

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: P182812

Luminaire Tested: **LDSQA4A09935D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182812  
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: LDSQA4A09935D010TE LAR25NF 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 881.1 lumens  
Efficiency: N/A  
Efficacy: 63.7 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

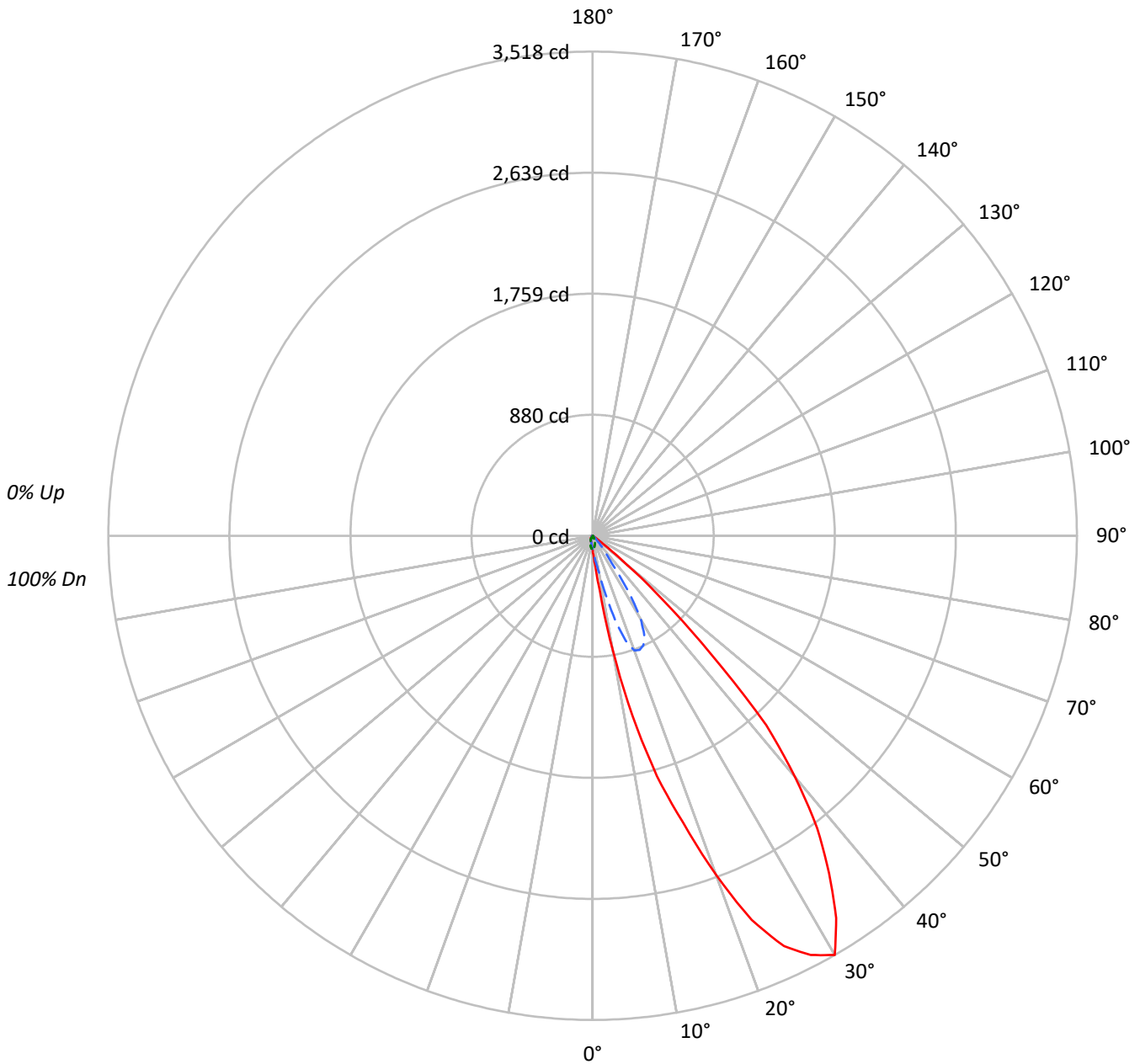
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P182812

CATALOG NUMBER: LDSQA4A09935D010TE LAR25NF 4LSQAL1H 30°

### Luminous Intensity Polar Plot





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**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°	9513	9513	9513
5°	21297	8947	6408
10°	83506	7830	5046
15°	181279	6349	4393
20°	270433	4701	3969
25°	351744	3314	3453
30°	393486	2226	3020
35°	354115	1313	2566
40°	288991	898	2238
45°	165937	603	1822
50°	48529	467	1537
55°	5607	372	1267
60°	1201	426	1027
65°	413	413	711
70°	368	510	510
75°	337	674	487
80°	0	1004	502
85°	0	2001	445



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CATALOG NUMBER: LDSQA4A09935D010TE LAR25NF 4LSQAL1H 30°

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	14.1	1.6
10°-20°	120.6	13.7
20°-30°	287.7	32.7
30°-40°	303.6	34.5
40°-50°	137.7	15.6
50°-60°	12.1	1.4
60°-70°	2.5	0.3
70°-80°	1.7	0.2
80°-90°	1.0	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°	422.4	47.9
0°-40°	726.0	82.4
0°-60°	875.8	99.4
0°-90°	881.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	881.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	98	98	98	98	98	
5°	219	161	92	71	66	39
15°	1808	636	63	43	44	526
25°	3291	875	31	26	32	1495
35°	2994	242	11	15	22	1849
45°	1211	34	4	8	13	960
55°	33	5	2	5	8	66
65°	2	2	2	4	3	2
75°	1	1	2	2	1	1
85°	0	1	2	1	0	0
90°	0	0	0	0	0	



TEST NUMBER: P182812

CATALOG NUMBER: LDSQA4A09935D010TE LAR25NF 4LSQAL1H 30°

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2
2.5°	146.0	146.9	142.9	143.3	139.3	141.1	139.8	136.2	133.6	129.2	127.4
5°	219.0	220.3	211.4	208.8	199.5	199.5	195.5	186.2	177.8	167.7	160.6
7.5°	400.3	405.6	379.1	359.2	330.0	322.9	309.2	277.4	251.3	224.7	204.8
10°	848.9	839.2	784.3	739.2	664.0	636.1	599.0	507.4	423.3	339.7	274.3
12.5°	1338.6	1370.0	1264.3	1227.6	1108.6	1083.3	1004.2	854.6	712.6	564.9	434.0
15°	1807.5	1816.8	1724.3	1664.6	1519.5	1486.8	1389.5	1213.8	1022.7	816.6	635.7
17.5°	2183.9	2221.1	2085.3	2021.1	1832.7	1780.1	1665.5	1451.8	1239.1	1013.9	799.3
20°	2623.2	2632.9	2471.9	2348.5	2102.1	2022.0	1884.9	1619.9	1366.5	1109.4	887.8
22.5°	3022.6	3020.4	2813.4	2639.1	2327.3	2231.7	2062.3	1748.2	1453.6	1151.9	896.2
25°	3290.7	3297.8	3076.2	2870.0	2487.4	2358.2	2167.1	1815.0	1483.2	1150.6	875.0
27.5°	3433.6	3426.5	3189.0	2968.7	2546.2	2401.6	2194.1	1817.2	1456.3	1105.5	811.3
30°	3517.6	3423.0	3169.5	2940.8	2506.4	2357.8	2146.8	1747.3	1366.5	1004.6	697.6
32.5°	3292.9	3256.2	3035.5	2792.6	2369.3	2222.0	2013.6	1598.7	1224.0	850.2	499.9
35°	2994.3	2995.7	2780.2	2553.3	2154.3	2026.0	1811.0	1417.8	1050.2	591.0	241.5
37.5°	2681.1	2685.6	2480.8	2269.8	1914.5	1779.6	1578.3	1211.6	755.6	300.8	145.5
40°	2285.2	2294.5	2118.0	1948.6	1620.8	1490.8	1311.2	917.0	422.5	168.1	98.6
42.5°	1867.2	1878.7	1722.1	1571.7	1293.0	1186.0	1026.7	568.0	209.7	108.8	57.9
45°	1211.2	1244.4	1128.0	1064.8	903.3	839.6	670.2	289.7	126.5	63.7	34.1
47.5°	693.2	693.6	595.4	476.9	391.0	340.2	265.9	131.8	73.9	35.8	20.8
50°	322.0	330.0	261.4	217.6	155.7	131.8	108.4	71.2	38.9	20.8	12.8
52.5°	93.8	99.1	89.8	81.4	69.0	61.5	52.6	34.9	20.3	12.4	8.0
55°	33.2	35.4	33.2	31.0	27.9	25.2	22.6	16.8	11.5	7.5	5.3
57.5°	13.7	14.2	13.7	13.3	12.4	12.4	11.1	9.3	7.1	4.9	3.5
60°	6.2	6.6	6.2	6.6	6.2	6.2	6.2	6.6	4.4	3.1	2.7
62.5°	2.7	3.1	3.1	3.1	3.1	3.5	3.5	3.1	2.7	2.2	1.8
65°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
70°	1.3	1.3	1.3	1.3	1.3	1.3	0.9	0.9	1.3	1.3	1.3
72.5°	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9	1.3	1.3
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
77.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9
80°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9
82.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9
87.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9
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: P182812

CATALOG NUMBER: LDSQA4A09935D010TE LAR25NF 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2
2.5°	125.2	121.2	115.0	111.0	109.3	106.6	104.8	100.4	98.6	95.1	93.8
5°	153.9	146.0	136.7	129.2	124.3	119.0	111.0	102.2	97.8	92.0	88.9
7.5°	186.7	169.4	153.1	139.8	133.6	126.5	116.3	102.6	94.2	86.7	82.3
10°	228.3	192.9	167.2	146.0	136.7	127.4	115.0	99.1	88.5	79.6	74.8
12.5°	325.6	232.7	180.0	149.5	137.6	126.1	110.6	94.2	81.8	71.7	66.4
15°	468.5	325.1	214.5	152.6	134.5	120.3	102.6	86.3	73.4	63.3	57.9
17.5°	595.0	414.5	262.3	164.1	133.6	113.7	92.9	76.1	63.7	54.0	49.5
20°	664.0	461.4	294.2	171.2	129.6	103.5	81.8	65.9	54.0	45.6	41.6
22.5°	665.3	458.7	282.7	155.7	114.1	89.8	70.8	55.7	45.1	37.6	34.5
25°	625.5	409.2	235.8	122.5	93.3	76.1	59.3	46.4	36.7	31.0	28.3
27.5°	551.2	332.7	173.4	88.5	73.0	61.5	47.8	37.2	28.8	25.2	23.0
30°	433.5	216.8	101.3	65.9	56.6	47.3	36.3	26.1	22.6	19.9	18.1
32.5°	232.7	105.3	70.8	48.7	40.3	33.2	23.9	19.0	16.4	14.6	14.2
35°	121.6	77.0	47.3	31.0	25.7	21.7	16.4	13.3	11.9	11.1	11.1
37.5°	87.1	48.2	30.1	19.9	16.8	13.7	11.5	9.7	8.8	8.8	8.8
40°	51.8	29.6	18.1	12.8	11.1	9.7	8.4	7.1	7.1	7.1	7.1
42.5°	31.4	18.6	12.8	8.8	8.0	7.1	6.2	5.8	5.3	5.3	5.8
45°	19.5	12.8	8.4	6.6	6.2	5.3	4.9	4.4	4.4	4.4	4.9
47.5°	12.4	9.3	6.2	4.4	4.0	3.5	3.1	3.1	3.5	3.5	4.0
50°	9.3	5.8	4.0	3.1	2.7	2.7	2.2	2.7	2.7	3.1	3.5
52.5°	5.3	3.5	2.7	2.2	2.2	1.8	1.8	2.2	2.2	2.7	3.1
55°	3.5	2.7	2.2	1.8	1.8	1.8	1.8	1.8	2.2	2.2	2.7
57.5°	2.7	2.2	1.8	1.8	1.8	1.3	1.8	1.8	1.8	2.2	2.7
60°	2.2	1.8	1.8	1.8	1.8	1.3	1.3	1.8	1.8	2.2	2.2
62.5°	1.8	1.8	1.8	1.8	1.8	1.3	1.8	1.8	1.8	1.8	2.2
65°	1.3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.2
67.5°	1.3	1.3	1.8	1.8	1.8	1.3	1.8	1.8	1.8	1.8	2.2
70°	1.3	1.3	1.3	1.8	1.8	1.3	1.8	1.8	1.8	1.8	1.8
72.5°	1.3	1.3	1.3	1.8	1.8	1.3	1.8	1.8	1.8	1.8	1.8
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8
77.5°	1.3	1.3	1.3	1.3	1.8	1.3	1.8	1.8	1.8	1.8	1.8
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
85°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8
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: P182812

CATALOG NUMBER: LDSQA4A09935D010TE LAR25NF 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2
2.5°	90.2	88.9	86.3	85.8	85.4	83.6	82.3	81.0	81.0	79.6	78.7
5°	83.6	81.4	78.3	77.0	76.5	74.3	72.5	71.2	70.8	69.5	68.1
7.5°	76.5	73.9	70.3	69.0	68.6	66.4	64.6	63.3	62.4	61.0	60.2
10°	69.0	65.9	62.8	61.5	61.0	58.8	57.5	56.2	55.3	54.4	53.5
12.5°	61.0	58.4	55.3	54.0	53.5	51.8	50.4	49.5	49.1	48.2	47.8
15°	53.1	50.4	47.8	46.9	46.4	45.1	44.2	43.8	43.4	43.4	42.9
17.5°	45.1	42.9	40.7	40.3	39.8	38.9	38.5	38.0	38.5	38.5	38.9
20°	37.6	35.8	34.1	34.1	33.6	33.2	33.2	33.2	34.1	34.5	35.4
22.5°	31.0	29.6	28.3	28.3	28.3	28.3	28.3	29.2	30.1	31.0	31.4
25°	25.7	24.3	23.9	23.9	23.9	24.3	24.8	25.7	26.5	27.4	28.3
27.5°	20.8	19.9	19.9	19.9	20.3	20.8	21.2	22.1	23.4	24.3	25.2
30°	16.8	16.4	16.4	16.8	17.3	17.7	18.6	19.5	20.3	21.2	22.1
32.5°	13.3	13.7	13.7	14.2	14.6	15.0	15.9	16.8	17.7	18.6	19.0
35°	11.1	11.1	11.5	11.9	12.4	12.8	13.7	14.6	15.0	15.9	16.8
37.5°	8.8	9.3	9.7	10.2	10.6	11.1	11.5	12.4	12.8	13.7	14.6
40°	7.5	8.0	8.4	8.8	8.8	9.7	9.7	10.6	11.1	11.9	12.8
42.5°	6.2	6.6	7.1	7.5	7.5	8.0	8.4	8.8	9.7	10.2	11.1
45°	4.9	5.3	5.8	6.2	6.6	7.1	7.1	8.0	8.4	8.8	9.7
47.5°	4.4	4.9	5.3	5.3	5.8	6.2	6.2	7.1	7.5	8.0	8.4
50°	3.5	4.0	4.4	4.9	4.9	5.3	5.8	6.2	6.6	7.1	7.1
52.5°	3.1	3.5	4.0	4.0	4.4	4.9	4.9	5.3	5.8	5.8	6.2
55°	3.1	3.5	3.5	4.0	4.0	4.4	4.4	4.9	4.9	5.3	5.3
57.5°	2.7	3.1	3.1	3.5	3.5	4.0	4.0	4.4	4.4	4.4	4.9
60°	2.7	2.7	3.1	3.1	3.5	3.5	3.5	4.0	4.0	4.0	4.4
62.5°	2.2	2.7	2.7	3.1	3.1	3.1	3.5	3.5	3.5	4.0	4.0
65°	2.2	2.7	2.7	3.1	3.1	3.1	3.1	3.1	3.5	3.5	3.5
67.5°	2.2	2.2	2.7	2.7	2.7	2.7	3.1	3.1	3.1	3.1	3.1
70°	2.2	2.2	2.2	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
72.5°	1.8	2.2	2.2	2.2	2.2	2.7	2.7	2.7	2.7	2.7	2.2
75°	1.8	1.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
77.5°	1.8	1.8	1.8	2.2	2.2	2.2	2.2	2.2	2.2	1.8	1.8
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.3
82.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.3	1.3	1.3
85°	1.8	1.3	1.8	1.8	1.8	1.3	1.3	1.3	1.3	1.3	0.9
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.9	0.9
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: P182812

CATALOG NUMBER: LDSQA4A09935D010TE LAR25NF 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	98.2	98.2	98.2	98.2	98.2	98.2	98.2	98.2
2.5°	77.9	77.0	77.4	77.4	76.5	76.1	76.1	76.5
5°	67.2	66.4	66.8	66.8	65.9	65.5	65.5	65.9
7.5°	59.3	58.4	58.8	58.8	57.9	57.9	57.9	57.9
10°	53.1	52.6	52.6	52.6	51.8	52.2	51.8	51.3
12.5°	47.3	47.3	47.3	47.3	46.9	47.3	46.9	46.9
15°	42.9	42.9	43.4	43.4	43.4	43.8	43.8	43.8
17.5°	39.4	39.8	40.3	40.7	40.7	41.1	41.1	41.1
20°	35.8	36.7	37.2	37.6	37.6	38.5	38.0	38.5
22.5°	32.3	33.2	33.6	34.1	34.5	34.9	34.9	35.4
25°	29.2	30.1	30.5	31.0	31.4	32.3	32.3	32.3
27.5°	26.1	27.0	27.4	28.3	28.8	29.6	29.6	29.6
30°	23.0	23.9	24.3	24.8	25.7	26.5	26.5	27.0
32.5°	19.9	21.2	21.7	22.1	23.0	23.9	24.3	24.3
35°	17.7	18.6	19.0	19.9	20.3	21.7	21.7	21.7
37.5°	15.5	16.4	17.3	17.7	18.1	19.0	19.5	19.9
40°	13.7	14.6	15.0	15.5	16.4	17.3	17.7	17.7
42.5°	11.9	12.8	13.3	13.7	14.2	15.0	15.0	15.0
45°	10.6	11.1	11.5	11.9	12.4	12.8	13.3	13.3
47.5°	8.8	9.7	9.7	10.2	10.6	11.5	11.5	11.9
50°	7.5	8.4	8.4	8.8	9.3	9.7	10.2	10.2
52.5°	6.6	7.1	7.5	7.5	8.0	8.4	8.8	8.8
55°	5.8	6.2	6.2	6.6	6.6	7.1	7.5	7.5
57.5°	4.9	5.3	5.8	5.8	5.8	6.2	6.2	6.6
60°	4.4	4.9	4.9	4.9	4.9	5.3	5.3	5.3
62.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
65°	3.5	3.5	3.5	3.5	3.1	3.1	3.1	3.1
67.5°	3.1	3.1	3.1	3.1	2.7	2.7	2.7	2.7
70°	2.7	2.7	2.7	2.7	2.2	2.2	2.2	1.8
72.5°	2.2	2.2	2.2	2.2	2.2	1.8	1.8	1.8
75°	2.2	1.8	1.8	1.8	1.8	1.8	1.3	1.3
77.5°	1.8	1.8	1.8	1.3	1.3	1.3	1.3	1.3
80°	1.3	1.3	1.3	1.3	1.3	0.9	0.9	0.9
82.5°	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
85°	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4
87.5°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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















(END OF REPORT)