

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: P182717

Luminaire Tested: **LDSQA4A09940D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182717  
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: LDSQA4A09940D010TE 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 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1024.4 lumens  
Efficiency: N/A  
Efficacy: 74.0 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

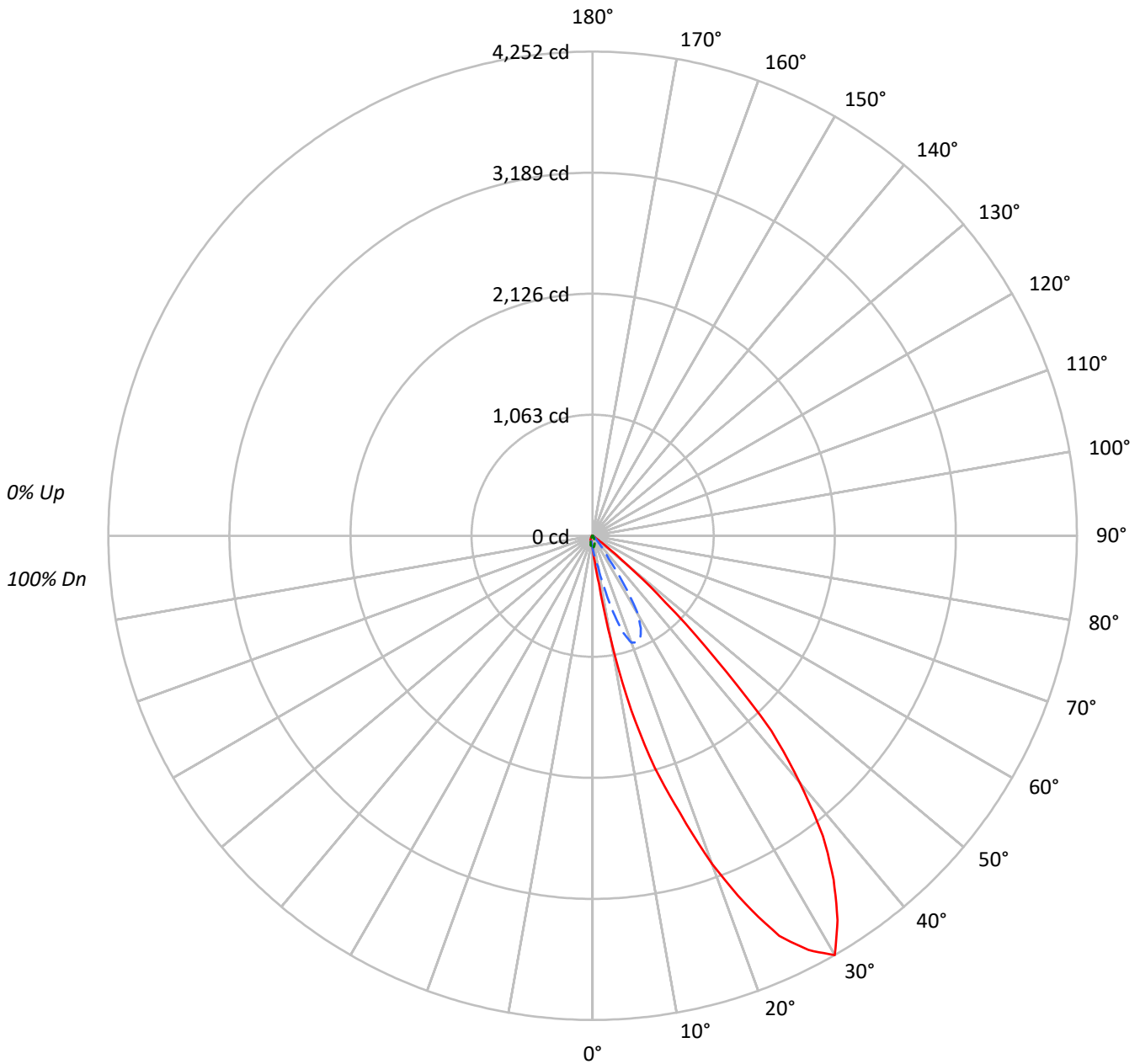
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### 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	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°	10366	10366	10366
5°	22930	9802	6885
10°	91818	8509	5755
15°	211638	6770	5055
20°	315928	4804	4505
25°	414371	3207	4019
30°	475660	2025	3512
35°	436131	1289	3039
40°	357647	847	2580
45°	207340	589	2082
50°	58762	437	1718
55°	5388	405	1453
60°	833	465	1201
65°	229	436	871
70°	283	538	680
75°	374	711	711
80°	0	1060	558
85°	0	2112	556



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	15.2	1.5
10°-20°	136.2	13.3
20°-30°	331.9	32.4
30°-40°	359.7	35.1
40°-50°	163.0	15.9
50°-60°	12.6	1.2
60°-70°	2.6	0.3
70°-80°	1.9	0.2
80°-90°	1.2	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°	483.3	47.2
0°-40°	843.0	82.3
0°-60°	1018.6	99.4
0°-90°	1024.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1024.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	107	107	107	107	107	
5°	236	174	101	76	71	42
15°	2110	690	68	49	50	613
25°	3877	991	30	30	38	1767
35°	3688	252	11	17	26	2268
45°	1513	32	4	10	15	1195
55°	32	4	2	6	9	73
65°	1	1	2	4	4	2
75°	1	1	2	3	2	1
85°	0	1	2	1	0	0
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0
2.5°	160.2	157.4	158.8	155.0	152.6	150.7	151.7	150.7	144.5	143.1	138.4
5°	235.8	231.6	231.6	223.5	214.9	209.7	209.7	203.5	190.2	184.0	174.0
7.5°	422.7	414.1	407.0	381.8	349.0	330.5	325.7	299.6	265.8	244.4	219.2
10°	933.4	897.7	872.5	806.9	718.9	664.2	640.9	550.6	443.1	362.3	289.1
12.5°	1569.6	1521.1	1476.8	1369.4	1242.9	1156.8	1110.7	977.6	768.8	619.5	463.6
15°	2110.2	2057.9	2005.6	1874.8	1741.2	1666.6	1581.9	1405.5	1129.7	917.7	690.4
17.5°	2553.8	2524.3	2470.6	2279.0	2110.7	1994.2	1906.2	1675.6	1391.7	1149.7	892.5
20°	3064.5	2991.7	2895.7	2663.2	2433.0	2287.1	2163.4	1882.4	1554.3	1276.2	999.5
22.5°	3494.3	3442.5	3304.6	2997.9	2659.4	2534.8	2383.6	2045.5	1658.9	1329.9	1011.8
25°	3876.6	3795.3	3622.2	3257.5	2910.9	2698.8	2513.4	2133.9	1697.5	1333.7	991.4
27.5°	4100.5	3994.5	3791.0	3393.5	2997.9	2763.5	2558.1	2149.2	1673.2	1283.3	916.7
30°	4252.2	4041.1	3816.2	3394.9	2970.3	2730.7	2517.7	2072.6	1572.4	1168.3	791.2
32.5°	4002.1	3879.9	3665.0	3259.9	2820.1	2586.1	2374.5	1906.7	1415.0	997.6	550.6
35°	3687.8	3588.9	3402.1	2999.8	2594.7	2374.1	2149.6	1693.7	1210.1	685.6	252.0
37.5°	3322.6	3245.1	3044.0	2676.5	2319.9	2104.0	1879.1	1443.6	852.1	340.0	153.1
40°	2828.1	2762.5	2597.5	2302.3	1973.7	1768.3	1561.0	1079.8	462.6	189.7	99.9
42.5°	2324.6	2269.5	2119.2	1863.9	1575.3	1406.0	1223.4	658.1	230.1	119.3	55.6
45°	1513.4	1444.5	1363.7	1246.7	1104.1	999.9	784.5	317.6	136.5	66.6	31.9
47.5°	867.7	822.1	689.4	543.9	441.7	403.2	293.4	147.9	75.1	38.5	19.5
50°	389.9	360.4	302.4	246.3	178.3	139.3	118.4	74.2	37.1	20.9	13.3
52.5°	96.0	97.9	92.7	81.3	72.3	61.3	53.3	34.7	19.5	12.8	8.6
55°	31.9	32.3	29.5	28.1	25.7	23.8	21.9	15.7	11.9	11.4	4.3
57.5°	11.4	11.4	11.9	10.9	10.5	10.0	9.5	8.1	7.1	4.3	2.4
60°	4.3	4.3	4.3	4.8	4.8	4.8	5.2	4.8	3.3	2.4	1.9
62.5°	1.9	1.9	1.9	1.9	2.4	2.4	2.9	2.4	1.9	1.9	1.4
65°	1.0	1.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
67.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4	1.4
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4	1.4
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4	1.4
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4
77.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.4
80°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.4
82.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.4
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.0	1.4
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.0	1.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0
2.5°	133.6	130.8	125.1	120.8	117.4	117.0	114.1	109.4	107.5	104.1	101.3
5°	164.5	157.4	148.3	139.8	133.6	130.3	120.3	111.3	106.0	100.8	96.0
7.5°	197.8	181.6	165.9	152.2	143.6	138.4	126.5	111.7	102.2	94.6	88.4
10°	239.6	206.4	179.3	157.9	146.4	139.3	125.1	107.5	95.6	86.5	80.4
12.5°	335.2	244.4	191.6	160.7	146.4	136.5	119.3	101.8	88.4	77.5	70.8
15°	498.8	341.4	227.3	162.1	141.7	130.3	110.8	92.2	78.9	67.5	61.3
17.5°	652.8	449.3	283.9	172.1	138.8	121.2	99.4	81.3	67.5	56.6	51.4
20°	732.7	503.1	315.2	179.7	134.1	109.8	86.1	69.4	56.1	46.6	42.3
22.5°	734.6	498.3	300.0	162.1	116.5	94.1	73.7	57.1	45.6	37.6	34.2
25°	689.4	440.8	246.8	126.5	94.1	78.9	61.3	46.6	35.7	30.0	27.6
27.5°	604.3	356.6	182.1	91.3	73.7	62.8	48.0	35.7	27.1	23.3	21.9
30°	467.4	220.6	100.8	67.5	55.6	47.1	34.7	23.8	20.4	18.1	17.1
32.5°	232.0	107.9	71.3	48.0	38.0	30.0	21.9	17.6	15.7	14.3	13.8
35°	126.0	77.5	44.7	29.0	22.8	19.0	14.7	12.4	11.4	10.9	10.9
37.5°	88.0	46.1	27.1	17.6	14.3	12.8	10.5	9.0	8.6	8.6	8.6
40°	48.5	27.6	16.6	11.4	9.5	8.6	7.1	6.7	6.7	6.7	7.1
42.5°	28.1	17.1	11.4	8.1	6.7	6.2	5.2	4.8	5.2	5.2	5.7
45°	18.1	12.8	7.6	5.7	4.8	4.3	3.8	3.8	4.3	4.3	4.8
47.5°	12.8	9.0	5.2	3.8	2.9	2.9	2.9	2.9	3.3	3.8	4.3
50°	7.6	4.8	2.9	2.4	1.9	1.9	1.9	2.4	2.9	2.9	3.3
52.5°	4.3	2.9	1.9	1.9	1.4	1.4	1.9	1.9	2.4	2.9	3.3
55°	2.4	1.9	1.4	1.4	1.4	1.4	1.4	1.9	1.9	2.4	2.9
57.5°	1.9	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	2.4	2.4
60°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	2.4	2.4
62.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	1.9	1.9	2.4
65°	1.4	1.4	1.4	1.9	1.4	1.9	1.9	1.9	1.9	1.9	2.4
67.5°	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4
70°	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4
72.5°	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4
75°	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
77.5°	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
80°	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
82.5°	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
85°	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
87.5°	1.4	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0
2.5°	100.3	97.0	94.6	93.7	91.8	92.2	90.8	89.9	87.0	87.0	85.1
5°	92.7	88.4	85.6	84.2	82.3	81.8	80.4	78.9	76.1	75.6	74.2
7.5°	84.6	80.4	77.0	75.6	73.7	73.2	71.3	70.4	68.0	67.5	66.1
10°	76.1	71.3	68.5	67.0	65.1	65.1	63.7	62.8	60.9	60.9	59.9
12.5°	67.0	62.8	60.9	59.0	58.0	58.0	57.1	56.1	54.7	55.2	54.7
15°	57.5	54.2	52.3	51.4	50.9	50.9	50.4	49.9	49.0	49.9	49.0
17.5°	48.5	46.1	44.7	44.2	43.7	43.7	43.7	44.2	43.7	44.7	44.7
20°	39.9	38.0	37.1	37.1	36.6	37.6	37.6	38.5	38.5	39.9	40.4
22.5°	32.8	31.4	30.9	30.9	30.9	31.9	32.3	33.3	33.8	35.2	36.1
25°	26.2	25.7	25.7	25.7	26.2	27.1	28.1	29.0	29.5	31.4	31.9
27.5°	21.4	20.9	21.4	21.4	21.9	23.3	24.2	25.2	26.2	27.6	28.5
30°	17.1	17.1	17.6	18.1	18.5	19.5	20.9	21.9	22.8	24.2	25.2
32.5°	13.8	14.3	14.7	15.2	15.2	16.6	17.6	19.0	19.5	20.9	21.9
35°	11.4	11.9	12.4	12.8	12.8	14.3	15.2	16.2	17.1	18.1	19.0
37.5°	9.0	9.5	10.5	10.9	10.9	12.4	12.8	13.8	14.7	15.7	16.6
40°	7.6	8.1	9.0	9.0	9.5	10.5	10.9	11.9	12.8	13.8	14.7
42.5°	6.2	6.7	7.6	8.1	8.1	9.0	9.5	10.5	10.9	11.9	12.4
45°	5.7	5.7	6.7	6.7	7.1	7.6	8.6	9.0	9.5	10.5	10.9
47.5°	4.8	5.2	5.7	6.2	6.2	6.7	7.1	7.6	8.1	9.0	9.5
50°	3.8	4.3	5.2	5.2	5.2	6.2	6.7	7.1	7.1	7.6	8.1
52.5°	3.8	3.8	4.3	4.8	4.8	5.2	5.7	6.2	6.2	6.7	7.1
55°	3.3	3.3	3.8	4.3	4.3	4.8	5.2	5.2	5.7	5.7	6.2
57.5°	2.9	3.3	3.8	3.8	3.8	4.3	4.8	4.8	5.2	5.2	5.7
60°	2.9	3.3	3.3	3.8	3.8	4.3	4.3	4.3	4.8	4.8	4.8
62.5°	2.9	2.9	3.3	3.3	3.3	3.8	3.8	4.3	4.3	4.3	4.3
65°	2.9	2.9	3.3	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
67.5°	2.4	2.9	2.9	2.9	3.3	3.3	3.3	3.3	3.3	3.3	3.3
70°	2.4	2.4	2.9	2.9	2.9	3.3	3.3	3.3	3.3	3.3	3.3
72.5°	2.4	2.4	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
75°	2.4	2.4	2.4	2.4	2.4	2.9	2.9	2.9	2.9	2.4	2.4
77.5°	1.9	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.9
80°	1.9	1.9	2.4	1.9	2.4	2.4	2.4	2.4	1.9	1.9	1.9
82.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4
85°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.4	1.0
87.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.4	1.0	1.0
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: P182717

CATALOG NUMBER: LDSQA4A09940D010TE LAR25NF 4LSQA1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0
2.5°	84.2	85.1	84.2	85.1	82.7	83.7	84.6	82.3
5°	73.2	72.3	72.7	73.7	71.8	72.3	72.7	70.8
7.5°	65.6	66.1	65.1	66.1	64.7	65.1	65.6	64.2
10°	59.4	59.9	59.4	59.9	58.5	59.4	59.9	58.5
12.5°	53.7	54.7	54.2	55.2	53.7	54.7	55.6	53.7
15°	49.4	50.4	49.9	50.9	49.9	50.9	51.8	50.4
17.5°	45.2	46.1	46.1	47.1	46.6	47.5	48.5	47.1
20°	40.9	42.3	42.3	43.3	43.3	43.7	45.2	43.7
22.5°	37.1	38.5	38.5	39.5	39.5	40.4	41.4	40.4
25°	32.8	34.7	35.2	36.1	36.1	37.1	38.5	37.6
27.5°	30.0	31.4	31.9	32.8	33.3	34.2	35.2	34.2
30°	26.2	28.1	28.5	29.5	30.0	31.4	31.9	31.4
32.5°	23.3	24.7	25.2	26.2	27.1	28.1	29.0	28.5
35°	20.4	21.9	22.3	23.3	23.8	25.2	26.2	25.7
37.5°	18.1	19.5	20.0	20.4	20.9	22.3	23.3	22.8
40°	15.7	16.6	17.1	18.1	18.5	19.5	20.4	20.4
42.5°	13.8	14.7	15.2	15.7	16.2	17.1	18.1	17.6
45°	11.9	12.8	13.3	13.8	14.3	14.7	15.7	15.2
47.5°	10.0	10.9	11.4	11.9	12.4	12.8	13.8	13.3
50°	8.6	9.5	9.5	10.0	10.5	10.9	11.9	11.4
52.5°	7.6	8.1	8.6	8.6	9.0	9.5	10.5	10.0
55°	6.7	7.1	7.1	7.6	7.6	8.1	8.6	8.6
57.5°	5.7	6.2	6.2	6.7	6.7	7.1	7.6	7.6
60°	5.2	5.2	5.7	5.7	5.7	6.2	6.2	6.2
62.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
65°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
67.5°	3.3	3.3	3.3	3.3	3.3	2.9	2.9	2.9
70°	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4
72.5°	2.9	2.9	2.4	2.4	2.4	2.4	2.4	1.9
75°	2.4	2.4	2.4	2.4	1.9	1.9	1.9	1.9
77.5°	1.9	1.9	1.9	1.9	1.4	1.4	1.4	1.4
80°	1.9	1.4	1.4	1.4	1.4	1.4	1.4	1.0
82.5°	1.4	1.4	1.4	1.0	1.0	1.0	1.0	1.0
85°	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5
87.5°	1.0	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



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















(END OF REPORT)