11.9	12.4	13.5	14.0
45°	6.5	6.5	7.6	7.6	8.1	8.6	9.7	10.3	10.8	11.9	12.4
47.5°	5.4	5.9	6.5	7.0	7.0	7.6	8.1	8.6	9.2	10.3	10.8
50°	4.3	4.9	5.9	5.9	5.9	7.0	7.6	8.1	8.1	8.6	9.2
52.5°	4.3	4.3	4.9	5.4	5.4	5.9	6.5	7.0	7.0	7.6	8.1
55°	3.8	3.8	4.3	4.9	4.9	5.4	5.9	5.9	6.5	6.5	7.0
57.5°	3.2	3.8	4.3	4.3	4.3	4.9	5.4	5.4	5.9	5.9	6.5
60°	3.2	3.8	3.8	4.3	4.3	4.9	4.9	4.9	5.4	5.4	5.4
62.5°	3.2	3.2	3.8	3.8	3.8	4.3	4.3	4.9	4.9	4.9	4.9
65°	3.2	3.2	3.8	3.8	3.8	4.3	4.3	4.3	4.3	4.3	4.3
67.5°	2.7	3.2	3.2	3.2	3.8	3.8	3.8	3.8	3.8	3.8	3.8
70°	2.7	2.7	3.2	3.2	3.2	3.8	3.8	3.8	3.8	3.8	3.8
72.5°	2.7	2.7	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
75°	2.7	2.7	2.7	2.7	2.7	3.2	3.2	3.2	3.2	2.7	2.7
77.5°	2.2	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.2
80°	2.2	2.2	2.7	2.2	2.7	2.7	2.7	2.7	2.2	2.2	2.2
82.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.6	1.6
85°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.6	1.6	1.6	1.1
87.5°	2.2	2.2	2.2	2.2	2.2	2.2	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





TEST NUMBER: P182712

CATALOG NUMBER: LDSQA4A09835D010TE LAR25NF 4LSQA1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	121.4	121.4	121.4	121.4	121.4	121.4	121.4	121.4
2.5°	95.5	96.6	95.5	96.6	93.9	95.0	96.1	93.4
5°	83.1	82.0	82.6	83.6	81.5	82.0	82.6	80.4
7.5°	74.5	75.0	73.9	75.0	73.4	73.9	74.5	72.9
10°	67.5	68.0	67.5	68.0	66.4	67.5	68.0	66.4
12.5°	61.0	62.1	61.5	62.6	61.0	62.1	63.1	61.0
15°	56.1	57.2	56.7	57.7	56.7	57.7	58.8	57.2
17.5°	51.3	52.3	52.3	53.4	52.9	54.0	55.0	53.4
20°	46.4	48.0	48.0	49.1	49.1	49.6	51.3	49.6
22.5°	42.1	43.7	43.7	44.8	44.8	45.9	46.9	45.9
25°	37.2	39.4	39.9	41.0	41.0	42.1	43.7	42.6
27.5°	34.0	35.6	36.2	37.2	37.8	38.9	39.9	38.9
30°	29.7	31.8	32.4	33.5	34.0	35.6	36.2	35.6
32.5°	26.4	28.1	28.6	29.7	30.8	31.8	32.9	32.4
35°	23.2	24.8	25.4	26.4	27.0	28.6	29.7	29.1
37.5°	20.5	22.1	22.7	23.2	23.7	25.4	26.4	25.9
40°	17.8	18.9	19.4	20.5	21.0	22.1	23.2	23.2
42.5°	15.6	16.7	17.3	17.8	18.3	19.4	20.5	20.0
45°	13.5	14.6	15.1	15.6	16.2	16.7	17.8	17.3
47.5°	11.3	12.4	13.0	13.5	14.0	14.6	15.6	15.1
50°	9.7	10.8	10.8	11.3	11.9	12.4	13.5	13.0
52.5°	8.6	9.2	9.7	9.7	10.3	10.8	11.9	11.3
55°	7.6	8.1	8.1	8.6	8.6	9.2	9.7	9.7
57.5°	6.5	7.0	7.0	7.6	7.6	8.1	8.6	8.6
60°	5.9	5.9	6.5	6.5	6.5	7.0	7.0	7.0
62.5°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
65°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
67.5°	3.8	3.8	3.8	3.8	3.8	3.2	3.2	3.2
70°	3.2	3.2	3.2	3.2	3.2	2.7	2.7	2.7
72.5°	3.2	3.2	2.7	2.7	2.7	2.7	2.7	2.2
75°	2.7	2.7	2.7	2.7	2.2	2.2	2.2	2.2
77.5°	2.2	2.2	2.2	2.2	1.6	1.6	1.6	1.6
80°	2.2	1.6	1.6	1.6	1.6	1.6	1.6	1.1
82.5°	1.6	1.6	1.6	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



Report Generated By E9808895 / USPTCWHP6082093





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















(END OF REPORT)