

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: P182703

Luminaire Tested: **LDSQA4A18830D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182703  
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: LDSQA4A18830D010TE 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 / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2107.1 lumens  
Efficiency: N/A  
Efficacy: 72.4 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

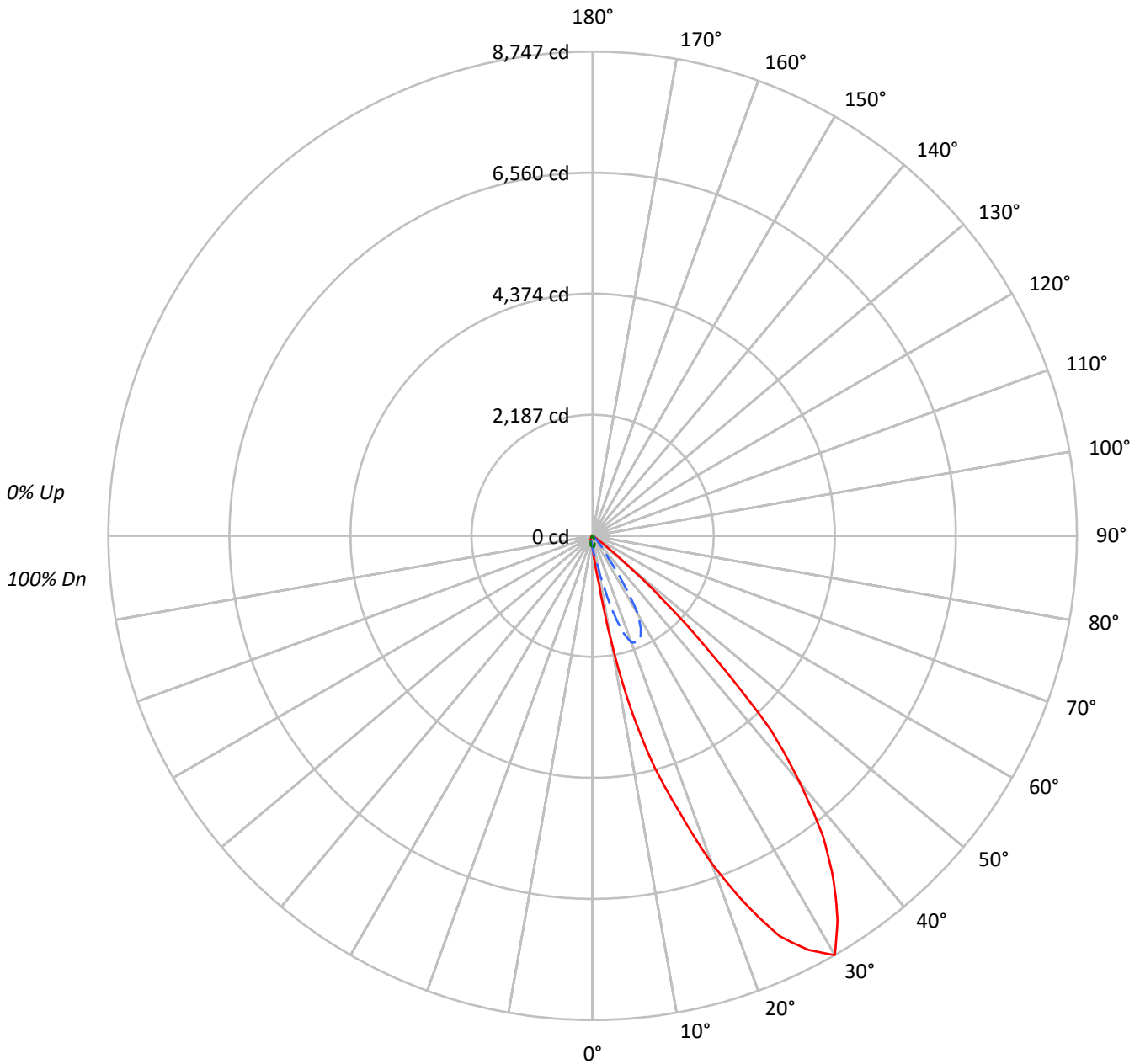
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P182703

CATALOG NUMBER: LDSQA4A18830D010TE LAR25NF 4LSQA1H 30°

### Luminous Intensity Polar Plot





TEST NUMBER: P182703

CATALOG NUMBER: LDSQA4A18830D010TE LAR25NF 4LSQA1H 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	84	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	82	76	72	80	75	71	78	73	70	76	72	69	67																			
5	87	77	70	64	85	76	69	64	74	68	64	72	67	63	70	66	62	61																			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55																			
7	76	64	57	52	74	64	57	52	62	56	52	61	56	51	60	55	51	49																			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45																			
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41																			
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	38	37																			

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

	0°	90°	180°
0°	21322	21322	21322
5°	47174	20159	14169
10°	188860	17510	11834
15°	435331	13931	10400
20°	649855	9887	9278
25°	852364	6584	8263
30°	978436	4161	7226
35°	897132	2661	6244
40°	735692	1733	5324
45°	426516	1206	4288
50°	120871	889	3542
55°	11063	828	2973
60°	1705	949	2461
65°	458	894	1788
70°	566	1105	1388
75°	749	1460	1460
80°	0	2176	1116
85°	0	4335	1112



TEST NUMBER: P182703

CATALOG NUMBER: LDSQA4A18830D010TE LAR25NF 4LSQA1H 30°

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	31.3	1.5
10°-20°	280.2	13.3
20°-30°	682.7	32.4
30°-40°	739.9	35.1
40°-50°	335.3	15.9
50°-60°	25.9	1.2
60°-70°	5.4	0.3
70°-80°	3.9	0.2
80°-90°	2.5	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°	994.2	47.2
0°-40°	1734.1	82.3
0°-60°	2095.3	99.4
0°-90°	2107.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2107.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	220	220	220	220	220	
5°	485	358	207	156	146	87
15°	4341	1420	139	101	104	1261
25°	7974	2039	62	61	77	3635
35°	7586	518	22	35	53	4666
45°	3113	66	9	20	31	2458
55°	66	9	5	12	18	150
65°	2	3	4	8	8	3
75°	2	3	4	6	4	1
85°	0	3	4	3	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182703

CATALOG NUMBER: LDSQA4A18830D010TE LAR25NF 4LSQA1H 30°

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1
2.5°	329.6	323.7	326.7	318.8	314.0	310.0	312.0	310.0	297.3	294.4	284.6
5°	485.1	476.3	476.3	459.7	442.1	431.3	431.3	418.6	391.2	378.5	358.0
7.5°	869.5	851.9	837.2	785.4	717.9	679.8	670.0	616.2	546.7	502.7	450.9
10°	1919.9	1846.6	1794.7	1659.8	1478.8	1366.4	1318.4	1132.6	911.6	745.3	594.7
12.5°	3228.6	3128.8	3037.9	2816.8	2556.7	2379.6	2284.8	2010.9	1581.5	1274.4	953.6
15°	4340.6	4233.1	4125.5	3856.5	3581.7	3428.1	3254.0	2891.2	2323.9	1887.7	1420.1
17.5°	5253.2	5192.5	5082.0	4687.9	4341.6	4102.0	3921.1	3446.7	2862.8	2365.0	1835.8
20°	6303.6	6154.0	5956.4	5478.1	5004.8	4704.5	4450.2	3872.2	3197.3	2625.1	2055.9
22.5°	7187.8	7081.2	6797.5	6166.7	5470.3	5214.1	4903.0	4207.6	3412.5	2735.6	2081.3
25°	7974.2	7806.9	7450.9	6700.7	5987.7	5551.5	5170.0	4389.5	3491.7	2743.5	2039.3
27.5°	8434.8	8216.7	7798.1	6980.4	6166.7	5684.5	5262.0	4420.8	3441.8	2639.8	1885.7
30°	8746.8	8312.6	7849.9	6983.4	6110.0	5617.0	5178.8	4263.4	3234.5	2403.1	1627.5
32.5°	8232.4	7981.0	7538.9	6705.6	5800.9	5319.7	4884.5	3922.0	2910.7	2052.0	1132.6
35°	7585.9	7382.4	6998.0	6170.6	5337.3	4883.5	4421.8	3483.9	2489.2	1410.4	518.4
37.5°	6834.7	6675.3	6261.6	5505.5	4772.0	4327.9	3865.3	2969.4	1752.7	699.3	314.9
40°	5817.5	5682.6	5343.2	4735.8	4059.9	3637.4	3211.0	2221.2	951.7	390.2	205.4
42.5°	4781.8	4668.3	4359.2	3834.0	3240.3	2892.1	2516.6	1353.6	473.4	245.5	114.4
45°	3113.2	2971.4	2805.1	2564.5	2271.1	2056.9	1613.8	653.3	280.7	136.9	65.5
47.5°	1785.0	1691.1	1418.2	1118.9	908.6	829.4	603.5	304.2	154.5	79.2	40.1
50°	802.0	741.4	622.0	506.6	366.8	286.6	243.5	152.6	76.3	43.0	27.4
52.5°	197.6	201.5	190.7	167.2	148.7	126.2	109.5	71.4	40.1	26.4	17.6
55°	65.5	66.5	60.6	57.7	52.8	48.9	45.0	32.3	24.5	23.5	8.8
57.5°	23.5	23.5	24.5	22.5	21.5	20.5	19.6	16.6	14.7	8.8	4.9
60°	8.8	8.8	8.8	9.8	9.8	9.8	10.8	9.8	6.8	4.9	3.9
62.5°	3.9	3.9	3.9	3.9	4.9	4.9	5.9	4.9	3.9	3.9	2.9
65°	2.0	2.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
67.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9	2.9
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9	2.9
72.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9	2.9
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9
77.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.9
80°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.9
82.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.9
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.9
87.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
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: P182703

CATALOG NUMBER: LDSQA4A18830D010TE LAR25NF 4LSQA1H 30°

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1
2.5°	274.8	269.0	257.2	248.4	241.6	240.6	234.7	225.0	221.0	214.2	208.3
5°	338.4	323.7	305.2	287.6	274.8	268.0	247.5	228.9	218.1	207.3	197.6
7.5°	406.9	373.6	341.3	313.0	295.4	284.6	260.2	229.8	210.3	194.6	181.9
10°	492.9	424.5	368.7	324.7	301.2	286.6	257.2	221.0	196.6	178.0	165.3
12.5°	689.5	502.7	394.2	330.6	301.2	280.7	245.5	209.3	181.9	159.4	145.7
15°	1026.0	702.2	467.5	333.5	291.5	268.0	227.9	189.7	162.4	138.9	126.2
17.5°	1342.9	924.3	583.9	354.1	285.6	249.4	204.4	167.2	138.9	116.4	105.6
20°	1507.2	1034.8	648.5	369.7	275.8	225.9	177.0	142.8	115.4	95.9	87.0
22.5°	1511.1	1025.0	617.2	333.5	239.6	193.7	151.6	117.4	93.9	77.3	70.4
25°	1418.2	906.7	507.6	260.2	193.7	162.4	126.2	95.9	73.4	61.6	56.7
27.5°	1243.1	733.5	374.6	187.8	151.6	129.1	98.8	73.4	55.7	47.9	45.0
30°	961.4	453.8	207.3	138.9	114.4	96.8	71.4	48.9	42.1	37.2	35.2
32.5°	477.3	222.0	146.7	98.8	78.2	61.6	45.0	36.2	32.3	29.3	28.4
35°	259.2	159.4	91.9	59.7	46.9	39.1	30.3	25.4	23.5	22.5	22.5
37.5°	180.9	94.9	55.7	36.2	29.3	26.4	21.5	18.6	17.6	17.6	17.6
40°	99.8	56.7	34.2	23.5	19.6	17.6	14.7	13.7	13.7	13.7	14.7
42.5°	57.7	35.2	23.5	16.6	13.7	12.7	10.8	9.8	10.8	10.8	11.7
45°	37.2	26.4	15.6	11.7	9.8	8.8	7.8	7.8	8.8	8.8	9.8
47.5°	26.4	18.6	10.8	7.8	5.9	5.9	5.9	5.9	6.8	7.8	8.8
50°	15.6	9.8	5.9	4.9	3.9	3.9	3.9	4.9	5.9	5.9	6.8
52.5°	8.8	5.9	3.9	3.9	2.9	2.9	3.9	3.9	4.9	5.9	6.8
55°	4.9	3.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	4.9	5.9
57.5°	3.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	4.9	4.9
60°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	4.9	4.9
62.5°	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9	4.9
65°	2.9	2.9	2.9	3.9	2.9	3.9	3.9	3.9	3.9	3.9	4.9
67.5°	2.9	2.9	2.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4.9
70°	2.9	2.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4.9
72.5°	2.9	2.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4.9
75°	2.9	2.9	2.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
77.5°	2.9	2.9	2.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
80°	2.9	2.9	2.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
82.5°	2.9	2.9	2.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
85°	2.9	2.9	2.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
87.5°	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
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: P182703

CATALOG NUMBER: LDSQA4A18830D010TE LAR25NF 4LSQA1H 30°

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1
2.5°	206.4	199.5	194.6	192.7	188.8	189.7	186.8	184.9	179.0	179.0	175.1
5°	190.7	181.9	176.1	173.1	169.2	168.2	165.3	162.4	156.5	155.5	152.6
7.5°	174.1	165.3	158.4	155.5	151.6	150.6	146.7	144.8	139.9	138.9	136.0
10°	156.5	146.7	140.8	137.9	134.0	134.0	131.1	129.1	125.2	125.2	123.2
12.5°	137.9	129.1	125.2	121.3	119.3	119.3	117.4	115.4	112.5	113.5	112.5
15°	118.3	111.5	107.6	105.6	104.7	104.7	103.7	102.7	100.7	102.7	100.7
17.5°	99.8	94.9	91.9	91.0	90.0	90.0	90.0	91.0	90.0	91.9	91.9
20°	82.2	78.2	76.3	76.3	75.3	77.3	77.3	79.2	79.2	82.2	83.1
22.5°	67.5	64.6	63.6	63.6	63.6	65.5	66.5	68.5	69.4	72.4	74.3
25°	53.8	52.8	52.8	52.8	53.8	55.7	57.7	59.7	60.6	64.6	65.5
27.5°	44.0	43.0	44.0	44.0	45.0	47.9	49.9	51.8	53.8	56.7	58.7
30°	35.2	35.2	36.2	37.2	38.1	40.1	43.0	45.0	46.9	49.9	51.8
32.5°	28.4	29.3	30.3	31.3	31.3	34.2	36.2	39.1	40.1	43.0	45.0
35°	23.5	24.5	25.4	26.4	26.4	29.3	31.3	33.3	35.2	37.2	39.1
37.5°	18.6	19.6	21.5	22.5	22.5	25.4	26.4	28.4	30.3	32.3	34.2
40°	15.6	16.6	18.6	18.6	19.6	21.5	22.5	24.5	26.4	28.4	30.3
42.5°	12.7	13.7	15.6	16.6	16.6	18.6	19.6	21.5	22.5	24.5	25.4
45°	11.7	11.7	13.7	13.7	14.7	15.6	17.6	18.6	19.6	21.5	22.5
47.5°	9.8	10.8	11.7	12.7	12.7	13.7	14.7	15.6	16.6	18.6	19.6
50°	7.8	8.8	10.8	10.8	10.8	12.7	13.7	14.7	14.7	15.6	16.6
52.5°	7.8	7.8	8.8	9.8	9.8	10.8	11.7	12.7	12.7	13.7	14.7
55°	6.8	6.8	7.8	8.8	8.8	9.8	10.8	10.8	11.7	11.7	12.7
57.5°	5.9	6.8	7.8	7.8	7.8	8.8	9.8	9.8	10.8	10.8	11.7
60°	5.9	6.8	6.8	7.8	7.8	8.8	8.8	8.8	9.8	9.8	9.8
62.5°	5.9	5.9	6.8	6.8	6.8	7.8	7.8	8.8	8.8	8.8	8.8
65°	5.9	5.9	6.8	6.8	6.8	7.8	7.8	7.8	7.8	7.8	7.8
67.5°	4.9	5.9	5.9	5.9	6.8	6.8	6.8	6.8	6.8	6.8	6.8
70°	4.9	4.9	5.9	5.9	5.9	6.8	6.8	6.8	6.8	6.8	6.8
72.5°	4.9	4.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
75°	4.9	4.9	4.9	4.9	4.9	5.9	5.9	5.9	5.9	4.9	4.9
77.5°	3.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	3.9
80°	3.9	3.9	4.9	3.9	4.9	4.9	4.9	4.9	3.9	3.9	3.9
82.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	2.9	2.9
85°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	2.9	2.9	2.9	2.0
87.5°	3.9	3.9	3.9	3.9	3.9	3.9	2.9	2.9	2.9	2.0	2.0
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: P182703

CATALOG NUMBER: LDSQA4A18830D010TE LAR25NF 4LSQA1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	220.1	220.1	220.1	220.1	220.1	220.1	220.1	220.1
2.5°	173.1	175.1	173.1	175.1	170.2	172.1	174.1	169.2
5°	150.6	148.7	149.6	151.6	147.7	148.7	149.6	145.7
7.5°	135.0	136.0	134.0	136.0	133.0	134.0	135.0	132.0
10°	122.3	123.2	122.3	123.2	120.3	122.3	123.2	120.3
12.5°	110.5	112.5	111.5	113.5	110.5	112.5	114.4	110.5
15°	101.7	103.7	102.7	104.7	102.7	104.7	106.6	103.7
17.5°	92.9	94.9	94.9	96.8	95.9	97.8	99.8	96.8
20°	84.1	87.0	87.0	89.0	89.0	90.0	92.9	90.0
22.5°	76.3	79.2	79.2	81.2	81.2	83.1	85.1	83.1
25°	67.5	71.4	72.4	74.3	74.3	76.3	79.2	77.3
27.5°	61.6	64.6	65.5	67.5	68.5	70.4	72.4	70.4
30°	53.8	57.7	58.7	60.6	61.6	64.6	65.5	64.6
32.5°	47.9	50.9	51.8	53.8	55.7	57.7	59.7	58.7
35°	42.1	45.0	46.0	47.9	48.9	51.8	53.8	52.8
37.5°	37.2	40.1	41.1	42.1	43.0	46.0	47.9	46.9
40°	32.3	34.2	35.2	37.2	38.1	40.1	42.1	42.1
42.5°	28.4	30.3	31.3	32.3	33.3	35.2	37.2	36.2
45°	24.5	26.4	27.4	28.4	29.3	30.3	32.3	31.3
47.5°	20.5	22.5	23.5	24.5	25.4	26.4	28.4	27.4
50°	17.6	19.6	19.6	20.5	21.5	22.5	24.5	23.5
52.5°	15.6	16.6	17.6	17.6	18.6	19.6	21.5	20.5
55°	13.7	14.7	14.7	15.6	15.6	16.6	17.6	17.6
57.5°	11.7	12.7	12.7	13.7	13.7	14.7	15.6	15.6
60°	10.8	10.8	11.7	11.7	11.7	12.7	12.7	12.7
62.5°	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
65°	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
67.5°	6.8	6.8	6.8	6.8	6.8	5.9	5.9	5.9
70°	5.9	5.9	5.9	5.9	5.9	4.9	4.9	4.9
72.5°	5.9	5.9	4.9	4.9	4.9	4.9	4.9	3.9
75°	4.9	4.9	4.9	4.9	3.9	3.9	3.9	3.9
77.5°	3.9	3.9	3.9	3.9	2.9	2.9	2.9	2.9
80°	3.9	2.9	2.9	2.9	2.9	2.9	2.9	2.0
82.5°	2.9	2.9	2.9	2.0	2.0	2.0	2.0	2.0
85°	2.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0
87.5°	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)