

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: P182729

Luminaire Tested: **LDSQA4A28840D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182729
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: LDSQA4A28840D010TE 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 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3081.0 lumens
Efficiency: N/A
Efficacy: 69.3 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

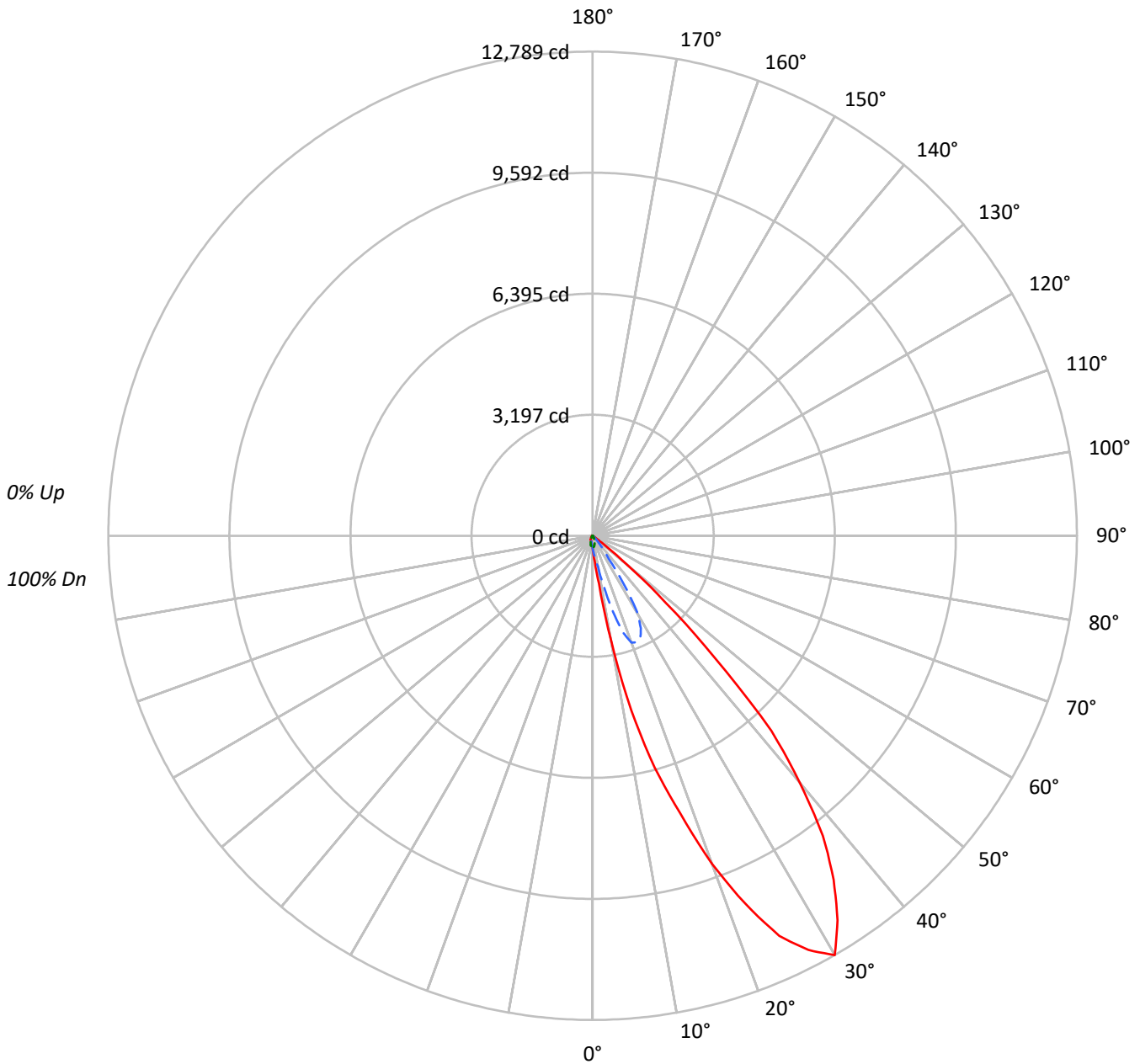
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	31175	31175	31175
5°	68976	29485	20723
10°	276154	25606	17303
15°	636538	20369	15204
20°	950205	14454	13567
25°	1246308	9631	12079
30°	1430649	6074	10560
35°	1311762	3891	9130
40°	1075723	2529	7777
45°	623636	1767	6275
50°	176739	1296	5169
55°	16180	1216	4341
60°	2499	1395	3604
65°	665	1307	2613
70°	821	1614	2039
75°	1085	2133	2133
80°	0	3180	1618
85°	0	6336	1556



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.7	1.5
10°-20°	409.7	13.3
20°-30°	998.3	32.4
30°-40°	1081.9	35.1
40°-50°	490.2	15.9
50°-60°	37.9	1.2
60°-70°	7.8	0.3
70°-80°	5.8	0.2
80°-90°	3.6	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°	1453.7	47.2
0°-40°	2535.6	82.3
0°-60°	3063.8	99.4
0°-90°	3081.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3081.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	322	322	322	322	322	
5°	709	523	303	229	213	128
15°	6347	2076	203	147	152	1844
25°	11660	2982	90	89	113	5315
35°	11092	758	33	52	77	6823
45°	4552	96	13	29	46	3594
55°	96	13	7	17	26	219
65°	3	4	6	11	11	5
75°	3	4	6	9	6	2
85°	0	4	6	4	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°	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8
2.5°	481.9	473.4	477.7	466.2	459.1	453.3	456.2	453.3	434.8	430.5	416.2
5°	709.3	696.5	696.5	672.1	646.4	630.7	630.7	612.1	572.0	553.5	523.4
7.5°	1271.4	1245.6	1224.2	1148.4	1049.7	993.9	979.6	901.0	799.4	735.1	659.3
10°	2807.3	2700.0	2624.2	2426.9	2162.3	1997.9	1927.8	1656.1	1332.9	1089.7	869.5
12.5°	4720.8	4574.9	4441.9	4118.7	3738.3	3479.4	3340.7	2940.3	2312.5	1863.4	1394.4
15°	6346.8	6189.5	6032.2	5638.9	5237.0	5012.5	4758.0	4227.4	3397.9	2760.1	2076.5
17.5°	7681.1	7592.4	7430.8	6854.5	6348.2	5997.9	5733.3	5039.7	4185.9	3458.0	2684.3
20°	9217.0	8998.2	8709.3	8010.0	7317.9	6878.8	6507.0	5661.8	4675.0	3838.4	3006.1
22.5°	10509.8	10354.0	9939.2	9016.8	7998.6	7623.9	7169.1	6152.3	4989.6	4000.0	3043.3
25°	11659.7	11415.1	10894.5	9797.7	8755.1	8117.3	7559.5	6418.3	5105.5	4011.4	2981.8
27.5°	12333.2	12014.3	11402.2	10206.7	9016.8	8311.8	7694.0	6464.1	5032.5	3859.9	2757.2
30°	12789.4	12154.5	11478.0	10211.0	8933.9	8213.1	7572.4	6233.8	4729.4	3513.8	2379.7
32.5°	12037.2	11669.7	11023.3	9804.8	8482.0	7778.3	7141.9	5734.7	4256.0	3000.4	1656.1
35°	11091.9	10794.4	10232.4	9022.5	7804.1	7140.5	6465.5	5094.0	3639.6	2062.2	758.0
37.5°	9993.6	9760.5	9155.5	8050.1	6977.5	6328.2	5651.8	4341.8	2562.8	1022.5	460.5
40°	8506.3	8308.9	7812.7	6924.6	5936.4	5318.6	4695.0	3247.8	1391.5	570.6	300.3
42.5°	6991.8	6825.9	6374.0	5606.0	4737.9	4228.8	3679.7	1979.3	692.2	359.0	167.3
45°	4552.0	4344.7	4101.5	3749.7	3320.7	3007.5	2359.7	955.3	410.4	200.2	95.8
47.5°	2609.9	2472.7	2073.7	1636.0	1328.6	1212.7	882.4	444.8	226.0	115.8	58.6
50°	1172.7	1084.0	909.5	740.8	536.3	419.0	356.1	223.1	111.5	62.9	40.0
52.5°	288.9	294.6	278.9	244.5	217.4	184.5	160.2	104.4	58.6	38.6	25.7
55°	95.8	97.2	88.7	84.4	77.2	71.5	65.8	47.2	35.8	34.3	12.9
57.5°	34.3	34.3	35.8	32.9	31.5	30.0	28.6	24.3	21.5	12.9	7.2
60°	12.9	12.9	12.9	14.3	14.3	14.3	15.7	14.3	10.0	7.2	5.7
62.5°	5.7	5.7	5.7	5.7	7.2	7.2	8.6	7.2	5.7	5.7	4.3
65°	2.9	2.9	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
67.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	4.3	4.3
70°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	4.3	4.3
72.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	4.3	4.3
75°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	4.3
77.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.9	2.9	2.9	4.3
80°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.9	2.9	2.9	4.3
82.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.9	2.9	2.9	4.3
85°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.9	2.9	4.3
87.5°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.9	2.9	2.9
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8
2.5°	401.9	393.3	376.1	363.2	353.2	351.8	343.2	328.9	323.2	313.2	304.6
5°	494.8	473.4	446.2	420.5	401.9	391.8	361.8	334.6	318.9	303.2	288.9
7.5°	594.9	546.3	499.1	457.6	431.9	416.2	380.4	336.1	307.5	284.6	266.0
10°	720.8	620.7	539.2	474.8	440.5	419.0	376.1	323.2	287.5	260.3	241.7
12.5°	1008.2	735.1	576.3	483.4	440.5	410.4	359.0	306.0	266.0	233.1	213.1
15°	1500.2	1026.8	683.6	487.7	426.2	391.8	333.2	277.4	237.4	203.1	184.5
17.5°	1963.5	1351.5	853.8	517.7	417.6	364.7	298.9	244.5	203.1	170.2	154.5
20°	2203.8	1513.1	948.2	540.6	403.3	330.4	258.8	208.8	168.8	140.2	127.3
22.5°	2209.5	1498.8	902.4	487.7	350.4	283.2	221.7	171.6	137.3	113.0	103.0
25°	2073.7	1325.7	742.2	380.4	283.2	237.4	184.5	140.2	107.3	90.1	82.9
27.5°	1817.7	1072.6	547.7	274.6	221.7	188.8	144.4	107.3	81.5	70.1	65.8
30°	1405.8	663.6	303.2	203.1	167.3	141.6	104.4	71.5	61.5	54.3	51.5
32.5°	697.9	324.6	214.5	144.4	114.4	90.1	65.8	52.9	47.2	42.9	41.5
35°	379.0	233.1	134.4	87.2	68.6	57.2	44.3	37.2	34.3	32.9	32.9
37.5°	264.6	138.7	81.5	52.9	42.9	38.6	31.5	27.2	25.7	25.7	25.7
40°	145.9	82.9	50.1	34.3	28.6	25.7	21.5	20.0	20.0	20.0	21.5
42.5°	84.4	51.5	34.3	24.3	20.0	18.6	15.7	14.3	15.7	15.7	17.2
45°	54.3	38.6	22.9	17.2	14.3	12.9	11.4	11.4	12.9	12.9	14.3
47.5°	38.6	27.2	15.7	11.4	8.6	8.6	8.6	8.6	10.0	11.4	12.9
50°	22.9	14.3	8.6	7.2	5.7	5.7	5.7	7.2	8.6	8.6	10.0
52.5°	12.9	8.6	5.7	5.7	4.3	4.3	5.7	5.7	7.2	8.6	10.0
55°	7.2	5.7	4.3	4.3	4.3	4.3	4.3	5.7	5.7	7.2	8.6
57.5°	5.7	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	7.2	7.2
60°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	7.2	7.2
62.5°	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7	7.2
65°	4.3	4.3	4.3	5.7	4.3	5.7	5.7	5.7	5.7	5.7	7.2
67.5°	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7	5.7	5.7	7.2
70°	4.3	4.3	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	7.2
72.5°	4.3	4.3	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	7.2
75°	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
77.5°	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
80°	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
82.5°	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
85°	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
87.5°	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7	5.7	5.7
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8
2.5°	301.8	291.7	284.6	281.7	276.0	277.4	273.2	270.3	261.7	261.7	256.0
5°	278.9	266.0	257.4	253.1	247.4	246.0	241.7	237.4	228.8	227.4	223.1
7.5°	254.6	241.7	231.7	227.4	221.7	220.2	214.5	211.7	204.5	203.1	198.8
10°	228.8	214.5	205.9	201.6	195.9	195.9	191.6	188.8	183.1	183.1	180.2
12.5°	201.6	188.8	183.1	177.3	174.5	174.5	171.6	168.8	164.5	165.9	164.5
15°	173.0	163.0	157.3	154.5	153.0	153.0	151.6	150.2	147.3	150.2	147.3
17.5°	145.9	138.7	134.4	133.0	131.6	131.6	131.6	133.0	131.6	134.4	134.4
20°	120.1	114.4	111.5	111.5	110.1	113.0	113.0	115.8	115.8	120.1	121.6
22.5°	98.7	94.4	93.0	93.0	93.0	95.8	97.2	100.1	101.5	105.8	108.7
25°	78.7	77.2	77.2	77.2	78.7	81.5	84.4	87.2	88.7	94.4	95.8
27.5°	64.4	62.9	64.4	64.4	65.8	70.1	72.9	75.8	78.7	82.9	85.8
30°	51.5	51.5	52.9	54.3	55.8	58.6	62.9	65.8	68.6	72.9	75.8
32.5°	41.5	42.9	44.3	45.8	45.8	50.1	52.9	57.2	58.6	62.9	65.8
35°	34.3	35.8	37.2	38.6	38.6	42.9	45.8	48.6	51.5	54.3	57.2
37.5°	27.2	28.6	31.5	32.9	32.9	37.2	38.6	41.5	44.3	47.2	50.1
40°	22.9	24.3	27.2	27.2	28.6	31.5	32.9	35.8	38.6	41.5	44.3
42.5°	18.6	20.0	22.9	24.3	24.3	27.2	28.6	31.5	32.9	35.8	37.2
45°	17.2	17.2	20.0	20.0	21.5	22.9	25.7	27.2	28.6	31.5	32.9
47.5°	14.3	15.7	17.2	18.6	18.6	20.0	21.5	22.9	24.3	27.2	28.6
50°	11.4	12.9	15.7	15.7	15.7	18.6	20.0	21.5	21.5	22.9	24.3
52.5°	11.4	11.4	12.9	14.3	14.3	15.7	17.2	18.6	18.6	20.0	21.5
55°	10.0	10.0	11.4	12.9	12.9	14.3	15.7	15.7	17.2	17.2	18.6
57.5°	8.6	10.0	11.4	11.4	11.4	12.9	14.3	14.3	15.7	15.7	17.2
60°	8.6	10.0	10.0	11.4	11.4	12.9	12.9	12.9	14.3	14.3	14.3
62.5°	8.6	8.6	10.0	10.0	10.0	11.4	11.4	12.9	12.9	12.9	12.9
65°	8.6	8.6	10.0	10.0	10.0	11.4	11.4	11.4	11.4	11.4	11.4
67.5°	7.2	8.6	8.6	8.6	10.0	10.0	10.0	10.0	10.0	10.0	10.0
70°	7.2	7.2	8.6	8.6	8.6	10.0	10.0	10.0	10.0	10.0	10.0
72.5°	7.2	7.2	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
75°	7.2	7.2	7.2	7.2	7.2	8.6	8.6	8.6	8.6	7.2	7.2
77.5°	5.7	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	5.7
80°	5.7	5.7	7.2	5.7	7.2	7.2	7.2	7.2	5.7	5.7	5.7
82.5°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	4.3	4.3
85°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	4.3	4.3	4.3	2.9
87.5°	5.7	5.7	5.7	5.7	5.7	5.7	4.3	4.3	4.3	2.9	2.9
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: P182729

CATALOG NUMBER: LDSQA4A28840D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	321.8	321.8	321.8	321.8	321.8	321.8	321.8	321.8
2.5°	253.1	256.0	253.1	256.0	248.8	251.7	254.6	247.4
5°	220.2	217.4	218.8	221.7	215.9	217.4	218.8	213.1
7.5°	197.4	198.8	195.9	198.8	194.5	195.9	197.4	193.1
10°	178.8	180.2	178.8	180.2	175.9	178.8	180.2	175.9
12.5°	161.6	164.5	163.0	165.9	161.6	164.5	167.3	161.6
15°	148.7	151.6	150.2	153.0	150.2	153.0	155.9	151.6
17.5°	135.9	138.7	138.7	141.6	140.2	143.0	145.9	141.6
20°	123.0	127.3	127.3	130.1	130.1	131.6	135.9	131.6
22.5°	111.5	115.8	115.8	118.7	118.7	121.6	124.4	121.6
25°	98.7	104.4	105.8	108.7	108.7	111.5	115.8	113.0
27.5°	90.1	94.4	95.8	98.7	100.1	103.0	105.8	103.0
30°	78.7	84.4	85.8	88.7	90.1	94.4	95.8	94.4
32.5°	70.1	74.4	75.8	78.7	81.5	84.4	87.2	85.8
35°	61.5	65.8	67.2	70.1	71.5	75.8	78.7	77.2
37.5°	54.3	58.6	60.1	61.5	62.9	67.2	70.1	68.6
40°	47.2	50.1	51.5	54.3	55.8	58.6	61.5	61.5
42.5°	41.5	44.3	45.8	47.2	48.6	51.5	54.3	52.9
45°	35.8	38.6	40.0	41.5	42.9	44.3	47.2	45.8
47.5°	30.0	32.9	34.3	35.8	37.2	38.6	41.5	40.0
50°	25.7	28.6	28.6	30.0	31.5	32.9	35.8	34.3
52.5°	22.9	24.3	25.7	25.7	27.2	28.6	31.5	30.0
55°	20.0	21.5	21.5	22.9	22.9	24.3	25.7	25.7
57.5°	17.2	18.6	18.6	20.0	20.0	21.5	22.9	22.9
60°	15.7	15.7	17.2	17.2	17.2	18.6	18.6	18.6
62.5°	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
65°	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4
67.5°	10.0	10.0	10.0	10.0	10.0	8.6	8.6	8.6
70°	8.6	8.6	8.6	8.6	8.6	7.2	7.2	7.2
72.5°	8.6	8.6	7.2	7.2	7.2	7.2	7.2	5.7
75°	7.2	7.2	7.2	7.2	5.7	5.7	5.7	5.7
77.5°	5.7	5.7	5.7	5.7	4.3	4.3	4.3	4.3
80°	5.7	4.3	4.3	4.3	4.3	4.3	4.3	2.9
82.5°	4.3	4.3	4.3	2.9	2.9	2.9	2.9	2.9
85°	2.9	2.9	2.9	2.9	1.4	1.4	1.4	1.4
87.5°	2.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)