

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: P182817

Luminaire Tested: **LDSQA4A13840D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182817
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: LDSQA4A13840D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1676.8 lumens
Efficiency: N/A
Efficacy: 75.3 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

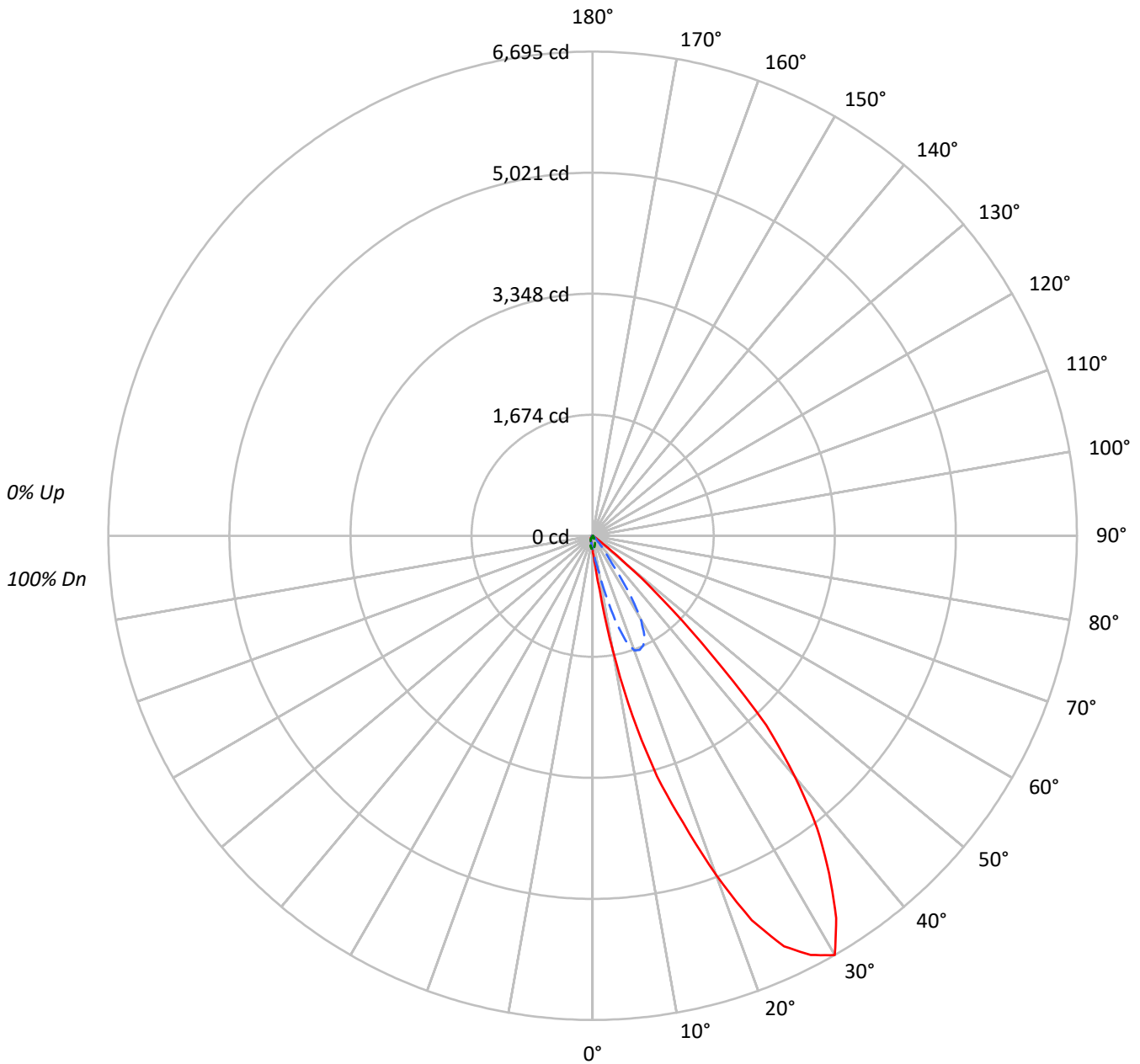
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	18106	18106	18106
5°	40522	17028	12195
10°	158926	14903	9611
15°	344997	12075	8354
20°	514670	8938	7546
25°	669421	6296	6574
30°	748872	4240	5750
35°	673946	2484	4884
40°	549995	1707	4262
45°	315805	1151	3466
50°	92371	889	2924
55°	10657	709	2415
60°	2286	814	1957
65°	779	779	1352
70°	708	963	963
75°	636	1273	936
80°	0	1897	948
85°	0	3779	889



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	26.8	1.6
10°-20°	229.5	13.7
20°-30°	547.6	32.7
30°-40°	577.9	34.5
40°-50°	262.1	15.6
50°-60°	23.0	1.4
60°-70°	4.8	0.3
70°-80°	3.2	0.2
80°-90°	2.0	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°	803.9	47.9
0°-40°	1381.8	82.4
0°-60°	1666.8	99.4
0°-90°	1676.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1676.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	187	187	187	187	187	
5°	417	306	175	135	125	75
15°	3440	1210	120	82	83	1001
25°	6263	1665	59	50	62	2845
35°	5699	460	21	29	41	3519
45°	2305	65	8	16	25	1827
55°	63	10	4	9	14	126
65°	3	3	3	7	6	4
75°	2	2	3	4	2	1
85°	0	2	3	2	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°	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9
2.5°	277.8	279.5	271.9	272.8	265.2	268.6	266.0	259.3	254.2	245.8	242.5
5°	416.7	419.3	402.4	397.4	379.7	379.7	372.1	354.4	338.4	319.1	305.6
7.5°	761.9	772.0	721.5	683.6	628.0	614.6	588.5	527.9	478.2	427.7	389.8
10°	1615.6	1597.0	1492.6	1406.8	1263.7	1210.6	1139.9	965.6	805.7	646.6	522.0
12.5°	2547.5	2607.3	2406.1	2336.2	2109.7	2061.8	1911.1	1626.5	1356.3	1075.1	825.9
15°	3439.9	3457.6	3281.6	3168.0	2891.9	2829.6	2644.3	2310.1	1946.4	1554.1	1209.8
17.5°	4156.4	4227.1	3968.6	3846.5	3487.9	3387.7	3169.7	2763.0	2358.1	1929.6	1521.3
20°	4992.3	5010.9	4704.4	4469.5	4000.6	3848.2	3587.2	3083.0	2600.6	2111.4	1689.6
22.5°	5752.6	5748.3	5354.3	5022.6	4429.1	4247.3	3924.8	3327.1	2766.4	2192.2	1705.6
25°	6262.7	6276.2	5854.4	5462.1	4733.9	4488.1	4124.4	3454.2	2822.8	2189.7	1665.2
27.5°	6534.7	6521.2	6069.1	5649.8	4845.8	4570.6	4175.7	3458.4	2771.5	2103.9	1544.0
30°	6694.6	6514.5	6032.1	5596.8	4770.1	4487.2	4085.6	3325.4	2600.6	1911.9	1327.6
32.5°	6266.9	6197.1	5777.0	5314.8	4509.1	4228.8	3832.2	3042.5	2329.5	1618.1	951.3
35°	5698.7	5701.2	5291.2	4859.3	4099.9	3855.8	3446.6	2698.2	1998.6	1124.7	459.7
37.5°	5102.6	5111.0	4721.3	4319.7	3643.6	3386.9	3003.8	2305.9	1437.9	572.5	277.0
40°	4349.1	4366.8	4030.9	3708.5	3084.6	2837.1	2495.3	1745.2	804.0	319.9	187.7
42.5°	3553.6	3575.5	3277.4	2991.2	2460.8	2257.1	1954.0	1081.0	399.1	207.1	110.3
45°	2305.1	2368.2	2146.8	2026.4	1719.1	1597.9	1275.4	551.4	240.8	121.2	64.8
47.5°	1319.2	1320.1	1133.2	907.5	744.2	647.4	506.0	250.9	140.6	68.2	39.6
50°	612.9	628.0	497.5	414.2	296.3	250.9	206.3	135.5	74.1	39.6	24.4
52.5°	178.5	188.6	170.9	154.9	131.3	117.0	100.2	66.5	38.7	23.6	15.2
55°	63.1	67.4	63.1	58.9	53.0	48.0	42.9	32.0	21.9	14.3	10.1
57.5°	26.1	26.9	26.1	25.3	23.6	23.6	21.0	17.7	13.5	9.3	6.7
60°	11.8	12.6	11.8	12.6	11.8	11.8	11.8	12.6	8.4	5.9	5.1
62.5°	5.1	5.9	5.9	5.9	5.9	6.7	6.7	5.9	5.1	4.2	3.4
65°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
67.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
70°	2.5	2.5	2.5	2.5	2.5	2.5	1.7	1.7	2.5	2.5	2.5
72.5°	2.5	2.5	2.5	2.5	1.7	1.7	1.7	1.7	1.7	2.5	2.5
75°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.7	1.7	1.7
80°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	1.7	1.7
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.7	1.7	1.7
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	1.7	1.7
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	1.7	1.7
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°	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9
2.5°	238.3	230.7	218.9	211.3	207.9	202.9	199.5	191.1	187.7	181.0	178.5
5°	293.0	277.8	260.1	245.8	236.6	226.5	211.3	194.5	186.1	175.1	169.2
7.5°	355.3	322.4	291.3	266.0	254.2	240.8	221.4	195.3	179.3	165.0	156.6
10°	434.4	367.1	318.2	277.8	260.1	242.5	218.9	188.6	168.4	151.5	142.3
12.5°	619.6	442.8	342.6	284.6	261.8	239.9	210.5	179.3	155.7	136.4	126.3
15°	891.5	618.8	408.3	290.4	255.9	229.0	195.3	164.2	139.8	120.4	110.3
17.5°	1132.3	788.8	499.2	312.3	254.2	216.4	176.8	144.8	121.2	102.7	94.3
20°	1263.7	878.1	559.8	325.8	246.7	197.0	155.7	125.4	102.7	86.7	79.1
22.5°	1266.2	873.0	538.0	296.3	217.2	170.9	134.7	106.1	85.9	71.6	65.7
25°	1190.4	778.7	448.7	233.2	177.6	144.8	112.8	88.4	69.9	58.9	53.9
27.5°	1049.0	633.1	330.0	168.4	138.9	117.0	90.9	70.7	54.7	48.0	43.8
30°	825.0	412.5	192.8	125.4	107.8	90.1	69.0	49.7	42.9	37.9	34.5
32.5°	442.8	200.4	134.7	92.6	76.6	63.1	45.5	36.2	31.1	27.8	26.9
35°	231.5	146.5	90.1	58.9	48.8	41.3	31.1	25.3	22.7	21.0	21.0
37.5°	165.8	91.8	57.2	37.9	32.0	26.1	21.9	18.5	16.8	16.8	16.8
40°	98.5	56.4	34.5	24.4	21.0	18.5	16.0	13.5	13.5	13.5	13.5
42.5°	59.8	35.4	24.4	16.8	15.2	13.5	11.8	10.9	10.1	10.1	10.9
45°	37.0	24.4	16.0	12.6	11.8	10.1	9.3	8.4	8.4	8.4	9.3
47.5°	23.6	17.7	11.8	8.4	7.6	6.7	5.9	5.9	6.7	6.7	7.6
50°	17.7	10.9	7.6	5.9	5.1	5.1	4.2	5.1	5.1	5.9	6.7
52.5°	10.1	6.7	5.1	4.2	4.2	3.4	3.4	4.2	4.2	5.1	5.9
55°	6.7	5.1	4.2	3.4	3.4	3.4	3.4	3.4	4.2	4.2	5.1
57.5°	5.1	4.2	3.4	3.4	3.4	2.5	3.4	3.4	3.4	4.2	5.1
60°	4.2	3.4	3.4	3.4	3.4	2.5	2.5	3.4	3.4	4.2	4.2
62.5°	3.4	3.4	3.4	3.4	3.4	2.5	3.4	3.4	3.4	3.4	4.2
65°	2.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.2
67.5°	2.5	2.5	3.4	3.4	3.4	2.5	3.4	3.4	3.4	3.4	4.2
70°	2.5	2.5	2.5	3.4	3.4	2.5	3.4	3.4	3.4	3.4	3.4
72.5°	2.5	2.5	2.5	3.4	3.4	2.5	3.4	3.4	3.4	3.4	3.4
75°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4
77.5°	2.5	2.5	2.5	2.5	3.4	2.5	3.4	3.4	3.4	3.4	3.4
80°	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4
82.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4
85°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4
87.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4
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°	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9
2.5°	171.7	169.2	164.2	163.3	162.5	159.1	156.6	154.1	154.1	151.5	149.9
5°	159.1	154.9	149.0	146.5	145.6	141.4	138.1	135.5	134.7	132.2	129.6
7.5°	145.6	140.6	133.9	131.3	130.5	126.3	122.9	120.4	118.7	116.2	114.5
10°	131.3	125.4	119.5	117.0	116.2	112.0	109.4	106.9	105.2	103.6	101.9
12.5°	116.2	111.1	105.2	102.7	101.9	98.5	96.0	94.3	93.4	91.8	90.9
15°	101.0	96.0	90.9	89.2	88.4	85.9	84.2	83.3	82.5	82.5	81.7
17.5°	85.9	81.7	77.5	76.6	75.8	74.1	73.2	72.4	73.2	73.2	74.1
20°	71.6	68.2	64.8	64.8	64.0	63.1	63.1	63.1	64.8	65.7	67.4
22.5°	58.9	56.4	53.9	53.9	53.9	53.9	53.9	55.6	57.2	58.9	59.8
25°	48.8	46.3	45.5	45.5	45.5	46.3	47.1	48.8	50.5	52.2	53.9
27.5°	39.6	37.9	37.9	37.9	38.7	39.6	40.4	42.1	44.6	46.3	48.0
30°	32.0	31.1	31.1	32.0	32.8	33.7	35.4	37.0	38.7	40.4	42.1
32.5°	25.3	26.1	26.1	26.9	27.8	28.6	30.3	32.0	33.7	35.4	36.2
35°	21.0	21.0	21.9	22.7	23.6	24.4	26.1	27.8	28.6	30.3	32.0
37.5°	16.8	17.7	18.5	19.4	20.2	21.0	21.9	23.6	24.4	26.1	27.8
40°	14.3	15.2	16.0	16.8	16.8	18.5	18.5	20.2	21.0	22.7	24.4
42.5°	11.8	12.6	13.5	14.3	14.3	15.2	16.0	16.8	18.5	19.4	21.0
45°	9.3	10.1	10.9	11.8	12.6	13.5	13.5	15.2	16.0	16.8	18.5
47.5°	8.4	9.3	10.1	10.1	10.9	11.8	11.8	13.5	14.3	15.2	16.0
50°	6.7	7.6	8.4	9.3	9.3	10.1	10.9	11.8	12.6	13.5	13.5
52.5°	5.9	6.7	7.6	7.6	8.4	9.3	9.3	10.1	10.9	10.9	11.8
55°	5.9	6.7	6.7	7.6	7.6	8.4	8.4	9.3	9.3	10.1	10.1
57.5°	5.1	5.9	5.9	6.7	6.7	7.6	7.6	8.4	8.4	8.4	9.3
60°	5.1	5.1	5.9	5.9	6.7	6.7	6.7	7.6	7.6	7.6	8.4
62.5°	4.2	5.1	5.1	5.9	5.9	5.9	6.7	6.7	6.7	7.6	7.6
65°	4.2	5.1	5.1	5.9	5.9	5.9	5.9	5.9	6.7	6.7	6.7
67.5°	4.2	4.2	5.1	5.1	5.1	5.1	5.9	5.9	5.9	5.9	5.9
70°	4.2	4.2	4.2	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
72.5°	3.4	4.2	4.2	4.2	4.2	5.1	5.1	5.1	5.1	5.1	4.2
75°	3.4	3.4	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
77.5°	3.4	3.4	3.4	4.2	4.2	4.2	4.2	4.2	4.2	3.4	3.4
80°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	2.5
82.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	2.5	2.5	2.5
85°	3.4	2.5	3.4	3.4	3.4	2.5	2.5	2.5	2.5	2.5	1.7
87.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.7	1.7
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: P182817

CATALOG NUMBER: LDSQA4A13840D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	186.9	186.9	186.9	186.9	186.9	186.9	186.9	186.9
2.5°	148.2	146.5	147.3	147.3	145.6	144.8	144.8	145.6
5°	128.0	126.3	127.1	127.1	125.4	124.6	124.6	125.4
7.5°	112.8	111.1	112.0	112.0	110.3	110.3	110.3	110.3
10°	101.0	100.2	100.2	100.2	98.5	99.3	98.5	97.7
12.5°	90.1	90.1	90.1	90.1	89.2	90.1	89.2	89.2
15°	81.7	81.7	82.5	82.5	82.5	83.3	83.3	83.3
17.5°	74.9	75.8	76.6	77.5	77.5	78.3	78.3	78.3
20°	68.2	69.9	70.7	71.6	71.6	73.2	72.4	73.2
22.5°	61.5	63.1	64.0	64.8	65.7	66.5	66.5	67.4
25°	55.6	57.2	58.1	58.9	59.8	61.5	61.5	61.5
27.5°	49.7	51.4	52.2	53.9	54.7	56.4	56.4	56.4
30°	43.8	45.5	46.3	47.1	48.8	50.5	50.5	51.4
32.5°	37.9	40.4	41.3	42.1	43.8	45.5	46.3	46.3
35°	33.7	35.4	36.2	37.9	38.7	41.3	41.3	41.3
37.5°	29.5	31.1	32.8	33.7	34.5	36.2	37.0	37.9
40°	26.1	27.8	28.6	29.5	31.1	32.8	33.7	33.7
42.5°	22.7	24.4	25.3	26.1	26.9	28.6	28.6	28.6
45°	20.2	21.0	21.9	22.7	23.6	24.4	25.3	25.3
47.5°	16.8	18.5	18.5	19.4	20.2	21.9	21.9	22.7
50°	14.3	16.0	16.0	16.8	17.7	18.5	19.4	19.4
52.5°	12.6	13.5	14.3	14.3	15.2	16.0	16.8	16.8
55°	10.9	11.8	11.8	12.6	12.6	13.5	14.3	14.3
57.5°	9.3	10.1	10.9	10.9	10.9	11.8	11.8	12.6
60°	8.4	9.3	9.3	9.3	9.3	10.1	10.1	10.1
62.5°	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
65°	6.7	6.7	6.7	6.7	5.9	5.9	5.9	5.9
67.5°	5.9	5.9	5.9	5.9	5.1	5.1	5.1	5.1
70°	5.1	5.1	5.1	5.1	4.2	4.2	4.2	3.4
72.5°	4.2	4.2	4.2	4.2	4.2	3.4	3.4	3.4
75°	4.2	3.4	3.4	3.4	3.4	3.4	2.5	2.5
77.5°	3.4	3.4	3.4	2.5	2.5	2.5	2.5	2.5
80°	2.5	2.5	2.5	2.5	2.5	1.7	1.7	1.7
82.5°	2.5	1.7	1.7	1.7	1.7	1.7	1.7	1.7
85°	1.7	1.7	1.7	1.7	0.8	0.8	0.8	0.8
87.5°	1.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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)