

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: P182725

Luminaire Tested: **LDSQA4A13940D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182725
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: LDSQA4A13940D010TE 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: 1516.9 lumens
Efficiency: N/A
Efficacy: 68.1 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

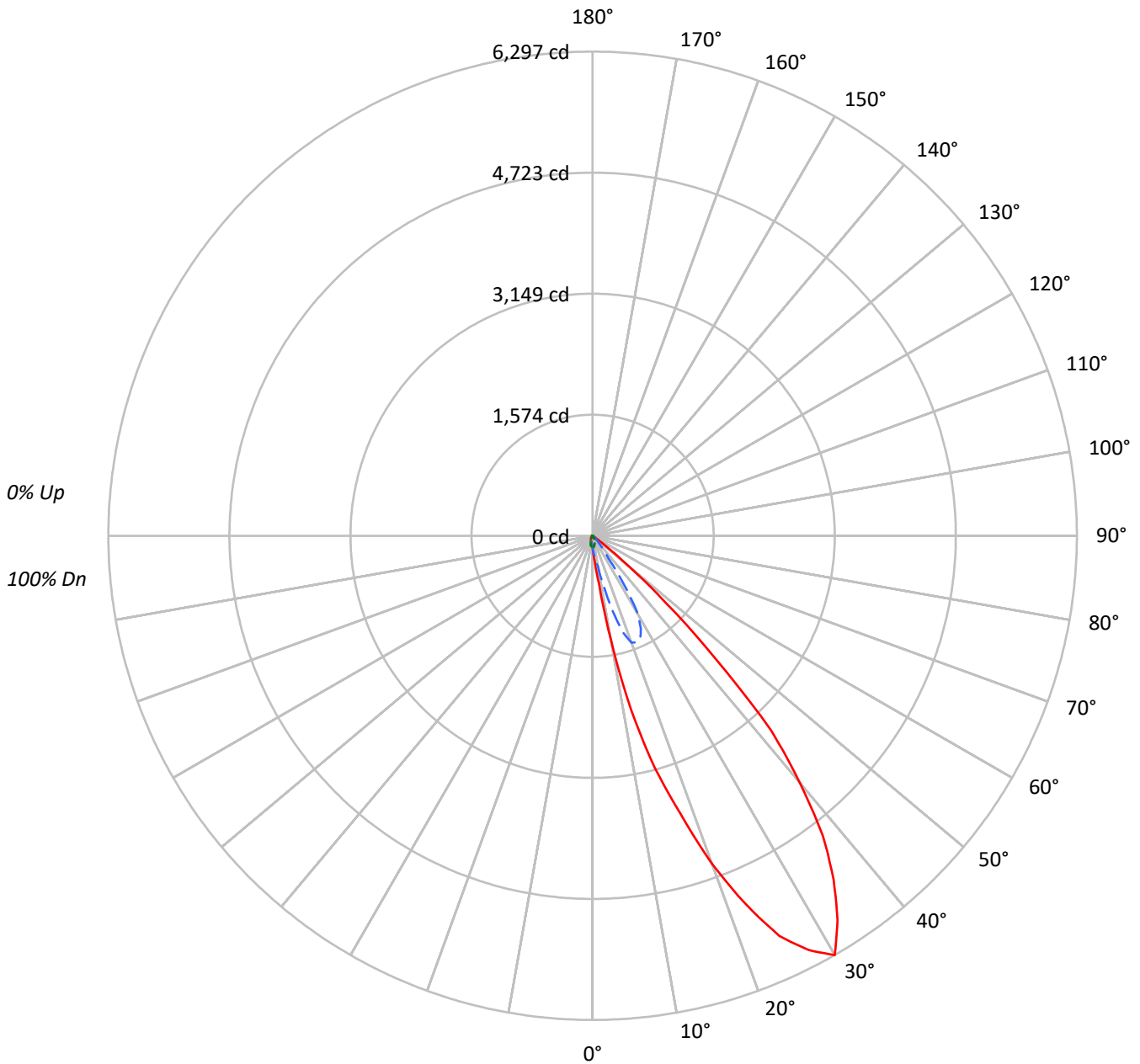
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	15345	15345	15345
5°	33968	14519	10201
10°	135967	12611	8519
15°	313415	10029	7482
20°	467855	7113	6680
25°	613646	4746	5943
30°	704418	2998	5202
35°	645882	1916	4494
40°	529660	1252	3832
45°	307064	863	3083
50°	87021	633	2547
55°	7972	591	2145
60°	1221	678	1783
65°	321	642	1284
70°	397	793	991
75°	524	1048	1048
80°	0	1562	781
85°	0	3112	778



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	22.5	1.5
10°-20°	201.7	13.3
20°-30°	491.5	32.4
30°-40°	532.7	35.1
40°-50°	241.4	15.9
50°-60°	18.7	1.2
60°-70°	3.8	0.3
70°-80°	2.8	0.2
80°-90°	1.8	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°	715.8	47.2
0°-40°	1248.5	82.3
0°-60°	1508.5	99.4
0°-90°	1516.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1516.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	158	158	158	158	158	
5°	349	258	149	113	105	63
15°	3125	1022	100	72	75	908
25°	5741	1468	44	44	56	2617
35°	5461	373	16	25	38	3359
45°	2241	47	6	14	22	1769
55°	47	6	4	8	13	108
65°	1	2	3	6	6	2
75°	1	2	3	4	3	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°	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4
2.5°	237.3	233.1	235.2	229.6	226.0	223.2	224.6	223.2	214.1	211.9	204.9
5°	349.3	342.9	342.9	330.9	318.3	310.5	310.5	301.4	281.7	272.5	257.7
7.5°	626.0	613.3	602.7	565.4	516.8	489.4	482.3	443.6	393.6	361.9	324.6
10°	1382.2	1329.4	1292.1	1194.9	1064.7	983.7	949.2	815.4	656.3	536.6	428.1
12.5°	2324.4	2252.6	2187.1	2027.9	1840.6	1713.2	1644.9	1447.7	1138.6	917.5	686.5
15°	3125.0	3047.5	2970.1	2776.5	2578.6	2468.0	2342.7	2081.5	1673.1	1359.0	1022.4
17.5°	3782.0	3738.3	3658.7	3375.0	3125.7	2953.2	2822.9	2481.4	2061.0	1702.6	1321.7
20°	4538.2	4430.5	4288.3	3943.9	3603.1	3386.9	3203.9	2787.7	2301.9	1889.9	1480.1
22.5°	5174.8	5098.0	4893.8	4439.6	3938.3	3753.8	3529.9	3029.2	2456.8	1969.5	1498.4
25°	5740.9	5620.5	5364.2	4824.1	4310.8	3996.7	3722.1	3160.2	2513.8	1975.1	1468.1
27.5°	6072.6	5915.5	5614.2	5025.5	4439.6	4092.5	3788.3	3182.7	2477.9	1900.5	1357.6
30°	6297.2	5984.5	5651.5	5027.6	4398.8	4043.9	3728.5	3069.4	2328.6	1730.1	1171.7
32.5°	5926.8	5745.8	5427.6	4827.6	4176.3	3829.9	3516.5	2823.6	2095.5	1477.3	815.4
35°	5461.4	5314.9	5038.2	4442.5	3842.5	3515.8	3183.4	2508.2	1792.1	1015.4	373.2
37.5°	4920.6	4805.8	4507.9	3963.6	3435.5	3115.9	2782.8	2137.8	1261.8	503.5	226.7
40°	4188.3	4091.1	3846.8	3409.5	2922.9	2618.7	2311.7	1599.1	685.1	281.0	147.9
42.5°	3442.6	3360.9	3138.4	2760.3	2332.8	2082.2	1811.8	974.5	340.8	176.7	82.4
45°	2241.3	2139.2	2019.5	1846.3	1635.0	1480.8	1161.8	470.4	202.1	98.6	47.2
47.5°	1285.1	1217.5	1021.0	805.5	654.2	597.1	434.5	219.0	111.3	57.0	28.9
50°	577.4	533.7	447.8	364.7	264.1	206.3	175.3	109.8	54.9	31.0	19.7
52.5°	142.2	145.1	137.3	120.4	107.0	90.8	78.9	51.4	28.9	19.0	12.7
55°	47.2	47.9	43.7	41.5	38.0	35.2	32.4	23.2	17.6	16.9	6.3
57.5°	16.9	16.9	17.6	16.2	15.5	14.8	14.1	12.0	10.6	6.3	3.5
60°	6.3	6.3	6.3	7.0	7.0	7.0	7.7	7.0	4.9	3.5	2.8
62.5°	2.8	2.8	2.8	2.8	3.5	3.5	4.2	3.5	2.8	2.8	2.1
65°	1.4	1.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
67.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1	2.1
70°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1	2.1
72.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1	2.1
75°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1
77.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	1.4	1.4	2.1
80°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	1.4	1.4	2.1
82.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	1.4	1.4	2.1
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	1.4	2.1
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	1.4	1.4
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4
2.5°	197.9	193.6	185.2	178.9	173.9	173.2	169.0	162.0	159.1	154.2	150.0
5°	243.6	233.1	219.7	207.0	197.9	192.9	178.1	164.8	157.0	149.3	142.2
7.5°	292.9	269.0	245.7	225.3	212.7	204.9	187.3	165.5	151.4	140.1	131.0
10°	354.9	305.6	265.5	233.8	216.9	206.3	185.2	159.1	141.5	128.2	119.0
12.5°	496.4	361.9	283.8	238.0	216.9	202.1	176.7	150.7	131.0	114.8	104.9
15°	738.7	505.6	336.6	240.1	209.8	192.9	164.1	136.6	116.9	100.0	90.8
17.5°	966.8	665.4	420.4	254.9	205.6	179.6	147.2	120.4	100.0	83.8	76.0
20°	1085.1	745.0	466.8	266.2	198.6	162.7	127.5	102.8	83.1	69.0	62.7
22.5°	1087.9	737.9	444.3	240.1	172.5	139.4	109.1	84.5	67.6	55.6	50.7
25°	1021.0	652.7	365.5	187.3	139.4	116.9	90.8	69.0	52.8	44.4	40.8
27.5°	895.0	528.1	269.7	135.2	109.1	92.9	71.1	52.8	40.1	34.5	32.4
30°	692.2	326.7	149.3	100.0	82.4	69.7	51.4	35.2	30.3	26.8	25.3
32.5°	343.6	159.8	105.6	71.1	56.3	44.4	32.4	26.1	23.2	21.1	20.4
35°	186.6	114.8	66.2	43.0	33.8	28.2	21.8	18.3	16.9	16.2	16.2
37.5°	130.3	68.3	40.1	26.1	21.1	19.0	15.5	13.4	12.7	12.7	12.7
40°	71.8	40.8	24.6	16.9	14.1	12.7	10.6	9.9	9.9	9.9	10.6
42.5°	41.5	25.3	16.9	12.0	9.9	9.2	7.7	7.0	7.7	7.7	8.4
45°	26.8	19.0	11.3	8.4	7.0	6.3	5.6	5.6	6.3	6.3	7.0
47.5°	19.0	13.4	7.7	5.6	4.2	4.2	4.2	4.2	4.9	5.6	6.3
50°	11.3	7.0	4.2	3.5	2.8	2.8	2.8	3.5	4.2	4.2	4.9
52.5°	6.3	4.2	2.8	2.8	2.1	2.1	2.8	2.8	3.5	4.2	4.9
55°	3.5	2.8	2.1	2.1	2.1	2.1	2.1	2.8	2.8	3.5	4.2
57.5°	2.8	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	3.5	3.5
60°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	3.5	3.5
62.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8	3.5
65°	2.1	2.1	2.1	2.8	2.1	2.8	2.8	2.8	2.8	2.8	3.5
67.5°	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.5
70°	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.5
72.5°	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.5
75°	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
77.5°	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
80°	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
82.5°	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
85°	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
87.5°	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.8
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°	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4
2.5°	148.6	143.6	140.1	138.7	135.9	136.6	134.5	133.1	128.9	128.9	126.0
5°	137.3	131.0	126.7	124.6	121.8	121.1	119.0	116.9	112.7	112.0	109.8
7.5°	125.3	119.0	114.1	112.0	109.1	108.4	105.6	104.2	100.7	100.0	97.9
10°	112.7	105.6	101.4	99.3	96.5	96.5	94.4	92.9	90.1	90.1	88.7
12.5°	99.3	92.9	90.1	87.3	85.9	85.9	84.5	83.1	81.0	81.7	81.0
15°	85.2	80.3	77.5	76.0	75.3	75.3	74.6	73.9	72.5	73.9	72.5
17.5°	71.8	68.3	66.2	65.5	64.8	64.8	64.8	65.5	64.8	66.2	66.2
20°	59.1	56.3	54.9	54.9	54.2	55.6	55.6	57.0	57.0	59.1	59.9
22.5°	48.6	46.5	45.8	45.8	45.8	47.2	47.9	49.3	50.0	52.1	53.5
25°	38.7	38.0	38.0	38.0	38.7	40.1	41.5	43.0	43.7	46.5	47.2
27.5°	31.7	31.0	31.7	31.7	32.4	34.5	35.9	37.3	38.7	40.8	42.2
30°	25.3	25.3	26.1	26.8	27.5	28.9	31.0	32.4	33.8	35.9	37.3
32.5°	20.4	21.1	21.8	22.5	22.5	24.6	26.1	28.2	28.9	31.0	32.4
35°	16.9	17.6	18.3	19.0	19.0	21.1	22.5	23.9	25.3	26.8	28.2
37.5°	13.4	14.1	15.5	16.2	16.2	18.3	19.0	20.4	21.8	23.2	24.6
40°	11.3	12.0	13.4	13.4	14.1	15.5	16.2	17.6	19.0	20.4	21.8
42.5°	9.2	9.9	11.3	12.0	12.0	13.4	14.1	15.5	16.2	17.6	18.3
45°	8.4	8.4	9.9	9.9	10.6	11.3	12.7	13.4	14.1	15.5	16.2
47.5°	7.0	7.7	8.4	9.2	9.2	9.9	10.6	11.3	12.0	13.4	14.1
50°	5.6	6.3	7.7	7.7	7.7	9.2	9.9	10.6	10.6	11.3	12.0
52.5°	5.6	5.6	6.3	7.0	7.0	7.7	8.4	9.2	9.2	9.9	10.6
55°	4.9	4.9	5.6	6.3	6.3	7.0	7.7	7.7	8.4	8.4	9.2
57.5°	4.2	4.9	5.6	5.6	5.6	6.3	7.0	7.0	7.7	7.7	8.4
60°	4.2	4.9	4.9	5.6	5.6	6.3	6.3	6.3	7.0	7.0	7.0
62.5°	4.2	4.2	4.9	4.9	4.9	5.6	5.6	6.3	6.3	6.3	6.3
65°	4.2	4.2	4.9	4.9	4.9	5.6	5.6	5.6	5.6	5.6	5.6
67.5°	3.5	4.2	4.2	4.2	4.9	4.9	4.9	4.9	4.9	4.9	4.9
70°	3.5	3.5	4.2	4.2	4.2	4.9	4.9	4.9	4.9	4.9	4.9
72.5°	3.5	3.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
75°	3.5	3.5	3.5	3.5	3.5	4.2	4.2	4.2	4.2	3.5	3.5
77.5°	2.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.8
80°	2.8	2.8	3.5	2.8	3.5	3.5	3.5	3.5	2.8	2.8	2.8
82.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.1	2.1
85°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.1	1.4
87.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.1	1.4	1.4
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: P182725

CATALOG NUMBER: LDSQA4A13940D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4
2.5°	124.6	126.0	124.6	126.0	122.5	123.9	125.3	121.8
5°	108.4	107.0	107.7	109.1	106.3	107.0	107.7	104.9
7.5°	97.2	97.9	96.5	97.9	95.8	96.5	97.2	95.1
10°	88.0	88.7	88.0	88.7	86.6	88.0	88.7	86.6
12.5°	79.6	81.0	80.3	81.7	79.6	81.0	82.4	79.6
15°	73.2	74.6	73.9	75.3	73.9	75.3	76.8	74.6
17.5°	66.9	68.3	68.3	69.7	69.0	70.4	71.8	69.7
20°	60.6	62.7	62.7	64.1	64.1	64.8	66.9	64.8
22.5°	54.9	57.0	57.0	58.4	58.4	59.9	61.3	59.9
25°	48.6	51.4	52.1	53.5	53.5	54.9	57.0	55.6
27.5°	44.4	46.5	47.2	48.6	49.3	50.7	52.1	50.7
30°	38.7	41.5	42.2	43.7	44.4	46.5	47.2	46.5
32.5°	34.5	36.6	37.3	38.7	40.1	41.5	43.0	42.2
35°	30.3	32.4	33.1	34.5	35.2	37.3	38.7	38.0
37.5°	26.8	28.9	29.6	30.3	31.0	33.1	34.5	33.8
40°	23.2	24.6	25.3	26.8	27.5	28.9	30.3	30.3
42.5°	20.4	21.8	22.5	23.2	23.9	25.3	26.8	26.1
45°	17.6	19.0	19.7	20.4	21.1	21.8	23.2	22.5
47.5°	14.8	16.2	16.9	17.6	18.3	19.0	20.4	19.7
50°	12.7	14.1	14.1	14.8	15.5	16.2	17.6	16.9
52.5°	11.3	12.0	12.7	12.7	13.4	14.1	15.5	14.8
55°	9.9	10.6	10.6	11.3	11.3	12.0	12.7	12.7
57.5°	8.4	9.2	9.2	9.9	9.9	10.6	11.3	11.3
60°	7.7	7.7	8.4	8.4	8.4	9.2	9.2	9.2
62.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
65°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
67.5°	4.9	4.9	4.9	4.9	4.9	4.2	4.2	4.2
70°	4.2	4.2	4.2	4.2	4.2	3.5	3.5	3.5
72.5°	4.2	4.2	3.5	3.5	3.5	3.5	3.5	2.8
75°	3.5	3.5	3.5	3.5	2.8	2.8	2.8	2.8
77.5°	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
80°	2.8	2.1	2.1	2.1	2.1	2.1	2.1	1.4
82.5°	2.1	2.1	2.1	1.4	1.4	1.4	1.4	1.4
85°	1.4	1.4	1.4	1.4	0.7	0.7	0.7	0.7
87.5°	1.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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)