

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: P182732

Luminaire Tested: **LDSQA4A28935D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182732
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: LDSQA4A28935D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2397.5 lumens
Efficiency: N/A
Efficacy: 53.9 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

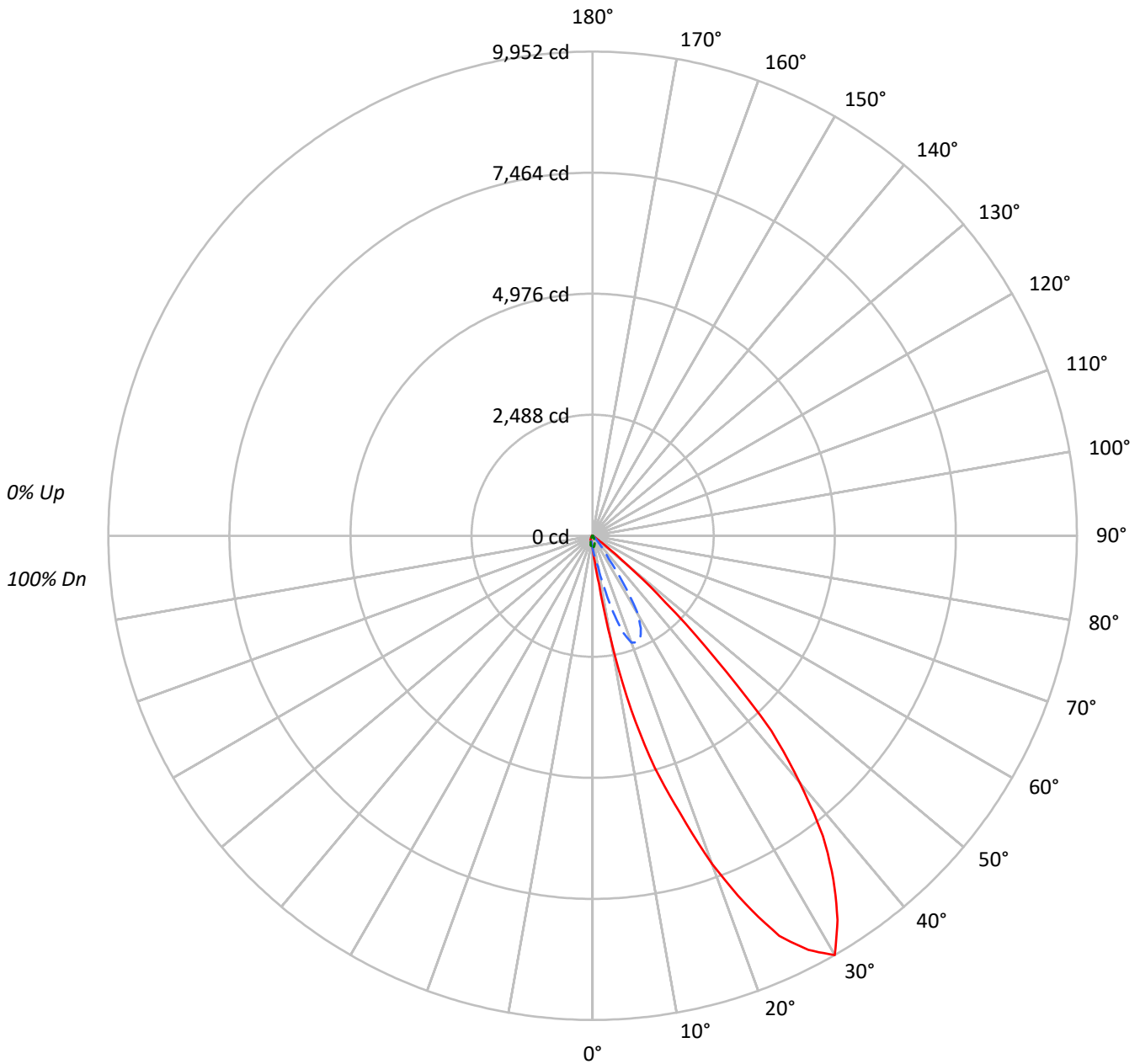
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	24258	24258	24258
5°	53680	22940	16123
10°	214889	19920	13467
15°	495316	15846	11835
20°	739401	11247	10557
25°	969804	7493	9396
30°	1113252	4732	8211
35°	1020740	3028	7108
40°	837064	1973	6058
45°	485277	1370	4877
50°	137524	1010	4024
55°	12600	946	3378
60°	1938	1085	2809
65°	504	1032	2040
70°	623	1275	1586
75°	823	1684	1684
80°	0	2510	1227
85°	0	5002	1223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.6	1.5
10°-20°	318.8	13.3
20°-30°	776.8	32.4
30°-40°	841.9	35.1
40°-50°	381.5	15.9
50°-60°	29.5	1.2
60°-70°	6.1	0.3
70°-80°	4.5	0.2
80°-90°	2.8	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°	1131.2	47.2
0°-40°	1973.1	82.3
0°-60°	2384.0	99.4
0°-90°	2397.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2397.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	250	250	250	250	250	
5°	552	407	236	178	166	99
15°	4939	1616	158	115	118	1435
25°	9073	2320	70	69	88	4136
35°	8631	590	26	40	60	5309
45°	3542	75	10	22	36	2796
55°	75	10	6	13	20	171
65°	2	3	4	9	9	4
75°	2	3	4	7	4	1
85°	0	3	4	3	1	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°	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4
2.5°	375.0	368.3	371.7	362.8	357.2	352.8	355.0	352.8	338.3	335.0	323.8
5°	552.0	541.9	541.9	523.0	503.0	490.8	490.8	476.3	445.1	430.7	407.3
7.5°	989.3	969.3	952.6	893.6	816.8	773.4	762.3	701.1	622.1	572.0	513.0
10°	2184.5	2101.0	2042.0	1888.5	1682.6	1554.6	1500.1	1288.7	1037.2	848.0	676.6
12.5°	3673.4	3559.9	3456.4	3204.9	2908.9	2707.5	2599.6	2288.0	1799.4	1450.0	1085.0
15°	4938.7	4816.3	4693.9	4387.9	4075.2	3900.5	3702.4	3289.5	2644.1	2147.8	1615.8
17.5°	5977.0	5908.0	5782.2	5333.8	4939.8	4667.2	4461.3	3921.6	3257.2	2690.8	2088.8
20°	7172.2	7001.9	6777.1	6232.9	5694.3	5352.7	5063.4	4405.7	3637.8	2986.8	2339.2
22.5°	8178.2	8056.9	7734.1	7016.4	6224.0	5932.5	5578.6	4787.4	3882.7	3112.6	2368.1
25°	9072.9	8882.6	8477.5	7624.0	6812.7	6316.4	5882.4	4994.4	3972.8	3121.5	2320.2
27.5°	9597.0	9348.9	8872.6	7942.2	7016.4	6467.8	5987.0	5030.0	3916.0	3003.5	2145.5
30°	9952.0	9457.9	8931.5	7945.6	6951.8	6391.0	5892.4	4850.8	3680.1	2734.2	1851.7
32.5°	9366.7	9080.7	8577.7	7629.5	6600.2	6052.7	5557.5	4462.4	3311.8	2334.7	1288.7
35°	8631.1	8399.6	7962.3	7020.8	6072.7	5556.3	5031.1	3963.9	2832.1	1604.7	589.8
37.5°	7776.4	7595.0	7124.3	6264.1	5429.5	4924.3	4397.9	3378.5	1994.2	795.7	358.3
40°	6619.1	6465.5	6079.4	5388.3	4619.3	4138.6	3653.4	2527.2	1082.8	444.0	233.7
42.5°	5440.6	5311.5	4959.9	4362.3	3686.8	3290.6	2863.3	1540.2	538.6	279.3	130.2
45°	3542.1	3380.8	3191.6	2917.8	2584.0	2340.3	1836.2	743.4	319.4	155.8	74.6
47.5°	2030.9	1924.1	1613.6	1273.1	1033.8	943.7	686.6	346.1	175.8	90.1	45.6
50°	912.5	843.5	707.8	576.4	417.3	326.1	277.1	173.6	86.8	49.0	31.2
52.5°	224.8	229.2	217.0	190.3	169.1	143.6	124.6	81.2	45.6	30.0	20.0
55°	74.6	75.7	69.0	65.7	60.1	55.6	51.2	36.7	27.8	26.7	10.0
57.5°	26.7	26.7	27.8	25.6	24.5	23.4	22.3	18.9	16.7	10.0	5.6
60°	10.0	10.0	10.0	11.1	11.1	11.1	12.2	11.1	7.8	5.6	4.5
62.5°	4.5	4.5	4.5	4.5	5.6	5.6	6.7	5.6	4.5	4.5	3.3
65°	2.2	2.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
67.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3	3.3
70°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3	3.3
72.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3	3.3
75°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3
77.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2	3.3
80°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2	3.3
82.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2	3.3
85°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	3.3
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4
2.5°	312.7	306.0	292.7	282.7	274.9	273.8	267.1	256.0	251.5	243.7	237.0
5°	385.0	368.3	347.2	327.2	312.7	304.9	281.5	260.4	248.2	235.9	224.8
7.5°	462.9	425.1	388.4	356.1	336.1	323.8	296.0	261.5	239.3	221.5	207.0
10°	560.9	483.0	419.5	369.5	342.8	326.1	292.7	251.5	223.7	202.5	188.1
12.5°	784.5	572.0	448.5	376.1	342.8	319.4	279.3	238.1	207.0	181.4	165.8
15°	1167.4	799.0	531.9	379.5	331.6	304.9	259.3	215.9	184.7	158.0	143.6
17.5°	1527.9	1051.6	664.4	402.8	324.9	283.8	232.6	190.3	158.0	132.4	120.2
20°	1714.9	1177.4	737.8	420.6	313.8	257.1	201.4	162.5	131.3	109.1	99.0
22.5°	1719.3	1166.2	702.2	379.5	272.6	220.3	172.5	133.5	106.8	87.9	80.1
25°	1613.6	1031.6	577.6	296.0	220.3	184.7	143.6	109.1	83.5	70.1	64.5
27.5°	1414.4	834.6	426.2	213.7	172.5	146.9	112.4	83.5	63.4	54.5	51.2
30°	1093.9	516.4	235.9	158.0	130.2	110.2	81.2	55.6	47.9	42.3	40.1
32.5°	543.1	252.6	166.9	112.4	89.0	70.1	51.2	41.2	36.7	33.4	32.3
35°	294.9	181.4	104.6	67.9	53.4	44.5	34.5	28.9	26.7	25.6	25.6
37.5°	205.9	107.9	63.4	41.2	33.4	30.0	24.5	21.1	20.0	20.0	20.0
40°	113.5	64.5	38.9	26.7	22.3	20.0	16.7	15.6	15.6	15.6	16.7
42.5°	65.7	40.1	26.7	18.9	15.6	14.5	12.2	11.1	12.2	12.2	13.4
45°	42.3	30.0	17.8	13.4	11.1	10.0	8.9	8.9	10.0	10.0	11.1
47.5°	30.0	21.1	12.2	8.9	6.7	6.7	6.7	6.7	7.8	8.9	10.0
50°	17.8	11.1	6.7	5.6	4.5	4.5	4.5	5.6	6.7	6.7	7.8
52.5°	10.0	6.7	4.5	4.5	3.3	3.3	4.5	4.5	5.6	6.7	7.8
55°	5.6	4.5	3.3	3.3	3.3	3.3	3.3	4.5	4.5	5.6	6.7
57.5°	4.5	3.3	3.3	3.3	3.3	3.3	3.3	4.5	4.5	5.6	5.6
60°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	4.5	4.5	5.6	5.6
62.5°	3.3	3.3	3.3	3.3	3.3	3.3	4.5	4.5	4.5	4.5	5.6
65°	3.3	3.3	3.3	4.5	3.3	4.5	4.5	4.5	4.5	4.5	5.6
67.5°	3.3	3.3	3.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.6
70°	3.3	3.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.6
72.5°	3.3	3.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.6
75°	3.3	3.3	3.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
77.5°	3.3	3.3	3.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
80°	3.3	3.3	3.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
82.5°	3.3	3.3	3.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
85°	3.3	3.3	3.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
87.5°	3.3	3.3	3.3	3.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5
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°	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4
2.5°	234.8	227.0	221.5	219.2	214.8	215.9	212.5	210.3	203.6	203.6	199.2
5°	217.0	207.0	200.3	197.0	192.5	191.4	188.1	184.7	178.1	176.9	173.6
7.5°	198.1	188.1	180.3	176.9	172.5	171.4	166.9	164.7	159.1	158.0	154.7
10°	178.1	166.9	160.2	156.9	152.5	152.5	149.1	146.9	142.4	142.4	140.2
12.5°	156.9	146.9	142.4	138.0	135.8	135.8	133.5	131.3	128.0	129.1	128.0
15°	134.7	126.9	122.4	120.2	119.1	119.1	118.0	116.8	114.6	116.8	114.6
17.5°	113.5	107.9	104.6	103.5	102.4	102.4	102.4	103.5	102.4	104.6	104.6
20°	93.5	89.0	86.8	86.8	85.7	87.9	87.9	90.1	90.1	93.5	94.6
22.5°	76.8	73.4	72.3	72.3	72.3	74.6	75.7	77.9	79.0	82.3	84.6
25°	61.2	60.1	60.1	60.1	61.2	63.4	65.7	67.9	69.0	73.4	74.6
27.5°	50.1	49.0	50.1	50.1	51.2	54.5	56.8	59.0	61.2	64.5	66.8
30°	40.1	40.1	41.2	42.3	43.4	45.6	49.0	51.2	53.4	56.8	59.0
32.5°	32.3	33.4	34.5	35.6	35.6	38.9	41.2	44.5	45.6	49.0	51.2
35°	26.7	27.8	28.9	30.0	30.0	33.4	35.6	37.8	40.1	42.3	44.5
37.5°	21.1	22.3	24.5	25.6	25.6	28.9	30.0	32.3	34.5	36.7	38.9
40°	17.8	18.9	21.1	21.1	22.3	24.5	25.6	27.8	30.0	32.3	34.5
42.5°	14.5	15.6	17.8	18.9	18.9	21.1	22.3	24.5	25.6	27.8	28.9
45°	13.4	13.4	15.6	15.6	16.7	17.8	20.0	21.1	22.3	24.5	25.6
47.5°	11.1	12.2	13.4	14.5	14.5	15.6	16.7	17.8	18.9	21.1	22.3
50°	8.9	10.0	12.2	12.2	12.2	14.5	15.6	16.7	16.7	17.8	18.9
52.5°	8.9	8.9	10.0	11.1	11.1	12.2	13.4	14.5	14.5	15.6	16.7
55°	7.8	7.8	8.9	10.0	10.0	11.1	12.2	12.2	13.4	13.4	14.5
57.5°	6.7	7.8	8.9	8.9	8.9	10.0	11.1	11.1	12.2	12.2	13.4
60°	6.7	7.8	7.8	8.9	8.9	10.0	10.0	10.0	11.1	11.1	11.1
62.5°	6.7	6.7	7.8	7.8	7.8	8.9	8.9	10.0	10.0	10.0	10.0
65°	6.7	6.7	7.8	7.8	7.8	8.9	8.9	8.9	8.9	8.9	8.9
67.5°	5.6	6.7	6.7	6.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8
70°	5.6	5.6	6.7	6.7	6.7	7.8	7.8	7.8	7.8	7.8	7.8
72.5°	5.6	5.6	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
75°	5.6	5.6	5.6	5.6	5.6	6.7	6.7	6.7	6.7	5.6	5.6
77.5°	4.5	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	4.5
80°	4.5	4.5	5.6	4.5	5.6	5.6	5.6	5.6	4.5	4.5	4.5
82.5°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.3	3.3
85°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.3	3.3	3.3	2.2
87.5°	4.5	4.5	4.5	4.5	4.5	4.5	3.3	3.3	3.3	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: P182732

CATALOG NUMBER: LDSQA4A28935D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	250.4	250.4	250.4	250.4	250.4	250.4	250.4	250.4
2.5°	197.0	199.2	197.0	199.2	193.6	195.9	198.1	192.5
5°	171.4	169.1	170.3	172.5	168.0	169.1	170.3	165.8
7.5°	153.6	154.7	152.5	154.7	151.3	152.5	153.6	150.2
10°	139.1	140.2	139.1	140.2	136.9	139.1	140.2	136.9
12.5°	125.7	128.0	126.9	129.1	125.7	128.0	130.2	125.7
15°	115.7	118.0	116.8	119.1	116.8	119.1	121.3	118.0
17.5°	105.7	107.9	107.9	110.2	109.1	111.3	113.5	110.2
20°	95.7	99.0	99.0	101.3	101.3	102.4	105.7	102.4
22.5°	86.8	90.1	90.1	92.4	92.4	94.6	96.8	94.6
25°	76.8	81.2	82.3	84.6	84.6	86.8	90.1	87.9
27.5°	70.1	73.4	74.6	76.8	77.9	80.1	82.3	80.1
30°	61.2	65.7	66.8	69.0	70.1	73.4	74.6	73.4
32.5°	54.5	57.9	59.0	61.2	63.4	65.7	67.9	66.8
35°	47.9	51.2	52.3	54.5	55.6	59.0	61.2	60.1
37.5°	42.3	45.6	46.7	47.9	49.0	52.3	54.5	53.4
40°	36.7	38.9	40.1	42.3	43.4	45.6	47.9	47.9
42.5°	32.3	34.5	35.6	36.7	37.8	40.1	42.3	41.2
45°	27.8	30.0	31.2	32.3	33.4	34.5	36.7	35.6
47.5°	23.4	25.6	26.7	27.8	28.9	30.0	32.3	31.2
50°	20.0	22.3	22.3	23.4	24.5	25.6	27.8	26.7
52.5°	17.8	18.9	20.0	20.0	21.1	22.3	24.5	23.4
55°	15.6	16.7	16.7	17.8	17.8	18.9	20.0	20.0
57.5°	13.4	14.5	14.5	15.6	15.6	16.7	17.8	17.8
60°	12.2	12.2	13.4	13.4	13.4	14.5	14.5	14.5
62.5°	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
65°	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
67.5°	7.8	7.8	7.8	7.8	7.8	6.7	6.7	6.7
70°	6.7	6.7	6.7	6.7	6.7	5.6	5.6	5.6
72.5°	6.7	6.7	5.6	5.6	5.6	5.6	5.6	4.5
75°	5.6	5.6	5.6	5.6	4.5	4.5	4.5	4.5
77.5°	4.5	4.5	4.5	4.5	3.3	3.3	3.3	3.3
80°	4.5	3.3	3.3	3.3	3.3	3.3	3.3	2.2
82.5°	3.3	3.3	3.3	2.2	2.2	2.2	2.2	2.2
85°	2.2	2.2	2.2	2.2	1.1	1.1	1.1	1.1
87.5°	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)