

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: P182751

Luminaire Tested: **LDSQA4A13830D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182751
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26801)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A13830D010TE LAR35FL 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1722.9 lumens
Efficiency: N/A
Efficacy: 77.4 lumens/watt
Spacing Criteria (0/90/45): 2.46 / 0.59 / 1.2
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

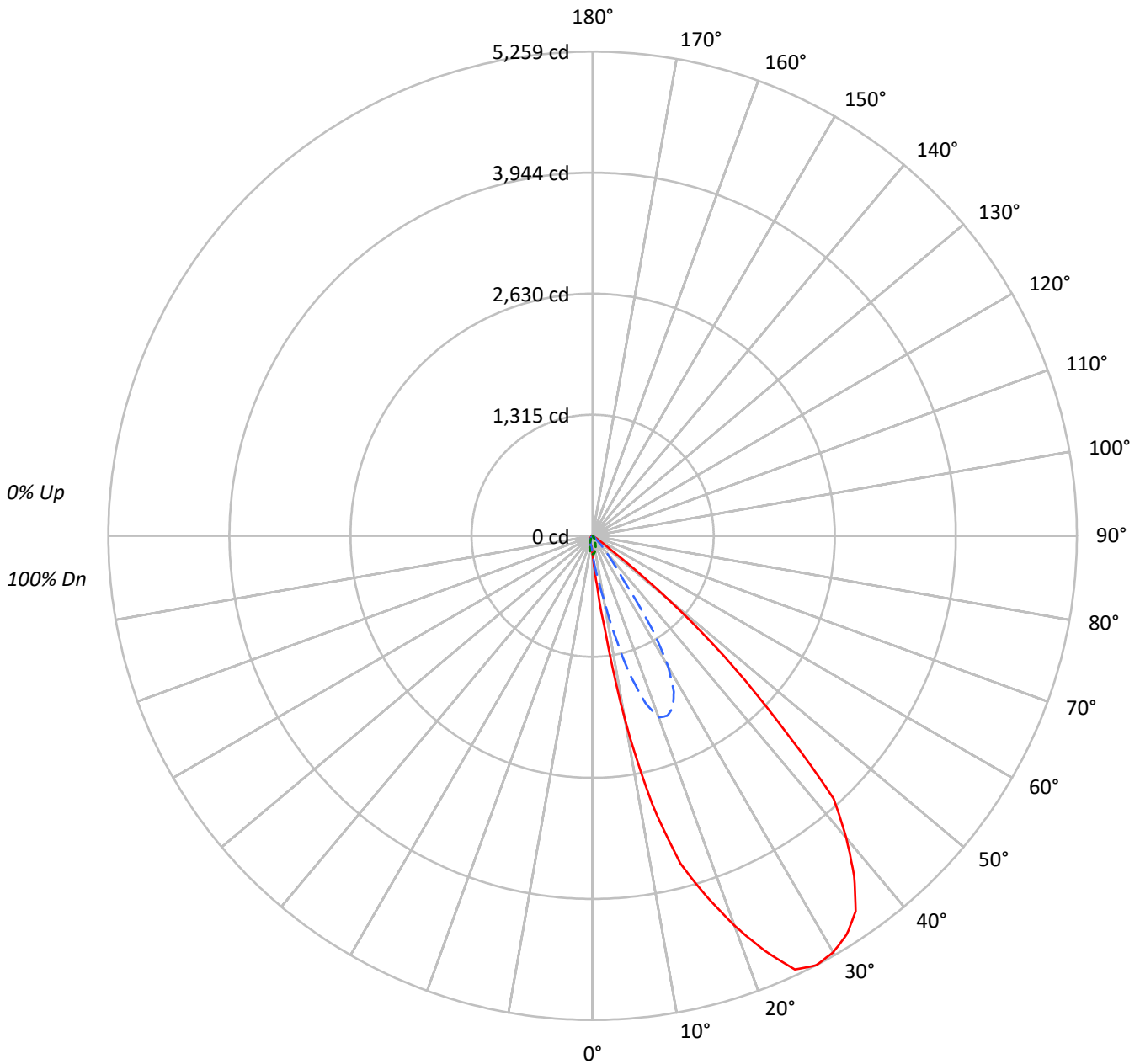
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				20	
RC	80				70				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				100
1	112	109	106	104	110	107	105	102	103	101	99	99	98	96	96	94	93	91				91
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83				83
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74				74
4	92	83	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67				67
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	60				60
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55				55
7	75	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49				49
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45				45
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41				41
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	39	37				37

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	19472	19472	19472
5°	51209	18554	12117
10°	200783	16054	10083
15°	369639	12647	8936
20°	464494	8938	8124
25°	555583	5900	7247
30°	584256	3703	6354
35°	588974	2235	5499
40°	541965	1492	4692
45°	385594	1082	3891
50°	159332	829	3210
55°	9188	794	2804
60°	1066	756	2286
65°	367	894	1628
70°	453	906	1105
75°	599	1198	1198
80°	0	1785	1339
85°	0	3557	1778



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	31.6	1.8
10°-20°	252.4	14.7
20°-30°	522.2	30.3
30°-40°	568.4	33.0
40°-50°	311.7	18.1
50°-60°	27.0	1.6
60°-70°	4.4	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°	806.2	46.8
0°-40°	1374.7	79.8
0°-60°	1713.3	99.4
0°-90°	1722.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1722.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	201	201	201	201	201	
5°	527	360	191	132	125	96
15°	3686	1549	126	85	89	1029
25°	5198	2061	55	52	68	2347
35°	4980	564	19	30	46	3056
45°	2814	58	8	17	28	2148
55°	54	6	5	10	17	186
65°	2	2	4	6	7	2
75°	2	2	3	5	3	1
85°	0	2	3	2	2	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°	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0
2.5°	316.1	305.1	303.5	305.1	297.2	296.4	298.0	291.7	286.2	280.7	275.9
5°	526.6	503.8	496.7	487.2	463.6	455.7	454.1	428.9	404.4	381.6	360.3
7.5°	1023.3	977.6	953.1	905.8	833.3	801.0	783.6	700.9	623.6	553.4	489.6
10°	2041.1	1921.3	1862.9	1773.8	1615.4	1537.3	1480.6	1272.4	1067.5	870.4	696.9
12.5°	2978.5	2912.3	2826.3	2779.0	2522.0	2423.5	2329.6	2041.1	1728.9	1410.4	1094.3
15°	3685.6	3588.7	3497.2	3475.1	3273.3	3158.2	3054.2	2755.4	2384.0	1978.8	1549.2
17.5°	4101.1	4031.7	3945.0	3903.2	3666.7	3573.7	3455.4	3166.1	2805.0	2401.4	1902.3
20°	4505.6	4403.1	4280.9	4217.8	3956.1	3848.8	3714.8	3410.5	3028.1	2599.3	2100.2
22.5°	4875.3	4742.9	4569.4	4471.7	4177.6	4059.3	3909.5	3580.0	3166.1	2675.7	2116.8
25°	5197.7	5077.9	4846.9	4675.8	4329.0	4189.4	4015.2	3670.7	3215.8	2669.4	2060.8
27.5°	5259.2	5178.8	4971.5	4773.6	4381.8	4226.5	4045.9	3689.6	3181.1	2581.9	1910.2
30°	5223.0	5136.3	4969.9	4768.1	4359.7	4202.8	4015.2	3609.2	3045.5	2377.7	1634.3
32.5°	5135.5	5060.6	4861.9	4649.0	4250.9	4087.7	3889.8	3420.8	2812.9	2052.9	1202.3
35°	4980.2	4867.4	4627.8	4452.7	4078.3	3910.3	3668.3	3169.3	2465.2	1475.8	563.7
37.5°	4664.0	4554.4	4381.8	4220.2	3855.1	3657.3	3401.8	2819.2	1827.4	804.9	348.5
40°	4285.6	4191.0	4040.4	3883.5	3507.5	3279.6	2998.2	2203.5	1075.3	453.3	214.4
42.5°	3874.1	3776.3	3606.0	3423.1	3013.2	2772.7	2468.4	1426.2	566.8	267.3	116.7
45°	2814.5	2727.0	2603.2	2471.6	2234.3	2060.8	1660.3	749.0	313.8	141.9	57.6
47.5°	1926.0	1821.9	1593.3	1316.6	1067.5	912.9	686.7	324.8	160.8	71.0	33.9
50°	1057.2	946.8	830.2	646.5	432.8	355.6	276.7	156.9	72.5	35.5	18.9
52.5°	259.4	229.4	209.7	193.2	152.9	138.0	116.7	65.4	33.1	19.7	13.4
55°	54.4	50.5	48.1	47.3	43.4	41.8	36.3	25.2	18.1	12.6	6.3
57.5°	15.8	15.0	15.8	15.8	15.8	15.0	15.0	11.0	10.2	6.3	3.9
60°	5.5	5.5	5.5	6.3	6.3	6.3	7.1	7.1	5.5	3.9	3.2
62.5°	2.4	2.4	2.4	3.2	3.2	3.9	3.9	3.9	3.2	3.2	2.4
65°	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
85°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
87.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
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°	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0
2.5°	262.5	254.6	245.2	234.9	233.4	227.8	220.0	208.9	205.0	197.1	190.0
5°	329.5	308.3	286.2	266.5	260.2	251.5	237.3	217.6	205.0	190.8	179.0
7.5°	419.4	370.5	325.6	290.1	279.1	264.9	242.8	217.6	198.7	179.0	163.2
10°	539.2	439.9	362.7	305.1	287.0	268.0	238.9	208.1	186.1	163.2	146.6
12.5°	770.2	541.6	397.3	313.0	287.8	263.3	226.3	193.2	167.9	145.1	128.5
15°	1095.1	734.8	467.5	318.5	279.9	249.9	206.6	172.7	147.4	126.1	110.4
17.5°	1369.4	917.7	561.3	334.3	274.4	232.6	183.7	149.0	124.6	105.6	93.0
20°	1503.4	999.7	603.9	336.6	258.6	206.6	156.9	123.8	102.5	86.7	75.7
22.5°	1487.7	972.1	564.5	294.9	218.4	174.2	130.1	100.1	82.0	69.4	61.5
25°	1382.0	852.2	460.4	225.5	170.3	141.1	101.7	78.0	63.9	55.2	48.9
27.5°	1204.6	684.3	335.8	159.3	129.3	107.2	75.7	59.9	48.9	42.6	38.6
30°	927.9	437.5	193.2	114.3	93.8	76.5	56.8	43.4	37.1	33.1	30.0
32.5°	478.5	212.9	128.5	82.0	66.2	55.2	39.4	31.5	27.6	25.2	23.7
35°	262.5	151.4	89.1	52.8	42.6	35.5	26.8	22.1	20.5	18.9	18.9
37.5°	180.5	93.8	49.7	31.5	26.0	22.1	18.1	15.8	15.0	15.0	15.0
40°	104.1	49.7	28.4	19.7	16.6	15.0	12.6	11.8	11.8	11.8	12.6
42.5°	53.6	29.2	18.9	13.4	11.8	10.2	8.7	8.7	8.7	9.5	10.2
45°	31.5	19.7	12.6	8.7	7.9	7.1	6.3	6.3	7.1	7.9	8.7
47.5°	19.7	13.4	7.9	5.5	4.7	4.7	4.7	4.7	5.5	6.3	7.1
50°	13.4	7.1	4.7	3.2	3.2	3.2	3.2	3.9	4.7	5.5	6.3
52.5°	7.1	3.9	3.2	2.4	2.4	2.4	3.2	3.2	3.9	4.7	5.5
55°	3.9	3.2	2.4	2.4	2.4	2.4	2.4	3.2	3.9	4.7	5.5
57.5°	3.2	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.9	4.7
60°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.9	4.7
62.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.9	3.9
65°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.9	3.9
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.9
70°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.9
72.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2
75°	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.9
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2
80°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2
82.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2
85°	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0
2.5°	186.1	179.7	173.4	173.4	170.3	165.6	164.0	159.3	156.1	154.5	152.9
5°	170.3	160.8	152.2	151.4	147.4	141.9	139.5	134.8	131.7	130.1	129.3
7.5°	152.2	142.7	134.0	132.4	129.3	125.4	123.0	119.0	117.5	115.9	115.1
10°	134.8	125.4	119.0	117.5	115.1	111.9	109.6	107.2	105.6	104.9	104.9
12.5°	117.5	110.4	104.9	103.3	101.7	99.3	97.8	96.2	95.4	95.4	95.4
15°	101.7	95.4	90.7	90.7	89.1	87.5	87.5	85.9	85.1	85.9	86.7
17.5°	85.9	81.2	77.3	77.3	76.5	75.7	75.7	75.7	76.5	77.3	78.8
20°	71.0	67.0	65.4	65.4	64.6	65.4	65.4	66.2	67.0	69.4	71.7
22.5°	57.6	55.2	53.6	54.4	54.4	55.2	56.0	57.6	59.1	61.5	63.9
25°	46.5	44.9	44.1	44.9	45.7	46.5	48.1	49.7	52.0	54.4	57.6
27.5°	37.1	36.3	36.3	37.1	37.8	39.4	41.8	43.4	45.7	48.1	51.2
30°	30.0	29.2	30.0	31.5	32.3	33.9	35.5	37.8	40.2	42.6	45.7
32.5°	23.7	24.4	25.2	26.0	26.8	29.2	30.7	32.3	34.7	37.1	40.2
35°	19.7	20.5	21.3	22.1	22.9	24.4	26.0	27.6	30.0	32.3	35.5
37.5°	15.8	16.6	17.3	18.9	19.7	20.5	22.9	23.7	26.0	27.6	30.7
40°	13.4	14.2	15.0	15.8	16.6	18.1	19.7	20.5	22.1	24.4	26.8
42.5°	11.0	11.8	12.6	13.4	14.2	15.8	16.6	18.1	19.7	21.3	22.9
45°	9.5	10.2	11.0	11.8	12.6	13.4	14.2	15.8	16.6	18.1	19.7
47.5°	7.9	8.7	10.2	10.2	11.0	11.8	12.6	13.4	15.0	15.8	17.3
50°	7.1	7.9	8.7	9.5	9.5	10.2	11.0	11.8	12.6	13.4	15.0
52.5°	6.3	7.1	7.9	7.9	8.7	9.5	10.2	10.2	11.0	11.8	12.6
55°	5.5	6.3	7.1	7.1	7.9	8.7	8.7	9.5	10.2	10.2	11.0
57.5°	5.5	5.5	6.3	6.3	7.1	7.1	7.9	8.7	8.7	9.5	10.2
60°	4.7	5.5	5.5	6.3	6.3	7.1	7.1	7.9	7.9	8.7	8.7
62.5°	4.7	4.7	5.5	5.5	6.3	6.3	7.1	7.1	7.1	7.9	7.9
65°	4.7	4.7	5.5	5.5	5.5	6.3	6.3	6.3	6.3	7.1	7.1
67.5°	3.9	4.7	4.7	5.5	5.5	5.5	5.5	5.5	6.3	6.3	6.3
70°	3.9	4.7	4.7	4.7	4.7	5.5	5.5	5.5	5.5	5.5	5.5
72.5°	3.9	3.9	3.9	3.9	4.7	4.7	4.7	4.7	4.7	4.7	4.7
75°	3.9	3.9	3.9	3.9	3.9	4.7	4.7	4.7	4.7	4.7	4.7
77.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
80°	3.2	3.2	3.2	3.2	3.2	3.9	3.2	3.2	3.2	3.2	3.2
82.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4
85°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4	2.4
87.5°	3.2	3.2	3.2	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
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: P182751

CATALOG NUMBER: LDSQA4A13830D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	201.0	201.0	201.0	201.0	201.0	201.0	201.0	201.0
2.5°	150.6	149.0	150.6	149.0	149.0	145.8	148.2	146.6
5°	126.9	125.4	126.9	126.1	124.6	123.8	125.4	124.6
7.5°	113.5	111.9	113.5	113.5	111.9	111.2	112.7	111.9
10°	103.3	102.5	103.3	103.3	102.5	101.7	103.3	102.5
12.5°	94.6	93.8	95.4	95.4	94.6	94.6	96.2	94.6
15°	86.7	86.7	88.3	88.3	88.3	88.3	89.9	89.1
17.5°	78.8	80.4	82.0	82.8	82.8	82.8	84.4	84.4
20°	72.5	74.1	75.7	76.5	77.3	77.3	78.8	78.8
22.5°	65.4	67.0	69.4	70.2	71.0	71.7	73.3	73.3
25°	59.1	60.7	63.1	63.9	65.4	66.2	67.8	67.8
27.5°	52.8	55.2	56.8	58.3	59.1	60.7	62.3	62.3
30°	47.3	49.7	51.2	52.8	53.6	55.2	56.8	56.8
32.5°	41.8	44.1	45.7	47.3	48.9	49.7	52.0	52.0
35°	37.1	38.6	41.0	41.8	43.4	44.9	46.5	46.5
37.5°	32.3	33.9	35.5	37.1	38.6	39.4	41.0	41.8
40°	28.4	30.0	31.5	32.3	33.9	35.5	36.3	37.1
42.5°	24.4	26.0	27.6	28.4	30.0	30.7	32.3	32.3
45°	21.3	22.9	23.7	24.4	26.0	26.8	28.4	28.4
47.5°	18.1	19.7	20.5	21.3	22.1	22.9	24.4	24.4
50°	15.8	16.6	17.3	18.1	18.9	20.5	21.3	21.3
52.5°	13.4	15.0	15.0	15.8	16.6	17.3	18.1	18.9
55°	11.8	12.6	13.4	13.4	14.2	15.0	15.8	16.6
57.5°	10.2	11.0	11.8	11.8	12.6	12.6	13.4	14.2
60°	9.5	9.5	10.2	10.2	10.2	11.0	11.0	11.8
62.5°	7.9	7.9	8.7	8.7	8.7	8.7	8.7	8.7
65°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
67.5°	6.3	6.3	6.3	6.3	5.5	5.5	5.5	5.5
70°	5.5	5.5	5.5	5.5	4.7	4.7	4.7	3.9
72.5°	4.7	4.7	4.7	4.7	3.9	3.9	3.2	3.2
75°	3.9	3.9	3.9	3.9	3.9	3.2	3.2	3.2
77.5°	3.9	3.2	3.2	3.2	3.2	3.2	3.2	2.4
80°	3.2	3.2	2.4	2.4	2.4	2.4	2.4	2.4
82.5°	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6
85°	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6
87.5°	1.6	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)