

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: P182819

Luminaire Tested: **LDSQA4A13930D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182819  
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: LDSQA4A13930D010TE LAR25NF 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1292.3 lumens  
Efficiency: N/A  
Efficacy: 58.0 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

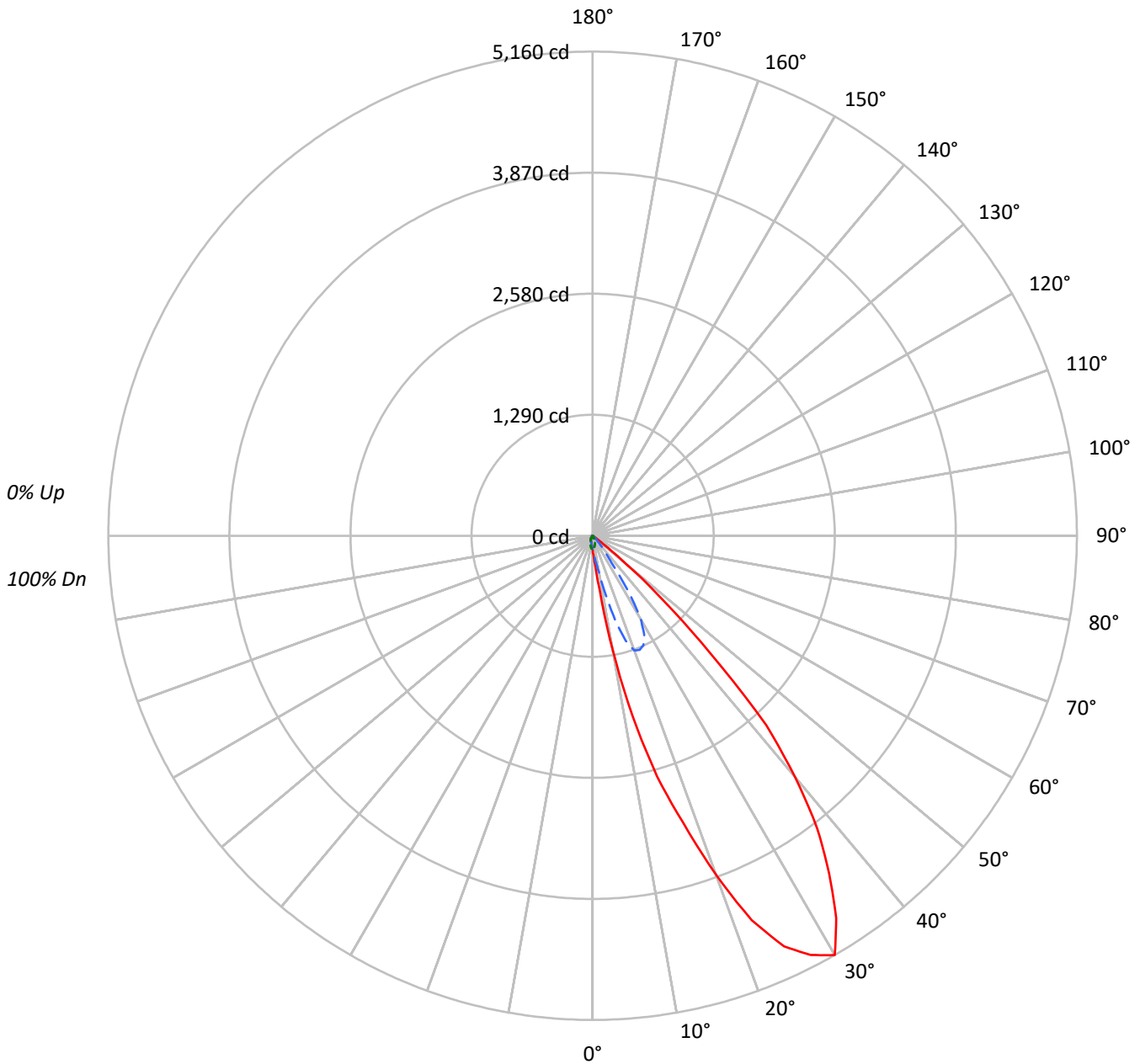
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P182819

CATALOG NUMBER: LDSQA4A13930D010TE LAR25NF 4LSQAL1H 30°

### Luminous Intensity Polar Plot





TEST NUMBER: P182819

CATALOG NUMBER: LDSQA4A13930D010TE LAR25NF 4LSQAL1H 30°

**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	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°	13960	13960	13960
5°	31235	13128	9404
10°	122490	11490	7407
15°	265906	9307	6439
20°	396680	6887	5825
25°	515959	4853	5067
30°	577197	3266	4430
35°	519435	1916	3761
40°	423913	1315	3288
45°	243399	891	2672
50°	71196	678	2246
55°	8225	540	1858
60°	1763	620	1511
65°	596	596	1032
70°	538	736	736
75°	487	973	711
80°	0	1450	725
85°	0	2890	667



TEST NUMBER: P182819

CATALOG NUMBER: LDSQA4A13930D010TE LAR25NF 4LSQAL1H 30°

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	20.6	1.6
10°-20°	176.9	13.7
20°-30°	422.0	32.7
30°-40°	445.4	34.5
40°-50°	202.0	15.6
50°-60°	17.7	1.4
60°-70°	3.7	0.3
70°-80°	2.4	0.2
80°-90°	1.5	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°	619.6	47.9
0°-40°	1065.0	82.4
0°-60°	1284.7	99.4
0°-90°	1292.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1292.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	144	144	144	144	144	
5°	321	236	135	104	97	58
15°	2651	932	93	64	64	771
25°	4827	1284	45	39	47	2193
35°	4392	354	16	22	32	2712
45°	1777	50	6	12	20	1409
55°	49	8	3	7	11	97
65°	3	3	3	5	4	3
75°	1	1	3	3	2	1
85°	0	1	3	2	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182819

CATALOG NUMBER: LDSQA4A13930D010TE LAR25NF 4LSQAL1H 30°

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1
2.5°	214.1	215.4	209.6	210.2	204.4	207.0	205.0	199.9	196.0	189.5	186.9
5°	321.2	323.1	310.2	306.3	292.6	292.6	286.8	273.2	260.8	245.9	235.5
7.5°	587.2	595.0	556.1	526.9	484.1	473.7	453.6	406.8	368.6	329.6	300.4
10°	1245.2	1230.9	1150.5	1084.3	974.0	933.1	878.6	744.3	621.0	498.3	402.3
12.5°	1963.5	2009.6	1854.5	1800.6	1626.1	1589.1	1472.9	1253.6	1045.3	828.6	636.5
15°	2651.3	2664.9	2529.3	2441.7	2228.9	2180.9	2038.1	1780.5	1500.2	1197.8	932.4
17.5°	3203.5	3258.0	3058.8	2964.7	2688.3	2611.1	2443.0	2129.6	1817.5	1487.2	1172.5
20°	3847.8	3862.1	3625.9	3444.9	3083.5	2966.0	2764.9	2376.2	2004.4	1627.4	1302.3
22.5°	4433.8	4430.5	4126.8	3871.2	3413.7	3273.6	3025.1	2564.4	2132.2	1689.7	1314.6
25°	4827.0	4837.4	4512.3	4209.9	3648.6	3459.2	3178.8	2662.3	2175.7	1687.7	1283.5
27.5°	5036.6	5026.2	4677.7	4354.6	3734.9	3522.7	3218.4	2665.6	2136.1	1621.5	1190.0
30°	5159.9	5021.0	4649.2	4313.7	3676.5	3458.5	3149.0	2563.1	2004.4	1473.6	1023.3
32.5°	4830.2	4776.4	4452.6	4096.4	3475.4	3259.3	2953.7	2345.0	1795.4	1247.1	733.2
35°	4392.2	4394.2	4078.2	3745.3	3160.0	2971.8	2656.5	2079.6	1540.4	866.9	354.3
37.5°	3932.8	3939.3	3638.9	3329.4	2808.3	2610.4	2315.2	1777.3	1108.3	441.2	213.5
40°	3352.1	3365.7	3106.8	2858.3	2377.5	2186.7	1923.3	1345.1	619.7	246.6	144.7
42.5°	2738.9	2755.8	2526.1	2305.5	1896.7	1739.6	1506.0	833.2	307.6	159.6	85.0
45°	1776.6	1825.3	1654.6	1561.8	1325.0	1231.6	983.0	425.0	185.6	93.4	50.0
47.5°	1016.8	1017.4	873.4	699.5	573.6	499.0	390.0	193.4	108.4	52.6	30.5
50°	472.4	484.1	383.5	319.2	228.4	193.4	159.0	104.5	57.1	30.5	18.8
52.5°	137.6	145.3	131.7	119.4	101.2	90.2	77.2	51.3	29.8	18.2	11.7
55°	48.7	51.9	48.7	45.4	40.9	37.0	33.1	24.7	16.9	11.0	7.8
57.5°	20.1	20.8	20.1	19.5	18.2	18.2	16.2	13.6	10.4	7.1	5.2
60°	9.1	9.7	9.1	9.7	9.1	9.1	9.1	9.7	6.5	4.5	3.9
62.5°	3.9	4.5	4.5	4.5	4.5	5.2	5.2	4.5	3.9	3.2	2.6
65°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
70°	1.9	1.9	1.9	1.9	1.9	1.9	1.3	1.3	1.9	1.9	1.9
72.5°	1.9	1.9	1.9	1.9	1.3	1.3	1.3	1.3	1.3	1.9	1.9
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.3	1.3	1.3
80°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.3	1.3	1.3
82.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.3	1.3	1.3
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.3	1.3	1.3
87.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.3	1.3	1.3
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: P182819

CATALOG NUMBER: LDSQA4A13930D010TE LAR25NF 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1
2.5°	183.6	177.8	168.7	162.9	160.3	156.4	153.8	147.3	144.7	139.5	137.6
5°	225.8	214.1	200.5	189.5	182.3	174.5	162.9	149.9	143.4	135.0	130.4
7.5°	273.8	248.5	224.5	205.0	196.0	185.6	170.7	150.5	138.2	127.2	120.7
10°	334.8	282.9	245.3	214.1	200.5	186.9	168.7	145.3	129.8	116.8	109.7
12.5°	477.6	341.3	264.1	219.3	201.8	184.9	162.2	138.2	120.0	105.1	97.3
15°	687.2	476.9	314.7	223.9	197.3	176.5	150.5	126.5	107.7	92.8	85.0
17.5°	872.7	608.0	384.8	240.7	196.0	166.8	136.3	111.6	93.4	79.2	72.7
20°	974.0	676.8	431.5	251.1	190.1	151.8	120.0	96.7	79.2	66.8	61.0
22.5°	975.9	672.9	414.6	228.4	167.4	131.7	103.8	81.8	66.2	55.2	50.6
25°	917.5	600.2	345.9	179.7	136.9	111.6	86.9	68.1	53.9	45.4	41.5
27.5°	808.5	488.0	254.4	129.8	107.1	90.2	70.1	54.5	42.2	37.0	33.7
30°	635.9	317.9	148.6	96.7	83.1	69.4	53.2	38.3	33.1	29.2	26.6
32.5°	341.3	154.4	103.8	71.4	59.0	48.7	35.0	27.9	24.0	21.4	20.8
35°	178.4	112.9	69.4	45.4	37.6	31.8	24.0	19.5	17.5	16.2	16.2
37.5°	127.8	70.7	44.1	29.2	24.7	20.1	16.9	14.3	13.0	13.0	13.0
40°	75.9	43.5	26.6	18.8	16.2	14.3	12.3	10.4	10.4	10.4	10.4
42.5°	46.1	27.3	18.8	13.0	11.7	10.4	9.1	8.4	7.8	7.8	8.4
45°	28.6	18.8	12.3	9.7	9.1	7.8	7.1	6.5	6.5	6.5	7.1
47.5°	18.2	13.6	9.1	6.5	5.8	5.2	4.5	4.5	5.2	5.2	5.8
50°	13.6	8.4	5.8	4.5	3.9	3.9	3.2	3.9	3.9	4.5	5.2
52.5°	7.8	5.2	3.9	3.2	3.2	2.6	2.6	3.2	3.2	3.9	4.5
55°	5.2	3.9	3.2	2.6	2.6	2.6	2.6	2.6	3.2	3.2	3.9
57.5°	3.9	3.2	2.6	2.6	2.6	1.9	2.6	2.6	2.6	3.2	3.9
60°	3.2	2.6	2.6	2.6	2.6	1.9	1.9	2.6	2.6	3.2	3.2
62.5°	2.6	2.6	2.6	2.6	2.6	1.9	2.6	2.6	2.6	2.6	3.2
65°	1.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.2
67.5°	1.9	1.9	2.6	2.6	2.6	1.9	2.6	2.6	2.6	2.6	3.2
70°	1.9	1.9	1.9	2.6	2.6	1.9	2.6	2.6	2.6	2.6	2.6
72.5°	1.9	1.9	1.9	2.6	2.6	1.9	2.6	2.6	2.6	2.6	2.6
75°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6
77.5°	1.9	1.9	1.9	1.9	2.6	1.9	2.6	2.6	2.6	2.6	2.6
80°	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6	2.6	2.6
82.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6	2.6
85°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6	2.6
87.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.6	2.6	2.6
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: P182819

CATALOG NUMBER: LDSQA4A13930D010TE LAR25NF 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1
2.5°	132.4	130.4	126.5	125.9	125.2	122.6	120.7	118.7	118.7	116.8	115.5
5°	122.6	119.4	114.9	112.9	112.3	109.0	106.4	104.5	103.8	101.9	99.9
7.5°	112.3	108.4	103.2	101.2	100.6	97.3	94.7	92.8	91.5	89.5	88.2
10°	101.2	96.7	92.1	90.2	89.5	86.3	84.4	82.4	81.1	79.8	78.5
12.5°	89.5	85.7	81.1	79.2	78.5	75.9	74.0	72.7	72.0	70.7	70.1
15°	77.9	74.0	70.1	68.8	68.1	66.2	64.9	64.2	63.6	63.6	62.9
17.5°	66.2	62.9	59.7	59.0	58.4	57.1	56.5	55.8	56.5	56.5	57.1
20°	55.2	52.6	50.0	50.0	49.3	48.7	48.7	48.7	50.0	50.6	51.9
22.5°	45.4	43.5	41.5	41.5	41.5	41.5	41.5	42.8	44.1	45.4	46.1
25°	37.6	35.7	35.0	35.0	35.0	35.7	36.3	37.6	38.9	40.2	41.5
27.5°	30.5	29.2	29.2	29.2	29.8	30.5	31.1	32.4	34.4	35.7	37.0
30°	24.7	24.0	24.0	24.7	25.3	26.0	27.3	28.6	29.8	31.1	32.4
32.5°	19.5	20.1	20.1	20.8	21.4	22.1	23.4	24.7	26.0	27.3	27.9
35°	16.2	16.2	16.9	17.5	18.2	18.8	20.1	21.4	22.1	23.4	24.7
37.5°	13.0	13.6	14.3	14.9	15.6	16.2	16.9	18.2	18.8	20.1	21.4
40°	11.0	11.7	12.3	13.0	13.0	14.3	14.3	15.6	16.2	17.5	18.8
42.5°	9.1	9.7	10.4	11.0	11.0	11.7	12.3	13.0	14.3	14.9	16.2
45°	7.1	7.8	8.4	9.1	9.7	10.4	10.4	11.7	12.3	13.0	14.3
47.5°	6.5	7.1	7.8	7.8	8.4	9.1	9.1	10.4	11.0	11.7	12.3
50°	5.2	5.8	6.5	7.1	7.1	7.8	8.4	9.1	9.7	10.4	10.4
52.5°	4.5	5.2	5.8	5.8	6.5	7.1	7.1	7.8	8.4	8.4	9.1
55°	4.5	5.2	5.2	5.8	5.8	6.5	6.5	7.1	7.1	7.8	7.8
57.5°	3.9	4.5	4.5	5.2	5.2	5.8	5.8	6.5	6.5	6.5	7.1
60°	3.9	3.9	4.5	4.5	5.2	5.2	5.2	5.8	5.8	5.8	6.5
62.5°	3.2	3.9	3.9	4.5	4.5	4.5	5.2	5.2	5.2	5.8	5.8
65°	3.2	3.9	3.9	4.5	4.5	4.5	4.5	4.5	5.2	5.2	5.2
67.5°	3.2	3.2	3.9	3.9	3.9	3.9	4.5	4.5	4.5	4.5	4.5
70°	3.2	3.2	3.2	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
72.5°	2.6	3.2	3.2	3.2	3.2	3.9	3.9	3.9	3.9	3.9	3.2
75°	2.6	2.6	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
77.5°	2.6	2.6	2.6	3.2	3.2	3.2	3.2	3.2	3.2	2.6	2.6
80°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	1.9
82.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	1.9	1.9	1.9
85°	2.6	1.9	2.6	2.6	2.6	1.9	1.9	1.9	1.9	1.9	1.3
87.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.3	1.3
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: P182819

CATALOG NUMBER: LDSQA4A13930D010TE LAR25NF 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1
2.5°	114.2	112.9	113.6	113.6	112.3	111.6	111.6	112.3
5°	98.6	97.3	98.0	98.0	96.7	96.0	96.0	96.7
7.5°	86.9	85.7	86.3	86.3	85.0	85.0	85.0	85.0
10°	77.9	77.2	77.2	77.2	75.9	76.6	75.9	75.3
12.5°	69.4	69.4	69.4	69.4	68.8	69.4	68.8	68.8
15°	62.9	62.9	63.6	63.6	63.6	64.2	64.2	64.2
17.5°	57.7	58.4	59.0	59.7	59.7	60.3	60.3	60.3
20°	52.6	53.9	54.5	55.2	55.2	56.5	55.8	56.5
22.5°	47.4	48.7	49.3	50.0	50.6	51.3	51.3	51.9
25°	42.8	44.1	44.8	45.4	46.1	47.4	47.4	47.4
27.5°	38.3	39.6	40.2	41.5	42.2	43.5	43.5	43.5
30°	33.7	35.0	35.7	36.3	37.6	38.9	38.9	39.6
32.5°	29.2	31.1	31.8	32.4	33.7	35.0	35.7	35.7
35°	26.0	27.3	27.9	29.2	29.8	31.8	31.8	31.8
37.5°	22.7	24.0	25.3	26.0	26.6	27.9	28.6	29.2
40°	20.1	21.4	22.1	22.7	24.0	25.3	26.0	26.0
42.5°	17.5	18.8	19.5	20.1	20.8	22.1	22.1	22.1
45°	15.6	16.2	16.9	17.5	18.2	18.8	19.5	19.5
47.5°	13.0	14.3	14.3	14.9	15.6	16.9	16.9	17.5
50°	11.0	12.3	12.3	13.0	13.6	14.3	14.9	14.9
52.5°	9.7	10.4	11.0	11.0	11.7	12.3	13.0	13.0
55°	8.4	9.1	9.1	9.7	9.7	10.4	11.0	11.0
57.5°	7.1	7.8	8.4	8.4	8.4	9.1	9.1	9.7
60°	6.5	7.1	7.1	7.1	7.1	7.8	7.8	7.8
62.5°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
65°	5.2	5.2	5.2	5.2	4.5	4.5	4.5	4.5
67.5°	4.5	4.5	4.5	4.5	3.9	3.9	3.9	3.9
70°	3.9	3.9	3.9	3.9	3.2	3.2	3.2	2.6
72.5°	3.2	3.2	3.2	3.2	3.2	2.6	2.6	2.6
75°	3.2	2.6	2.6	2.6	2.6	2.6	1.9	1.9
77.5°	2.6	2.6	2.6	1.9	1.9	1.9	1.9	1.9
80°	1.9	1.9	1.9	1.9	1.9	1.3	1.3	1.3
82.5°	1.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3
85°	1.3	1.3	1.3	1.3	0.6	0.6	0.6	0.6
87.5°	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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)