

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: P182639

Luminaire Tested: **LDSQA4A18830D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182639
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26830)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A18830D010TE LAR15SP 4LSQA1H-LSF-20 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 15° SPOT WITH SOLITE LENS, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1783.9 lumens
Efficiency: N/A
Efficacy: 61.3 lumens/watt
Spacing Criteria (0/90/45): 2.28 / 0.64 / 1.15
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

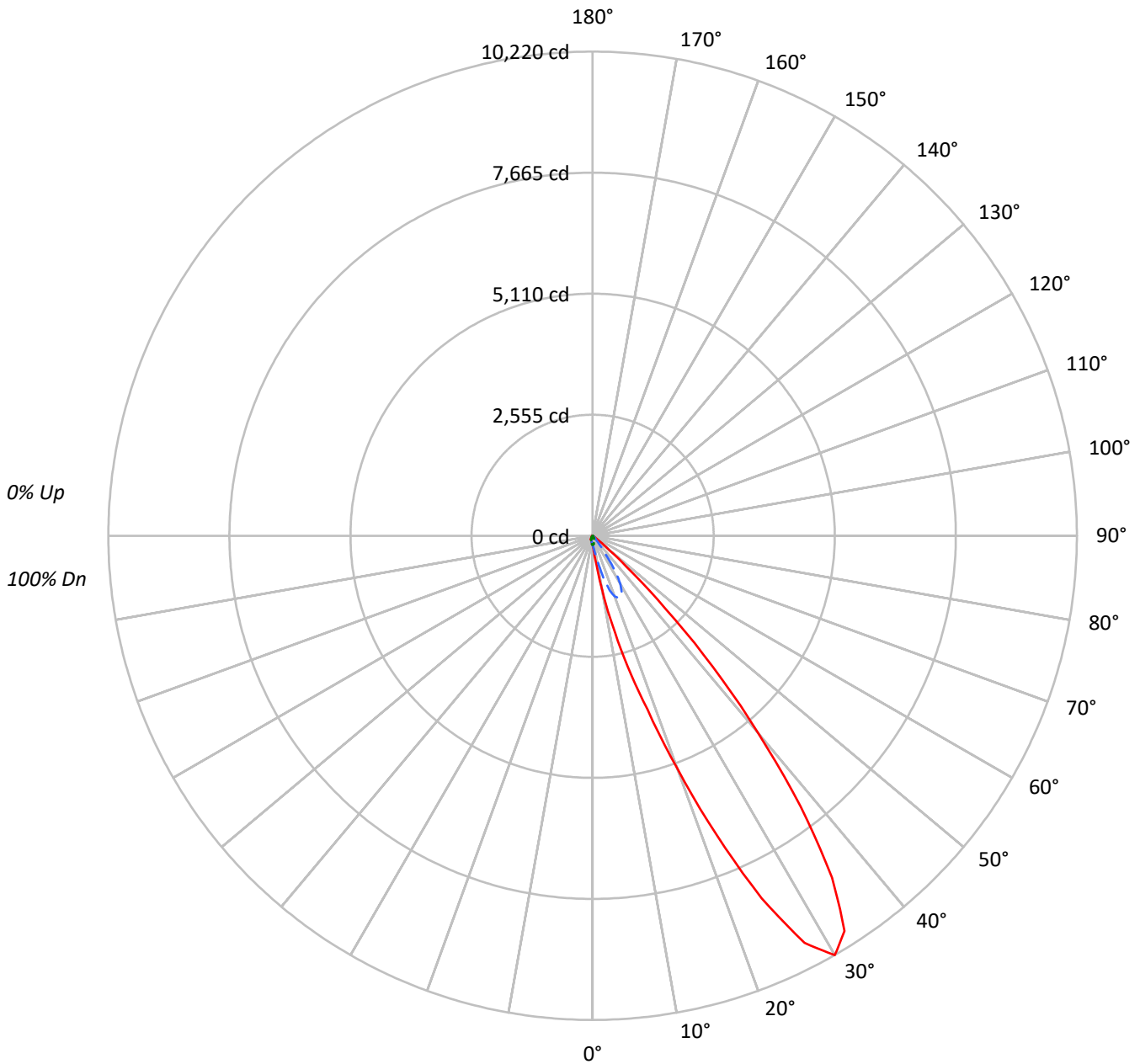
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				
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			
1	112	109	106	104	110	107	105	102	103	101	99	99	98	96	96	94	93	91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74			
4	92	83	77	72	90	82	76	71	80	75	70	78	73	70	76	72	69	67			
5	86	76	69	64	85	75	69	64	73	68	63	72	67	63	70	66	62	60			
6	81	70	63	58	79	69	62	57	67	61	57	66	61	57	64	60	56	54			
7	75	64	57	52	74	63	57	52	62	56	51	61	55	51	59	55	51	49			
8	70	59	52	47	69	58	51	47	57	51	46	56	50	46	55	50	46	44			
9	66	54	47	42	65	54	47	42	53	46	42	52	46	42	51	46	42	40			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	18658	18658	18658
5°	35728	17767	14422
10°	116844	15749	12277
15°	286135	13008	10842
20°	539133	9928	9722
25°	902495	7033	8508
30°	1143276	4832	7249
35°	1041732	3134	6162
40°	686068	2238	5223
45°	297186	1480	4302
50°	52719	1040	3557
55°	8462	828	2989
60°	2093	756	2286
65°	665	894	1811
70°	566	1105	1388
75°	749	1085	1085
80°	0	1618	1116
85°	0	3223	1112



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	24.7	1.4
10°-20°	198.4	11.1
20°-30°	597.7	33.5
30°-40°	680.3	38.1
40°-50°	251.5	14.1
50°-60°	20.0	1.1
60°-70°	5.4	0.3
70°-80°	3.7	0.2
80°-90°	2.1	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°	820.8	46.0
0°-40°	1501.1	84.1
0°-60°	1772.6	99.4
0°-90°	1783.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1783.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	193	193	193	193	193	
5°	367	270	183	153	148	60
15°	2853	964	130	102	108	895
25°	8443	1409	66	64	80	3854
35°	8809	493	26	36	52	5237
45°	2169	58	11	20	31	1837
55°	50	11	5	12	18	82
65°	3	3	4	8	8	4
75°	2	3	3	5	3	1
85°	0	2	3	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°	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6
2.5°	247.6	249.5	247.6	243.6	243.6	238.7	236.8	234.8	229.9	226.9	223.0
5°	367.4	361.5	356.6	344.8	340.9	330.1	322.2	311.4	296.7	283.9	270.2
7.5°	628.8	619.9	601.3	565.9	544.3	517.8	497.1	462.7	418.5	382.2	345.8
10°	1187.8	1149.5	1105.3	1025.7	967.7	905.8	856.7	764.3	653.3	562.0	473.5
12.5°	1913.8	1916.8	1834.2	1699.6	1592.6	1483.5	1399.0	1228.1	1031.6	859.6	689.7
15°	2853.0	2799.0	2713.5	2507.2	2293.0	2134.9	2000.3	1740.9	1462.9	1211.4	963.8
17.5°	3842.4	3865.0	3665.5	3328.5	2989.6	2752.8	2549.5	2156.5	1826.4	1514.9	1212.3
20°	5229.6	5074.4	4789.4	4243.2	3716.6	3373.7	3072.1	2562.2	2101.5	1705.5	1365.6
22.5°	6829.0	6578.5	5998.8	5229.6	4432.8	3958.3	3537.8	2836.3	2276.3	1802.8	1417.7
25°	8443.2	8251.6	7328.1	6178.6	5037.0	4422.0	3877.7	3022.0	2359.8	1825.4	1408.8
27.5°	9688.9	9376.5	8324.3	6826.1	5397.6	4671.6	4035.9	3079.0	2342.2	1770.4	1325.3
30°	10220.4	9825.5	8659.3	6973.4	5400.5	4630.3	3957.3	2966.0	2216.4	1630.9	1168.1
32.5°	9892.3	9436.4	8260.4	6565.7	5031.1	4308.0	3653.7	2721.4	2008.1	1411.8	877.3
35°	8808.6	8354.8	7265.2	5761.1	4441.7	3809.9	3241.1	2402.1	1710.4	1046.3	493.2
37.5°	7213.1	6826.1	6047.0	4828.7	3743.1	3230.3	2756.8	2023.8	1274.2	600.3	247.6
40°	5425.1	5153.0	4685.3	3829.6	3029.9	2639.8	2258.7	1550.3	774.2	301.6	140.5
42.5°	3760.8	3584.0	3349.2	2833.4	2337.2	2069.0	1763.5	1035.5	397.9	166.0	87.4
45°	2169.2	2058.2	1993.4	1773.3	1579.8	1449.1	1178.9	558.0	201.4	99.2	58.0
47.5°	957.9	884.2	852.8	760.4	707.4	672.0	533.5	237.8	108.1	63.9	48.1
50°	349.8	349.8	350.7	308.5	252.5	226.9	177.8	105.1	60.9	50.1	35.4
52.5°	123.8	121.8	126.7	119.9	105.1	94.3	78.6	53.1	37.3	31.4	19.6
55°	50.1	48.1	50.1	47.2	44.2	41.3	36.4	28.5	23.6	19.6	10.8
57.5°	22.6	22.6	23.6	22.6	22.6	20.6	18.7	21.6	16.7	10.8	6.9
60°	10.8	10.8	11.8	11.8	11.8	10.8	10.8	11.8	9.8	6.9	4.9
62.5°	4.9	4.9	5.9	5.9	5.9	5.9	5.9	6.9	4.9	3.9	2.9
65°	2.9	2.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
67.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9	2.9
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9
72.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9
77.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.9
80°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
82.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0
87.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0
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°	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6
2.5°	219.1	216.1	210.2	207.3	203.4	200.4	198.5	194.5	190.6	187.6	185.7
5°	257.4	246.6	233.8	224.0	216.1	211.2	203.4	196.5	188.6	182.7	177.8
7.5°	313.4	286.9	258.4	238.7	227.9	218.1	204.3	192.6	181.8	173.9	167.0
10°	400.8	343.9	293.8	255.4	236.8	223.0	201.4	184.7	170.9	160.1	153.3
12.5°	546.2	429.3	340.9	276.1	247.6	226.9	196.5	173.9	157.2	146.4	137.5
15°	745.7	555.1	405.8	300.6	260.3	230.9	188.6	161.1	142.5	129.7	121.8
17.5°	933.3	686.7	479.4	330.1	273.1	232.8	177.8	144.4	124.8	113.0	105.1
20°	1051.2	772.2	528.6	346.8	277.1	226.9	163.1	126.7	107.1	96.3	88.4
22.5°	1078.7	782.0	524.6	331.1	260.3	209.3	142.5	109.1	90.4	80.6	73.7
25°	1038.4	727.0	469.6	285.9	222.0	175.9	118.9	88.4	74.7	65.8	60.9
27.5°	937.3	618.9	371.4	215.2	166.0	129.7	90.4	68.8	59.9	53.1	50.1
30°	755.5	435.2	232.8	133.6	106.1	85.5	64.8	53.1	46.2	43.2	40.3
32.5°	457.8	224.0	122.8	79.6	66.8	58.0	47.2	39.3	35.4	33.4	32.4
35°	218.1	117.9	75.6	54.0	47.2	41.3	34.4	29.5	27.5	26.5	26.5
37.5°	123.8	76.6	51.1	36.4	32.4	28.5	25.5	22.6	21.6	21.6	21.6
40°	78.6	49.1	33.4	26.5	23.6	21.6	19.6	17.7	17.7	17.7	17.7
42.5°	51.1	35.4	25.5	19.6	17.7	16.7	14.7	13.8	13.8	13.8	14.7
45°	40.3	29.5	20.6	15.7	13.8	12.8	11.8	10.8	10.8	10.8	11.8
47.5°	34.4	20.6	13.8	10.8	8.8	8.8	7.9	7.9	7.9	8.8	9.8
50°	20.6	12.8	8.8	6.9	5.9	5.9	5.9	5.9	5.9	6.9	7.9
52.5°	11.8	7.9	5.9	4.9	3.9	3.9	3.9	3.9	4.9	5.9	5.9
55°	7.9	5.9	3.9	3.9	2.9	2.9	2.9	3.9	3.9	4.9	5.9
57.5°	4.9	3.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	4.9	4.9
60°	3.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	4.9
62.5°	2.9	2.9	3.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	4.9
65°	2.9	2.9	3.9	3.9	2.9	2.9	2.9	2.9	2.9	3.9	4.9
67.5°	2.9	2.9	3.9	3.9	3.9	3.9	2.9	2.9	2.9	3.9	3.9
70°	2.9	3.9	3.9	3.9	3.9	3.9	3.9	2.9	2.9	3.9	3.9
72.5°	2.9	3.9	3.9	3.9	3.9	3.9	3.9	2.9	2.9	3.9	3.9
75°	2.9	2.9	3.9	3.9	3.9	3.9	3.9	2.9	2.9	2.9	3.9
77.5°	2.9	2.9	3.9	3.9	3.9	3.9	3.9	2.9	2.9	2.9	3.9
80°	2.9	2.9	2.9	3.9	2.9	3.9	2.9	2.9	2.9	2.9	2.9
82.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
85°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
87.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6
2.5°	182.7	180.8	177.8	176.8	177.8	176.8	171.9	170.9	169.0	169.0	169.0
5°	172.9	170.0	166.0	164.1	164.1	162.1	157.2	156.2	153.3	153.3	152.3
7.5°	161.1	157.2	152.3	150.3	150.3	148.3	143.4	141.5	139.5	139.5	138.5
10°	147.4	142.5	137.5	136.6	135.6	132.6	129.7	128.7	125.8	126.7	125.8
12.5°	131.6	127.7	123.8	121.8	121.8	118.9	116.9	115.9	114.9	114.9	114.9
15°	116.9	112.0	108.1	107.1	107.1	106.1	104.1	104.1	102.2	104.1	104.1
17.5°	100.2	96.3	95.3	93.3	94.3	93.3	91.4	92.4	92.4	93.3	94.3
20°	84.5	81.5	80.6	79.6	80.6	80.6	79.6	80.6	81.5	84.5	86.5
22.5°	70.7	68.8	68.8	67.8	68.8	69.8	68.8	70.7	72.7	74.7	77.6
25°	58.9	58.0	58.0	58.0	58.9	59.9	60.9	62.9	63.9	66.8	68.8
27.5°	48.1	48.1	48.1	49.1	50.1	51.1	52.1	55.0	56.0	58.9	60.9
30°	40.3	39.3	40.3	41.3	42.2	44.2	45.2	47.2	48.1	51.1	53.1
32.5°	32.4	33.4	34.4	35.4	36.4	37.3	38.3	40.3	42.2	44.2	46.2
35°	27.5	27.5	28.5	29.5	30.5	32.4	33.4	34.4	36.4	38.3	39.3
37.5°	22.6	23.6	24.6	25.5	26.5	27.5	28.5	29.5	30.5	32.4	34.4
40°	18.7	19.6	20.6	21.6	21.6	23.6	23.6	25.5	26.5	28.5	30.5
42.5°	15.7	16.7	17.7	18.7	18.7	19.6	20.6	21.6	22.6	24.6	26.5
45°	12.8	13.8	14.7	15.7	15.7	16.7	17.7	18.7	19.6	21.6	22.6
47.5°	10.8	11.8	12.8	13.8	13.8	14.7	15.7	16.7	16.7	18.7	19.6
50°	8.8	9.8	10.8	11.8	11.8	12.8	13.8	14.7	14.7	15.7	16.7
52.5°	6.9	7.9	9.8	9.8	10.8	11.8	11.8	12.8	12.8	13.8	14.7
55°	6.9	7.9	8.8	8.8	9.8	10.8	10.8	11.8	11.8	11.8	12.8
57.5°	5.9	6.9	7.9	8.8	8.8	9.8	9.8	9.8	9.8	10.8	10.8
60°	5.9	6.9	6.9	7.9	7.9	8.8	8.8	8.8	8.8	9.8	9.8
62.5°	5.9	5.9	6.9	6.9	7.9	7.9	7.9	8.8	8.8	8.8	8.8
65°	4.9	5.9	6.9	6.9	6.9	7.9	7.9	7.9	7.9	7.9	7.9
67.5°	4.9	5.9	5.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
70°	4.9	4.9	5.9	5.9	5.9	6.9	6.9	6.9	5.9	6.9	5.9
72.5°	3.9	4.9	4.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
75°	3.9	4.9	4.9	4.9	4.9	5.9	5.9	4.9	4.9	4.9	4.9
77.5°	3.9	3.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	3.9
80°	3.9	3.9	3.9	3.9	4.9	4.9	3.9	3.9	3.9	3.9	3.9
82.5°	2.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	2.9	2.9	2.9
85°	2.9	2.9	3.9	3.9	3.9	3.9	2.9	2.9	2.9	2.9	2.0
87.5°	2.9	2.9	2.9	3.9	2.9	2.9	2.9	2.9	2.0	2.0	2.0
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: P182639

CATALOG NUMBER: LDSQA4A18830D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	192.6	192.6	192.6	192.6	192.6	192.6	192.6	192.6
2.5°	166.0	165.1	166.0	165.1	165.1	166.0	163.1	165.1
5°	150.3	148.3	149.3	148.3	147.4	148.3	146.4	148.3
7.5°	136.6	135.6	135.6	135.6	134.6	135.6	133.6	135.6
10°	124.8	123.8	123.8	123.8	123.8	124.8	122.8	124.8
12.5°	113.0	113.0	114.0	113.0	114.0	114.9	113.0	114.9
15°	103.2	104.1	105.1	105.1	106.1	107.1	106.1	108.1
17.5°	95.3	96.3	98.2	98.2	99.2	101.2	100.2	102.2
20°	87.4	88.4	90.4	90.4	91.4	93.3	92.4	94.3
22.5°	78.6	80.6	81.5	82.5	83.5	85.5	84.5	86.5
25°	69.8	72.7	73.7	74.7	75.6	77.6	77.6	79.6
27.5°	62.9	64.8	65.8	66.8	68.8	70.7	70.7	71.7
30°	55.0	57.0	58.9	59.9	60.9	62.9	62.9	64.8
32.5°	48.1	50.1	51.1	52.1	54.0	56.0	57.0	58.0
35°	41.3	44.2	45.2	47.2	48.1	51.1	51.1	52.1
37.5°	36.4	38.3	40.3	41.3	43.2	45.2	45.2	47.2
40°	32.4	34.4	35.4	36.4	38.3	40.3	40.3	41.3
42.5°	27.5	30.5	31.4	32.4	33.4	35.4	36.4	37.3
45°	24.6	25.5	26.5	27.5	28.5	30.5	30.5	31.4
47.5°	20.6	21.6	22.6	23.6	24.6	25.5	26.5	27.5
50°	17.7	18.7	19.6	19.6	20.6	22.6	22.6	23.6
52.5°	14.7	15.7	16.7	16.7	17.7	19.6	19.6	20.6
55°	12.8	13.8	14.7	14.7	15.7	16.7	16.7	17.7
57.5°	11.8	11.8	12.8	12.8	13.8	13.8	14.7	14.7
60°	9.8	10.8	10.8	10.8	11.8	11.8	11.8	11.8
62.5°	8.8	8.8	8.8	8.8	8.8	8.8	8.8	9.8
65°	7.9	7.9	7.9	7.9	7.9	7.9	6.9	7.9
67.5°	6.9	6.9	6.9	6.9	5.9	5.9	5.9	5.9
70°	5.9	5.9	5.9	5.9	5.9	4.9	4.9	4.9
72.5°	4.9	4.9	4.9	4.9	4.9	3.9	3.9	3.9
75°	4.9	4.9	3.9	3.9	3.9	3.9	3.9	2.9
77.5°	3.9	3.9	3.9	3.9	2.9	2.9	2.9	2.9
80°	2.9	2.9	2.9	2.9	2.9	2.9	2.0	2.0
82.5°	2.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
85°	2.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)