

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: P182658

Luminaire Tested: **LDSQA4A13927D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182658
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: LDSQA4A13927D010TE 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 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1126.1 lumens
Efficiency: N/A
Efficacy: 50.6 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

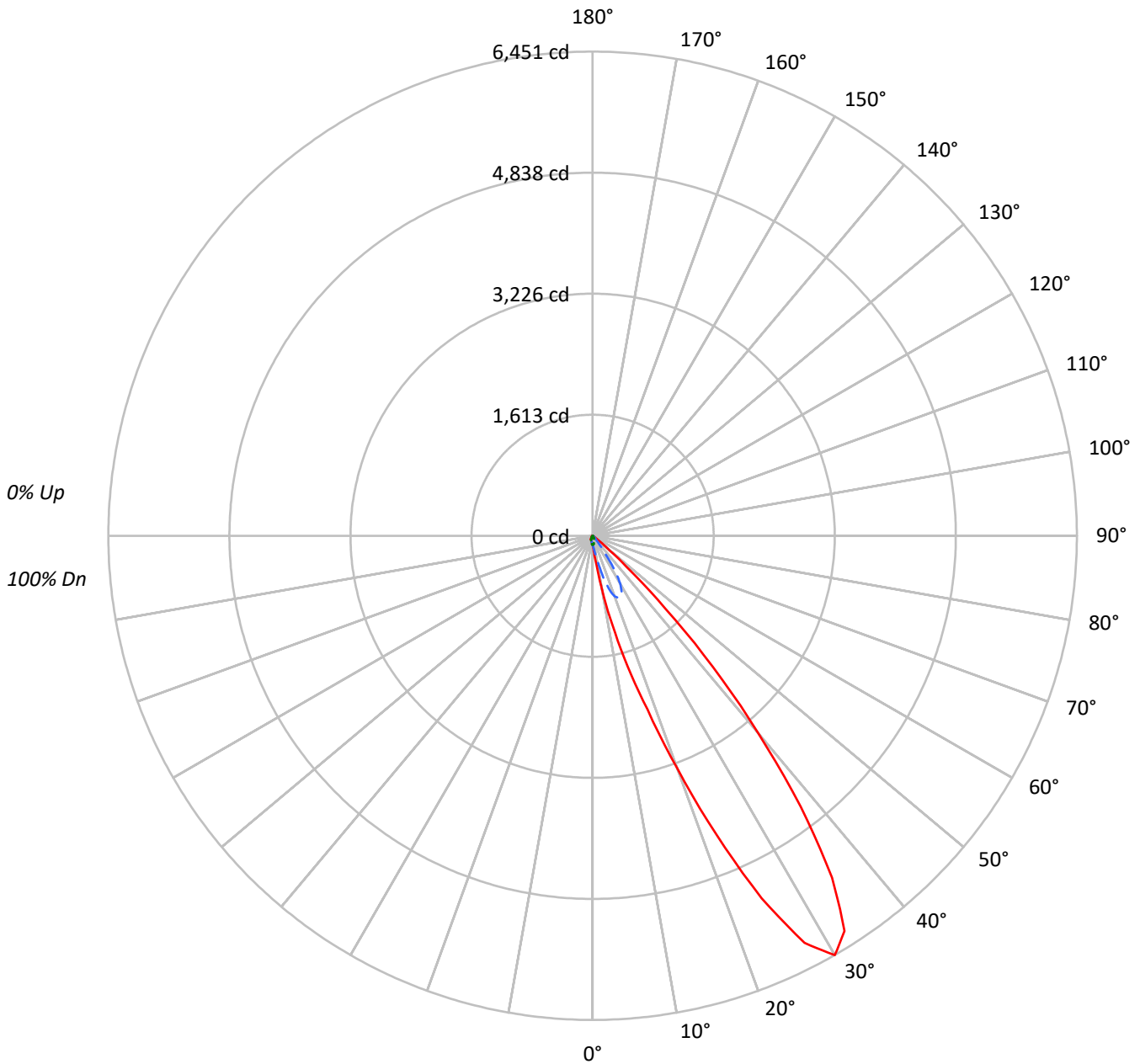
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
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	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	104	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	90	82	76	71	80	75	70	78	73	70	76	72	69	67					67			
5	86	76	69	64	85	75	69	64	73	68	63	72	67	63	70	66	62	60					60			
6	81	70	63	58	79	69	62	57	67	61	57	66	61	57	64	60	56	54					54			
7	75	64	57	52	74	63	57	52	62	56	51	61	55	51	59	55	51	49					49			
8	70	59	52	47	69	58	51	47	57	51	46	56	50	46	55	50	46	44					44			
9	66	54	47	42	65	54	47	42	53	46	42	52	46	42	51	46	42	40					40			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36					36			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	11770	11770	11770
5°	22551	11212	9102
10°	73758	9945	7752
15°	180617	8214	6840
20°	340309	6268	6134
25°	569671	4436	5366
30°	721667	3054	4575
35°	657566	1975	3891
40°	433056	1416	3288
45°	187598	932	2713
50°	33277	648	2246
55°	5337	524	1892
60°	1318	484	1434
65°	436	573	1146
70°	340	708	878
75°	449	711	711
80°	0	1060	669
85°	0	2112	667



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	15.6	1.4
10°-20°	125.3	11.1
20°-30°	377.3	33.5
30°-40°	429.4	38.1
40°-50°	158.8	14.1
50°-60°	12.6	1.1
60°-70°	3.4	0.3
70°-80°	2.4	0.2
80°-90°	1.4	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°	518.1	46.0
0°-40°	947.6	84.1
0°-60°	1118.9	99.4
0°-90°	1126.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1126.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	122	122	122	122	122	
5°	232	170	115	97	94	38
15°	1801	608	82	64	68	565
25°	5330	889	42	40	50	2433
35°	5560	311	17	23	33	3306
45°	1369	37	7	12	20	1159
55°	32	7	3	7	11	52
65°	2	2	2	5	5	2
75°	1	2	2	3	2	1
85°	0	1	2	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°	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5
2.5°	156.3	157.5	156.3	153.8	153.8	150.7	149.5	148.2	145.1	143.3	140.8
5°	231.9	228.2	225.1	217.7	215.2	208.4	203.4	196.6	187.3	179.2	170.5
7.5°	396.9	391.3	379.5	357.2	343.6	326.8	313.8	292.1	264.2	241.2	218.3
10°	749.8	725.6	697.7	647.4	610.8	571.8	540.8	482.5	412.4	354.7	298.9
12.5°	1208.0	1209.9	1157.8	1072.9	1005.3	936.4	883.1	775.2	651.2	542.6	435.3
15°	1800.9	1766.8	1712.8	1582.6	1447.4	1347.6	1262.6	1098.9	923.4	764.6	608.4
17.5°	2425.4	2439.7	2313.8	2101.1	1887.1	1737.6	1609.3	1361.2	1152.9	956.3	765.3
20°	3301.0	3203.1	3023.2	2678.4	2346.0	2129.6	1939.2	1617.3	1326.5	1076.6	862.0
22.5°	4310.6	4152.5	3786.6	3301.0	2798.1	2498.6	2233.1	1790.4	1436.9	1138.0	894.9
25°	5329.5	5208.6	4625.7	3900.1	3179.5	2791.3	2447.7	1907.6	1489.6	1152.2	889.3
27.5°	6115.9	5918.7	5254.5	4308.8	3407.1	2948.8	2547.6	1943.5	1478.4	1117.5	836.6
30°	6451.4	6202.1	5466.0	4401.8	3408.9	2922.7	2497.9	1872.2	1399.0	1029.4	737.4
32.5°	6244.2	5956.5	5214.2	4144.4	3175.8	2719.3	2306.3	1717.8	1267.6	891.1	553.8
35°	5560.2	5273.7	4586.0	3636.5	2803.7	2404.9	2045.9	1516.3	1079.7	660.5	311.3
37.5°	4553.1	4308.8	3817.0	3048.0	2362.8	2039.0	1740.1	1277.5	804.3	378.9	156.3
40°	3424.4	3252.7	2957.5	2417.3	1912.5	1666.3	1425.7	978.6	488.7	190.4	88.7
42.5°	2373.9	2262.3	2114.1	1788.5	1475.3	1306.0	1113.2	653.6	251.2	104.8	55.2
45°	1369.3	1299.2	1258.3	1119.4	997.2	914.7	744.2	352.2	127.1	62.6	36.6
47.5°	604.6	558.1	538.3	480.0	446.5	424.2	336.7	150.1	68.2	40.3	30.4
50°	220.8	220.8	221.4	194.7	159.4	143.3	112.2	66.4	38.4	31.6	22.3
52.5°	78.1	76.9	80.0	75.7	66.4	59.5	49.6	33.5	23.6	19.8	12.4
55°	31.6	30.4	31.6	29.8	27.9	26.0	22.9	18.0	14.9	12.4	6.8
57.5°	14.3	14.3	14.9	14.3	14.3	13.0	11.8	13.6	10.5	6.8	4.3
60°	6.8	6.8	7.4	7.4	7.4	6.8	6.8	7.4	6.2	4.3	3.1
62.5°	3.1	3.1	3.7	3.7	3.7	3.7	3.7	4.3	3.1	2.5	1.9
65°	1.9	1.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
67.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9	1.9
70°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9
72.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9
75°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9
77.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.9
80°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2
82.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.2	1.2
87.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.2	1.2
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5
2.5°	138.3	136.4	132.7	130.9	128.4	126.5	125.3	122.8	120.3	118.4	117.2
5°	162.5	155.7	147.6	141.4	136.4	133.3	128.4	124.0	119.1	115.3	112.2
7.5°	197.8	181.1	163.1	150.7	143.9	137.7	129.0	121.5	114.7	109.8	105.4
10°	253.0	217.1	185.4	161.2	149.5	140.8	127.1	116.6	107.9	101.1	96.7
12.5°	344.8	271.0	215.2	174.3	156.3	143.3	124.0	109.8	99.2	92.4	86.8
15°	470.7	350.4	256.1	189.8	164.3	145.7	119.1	101.7	89.9	81.9	76.9
17.5°	589.1	433.5	302.6	208.4	172.4	147.0	112.2	91.2	78.8	71.3	66.4
20°	663.6	487.4	333.6	218.9	174.9	143.3	102.9	80.0	67.6	60.8	55.8
22.5°	680.9	493.6	331.2	209.0	164.3	132.1	89.9	68.8	57.1	50.9	46.5
25°	655.5	458.9	296.4	180.5	140.2	111.0	75.0	55.8	47.1	41.5	38.4
27.5°	591.6	390.7	234.4	135.8	104.8	81.9	57.1	43.4	37.8	33.5	31.6
30°	476.9	274.7	147.0	84.3	67.0	54.0	40.9	33.5	29.1	27.3	25.4
32.5°	289.0	141.4	77.5	50.2	42.2	36.6	29.8	24.8	22.3	21.1	20.5
35°	137.7	74.4	47.8	34.1	29.8	26.0	21.7	18.6	17.4	16.7	16.7
37.5°	78.1	48.4	32.2	22.9	20.5	18.0	16.1	14.3	13.6	13.6	13.6
40°	49.6	31.0	21.1	16.7	14.9	13.6	12.4	11.2	11.2	11.2	11.2
42.5°	32.2	22.3	16.1	12.4	11.2	10.5	9.3	8.7	8.7	8.7	9.3
45°	25.4	18.6	13.0	9.9	8.7	8.1	7.4	6.8	6.8	6.8	7.4
47.5°	21.7	13.0	8.7	6.8	5.6	5.6	5.0	5.0	5.0	5.6	6.2
50°	13.0	8.1	5.6	4.3	3.7	3.7	3.7	3.7	3.7	4.3	5.0
52.5°	7.4	5.0	3.7	3.1	2.5	2.5	2.5	2.5	3.1	3.7	3.7
55°	5.0	3.7	2.5	2.5	1.9	1.9	1.9	2.5	2.5	3.1	3.7
57.5°	3.1	2.5	1.9	1.9	1.9	1.9	1.9	1.9	2.5	3.1	3.1
60°	2.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	3.1
62.5°	1.9	1.9	2.5	1.9	1.9	1.9	1.9	1.9	2.5	2.5	3.1
65°	1.9	1.9	2.5	2.5	1.9	1.9	1.9	1.9	1.9	2.5	3.1
67.5°	1.9	1.9	2.5	2.5	2.5	2.5	1.9	1.9	1.9	2.5	2.5
70°	1.9	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	2.5	2.5
72.5°	1.9	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	2.5	2.5
75°	1.9	1.9	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	2.5
77.5°	1.9	1.9	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	2.5
80°	1.9	1.9	1.9	2.5	1.9	2.5	1.9	1.9	1.9	1.9	1.9
82.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
85°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
87.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
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°	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5
2.5°	115.3	114.1	112.2	111.6	112.2	111.6	108.5	107.9	106.7	106.7	106.7
5°	109.1	107.3	104.8	103.6	103.6	102.3	99.2	98.6	96.7	96.7	96.1
7.5°	101.7	99.2	96.1	94.9	94.9	93.6	90.5	89.3	88.1	88.1	87.4
10°	93.0	89.9	86.8	86.2	85.6	83.7	81.9	81.2	79.4	80.0	79.4
12.5°	83.1	80.6	78.1	76.9	76.9	75.0	73.8	73.2	72.6	72.6	72.6
15°	73.8	70.7	68.2	67.6	67.6	67.0	65.7	65.7	64.5	65.7	65.7
17.5°	63.3	60.8	60.2	58.9	59.5	58.9	57.7	58.3	58.3	58.9	59.5
20°	53.3	51.5	50.9	50.2	50.9	50.9	50.2	50.9	51.5	53.3	54.6
22.5°	44.7	43.4	43.4	42.8	43.4	44.0	43.4	44.7	45.9	47.1	49.0
25°	37.2	36.6	36.6	36.6	37.2	37.8	38.4	39.7	40.3	42.2	43.4
27.5°	30.4	30.4	30.4	31.0	31.6	32.2	32.9	34.7	35.3	37.2	38.4
30°	25.4	24.8	25.4	26.0	26.7	27.9	28.5	29.8	30.4	32.2	33.5
32.5°	20.5	21.1	21.7	22.3	22.9	23.6	24.2	25.4	26.7	27.9	29.1
35°	17.4	17.4	18.0	18.6	19.2	20.5	21.1	21.7	22.9	24.2	24.8
37.5°	14.3	14.9	15.5	16.1	16.7	17.4	18.0	18.6	19.2	20.5	21.7
40°	11.8	12.4	13.0	13.6	13.6	14.9	14.9	16.1	16.7	18.0	19.2
42.5°	9.9	10.5	11.2	11.8	11.8	12.4	13.0	13.6	14.3	15.5	16.7
45°	8.1	8.7	9.3	9.9	9.9	10.5	11.2	11.8	12.4	13.6	14.3
47.5°	6.8	7.4	8.1	8.7	8.7	9.3	9.9	10.5	10.5	11.8	12.4
50°	5.6	6.2	6.8	7.4	7.4	8.1	8.7	9.3	9.3	9.9	10.5
52.5°	4.3	5.0	6.2	6.2	6.8	7.4	7.4	8.1	8.1	8.7	9.3
55°	4.3	5.0	5.6	5.6	6.2	6.8	6.8	7.4	7.4	7.4	8.1
57.5°	3.7	4.3	5.0	5.6	5.6	6.2	6.2	6.2	6.2	6.8	6.8
60°	3.7	4.3	4.3	5.0	5.0	5.6	5.6	5.6	5.6	6.2	6.2
62.5°	3.7	3.7	4.3	4.3	5.0	5.0	5.0	5.6	5.6	5.6	5.6
65°	3.1	3.7	4.3	4.3	4.3	5.0	5.0	5.0	5.0	5.0	5.0
67.5°	3.1	3.7	3.7	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
70°	3.1	3.1	3.7	3.7	3.7	4.3	4.3	4.3	3.7	4.3	3.7
72.5°	2.5	3.1	3.1	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
75°	2.5	3.1	3.1	3.1	3.1	3.7	3.7	3.1	3.1	3.1	3.1
77.5°	2.5	2.5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.5
80°	2.5	2.5	2.5	2.5	3.1	3.1	2.5	2.5	2.5	2.5	2.5
82.5°	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9
85°	1.9	1.9	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9	1.2
87.5°	1.9	1.9	1.9	2.5	1.9	1.9	1.9	1.9	1.2	1.2	1.2
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: P182658

CATALOG NUMBER: LDSQA4A13927D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	121.5	121.5	121.5	121.5	121.5	121.5	121.5	121.5
2.5°	104.8	104.2	104.8	104.2	104.2	104.8	102.9	104.2
5°	94.9	93.6	94.3	93.6	93.0	93.6	92.4	93.6
7.5°	86.2	85.6	85.6	85.6	85.0	85.6	84.3	85.6
10°	78.8	78.1	78.1	78.1	78.1	78.8	77.5	78.8
12.5°	71.3	71.3	71.9	71.3	71.9	72.6	71.3	72.6
15°	65.1	65.7	66.4	66.4	67.0	67.6	67.0	68.2
17.5°	60.2	60.8	62.0	62.0	62.6	63.9	63.3	64.5
20°	55.2	55.8	57.1	57.1	57.7	58.9	58.3	59.5
22.5°	49.6	50.9	51.5	52.1	52.7	54.0	53.3	54.6
25°	44.0	45.9	46.5	47.1	47.8	49.0	49.0	50.2
27.5°	39.7	40.9	41.5	42.2	43.4	44.7	44.7	45.3
30°	34.7	36.0	37.2	37.8	38.4	39.7	39.7	40.9
32.5°	30.4	31.6	32.2	32.9	34.1	35.3	36.0	36.6
35°	26.0	27.9	28.5	29.8	30.4	32.2	32.2	32.9
37.5°	22.9	24.2	25.4	26.0	27.3	28.5	28.5	29.8
40°	20.5	21.7	22.3	22.9	24.2	25.4	25.4	26.0
42.5°	17.4	19.2	19.8	20.5	21.1	22.3	22.9	23.6
45°	15.5	16.1	16.7	17.4	18.0	19.2	19.2	19.8
47.5°	13.0	13.6	14.3	14.9	15.5	16.1	16.7	17.4
50°	11.2	11.8	12.4	12.4	13.0	14.3	14.3	14.9
52.5°	9.3	9.9	10.5	10.5	11.2	12.4	12.4	13.0
55°	8.1	8.7	9.3	9.3	9.9	10.5	10.5	11.2
57.5°	7.4	7.4	8.1	8.1	8.7	8.7	9.3	9.3
60°	6.2	6.8	6.8	6.8	7.4	7.4	7.4	7.4
62.5°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	6.2
65°	5.0	5.0	5.0	5.0	5.0	5.0	4.3	5.0
67.5°	4.3	4.3	4.3	4.3	3.7	3.7	3.7	3.7
70°	3.7	3.7	3.7	3.7	3.7	3.1	3.1	3.1
72.5°	3.1	3.1	3.1	3.1	3.1	2.5	2.5	2.5
75°	3.1	3.1	2.5	2.5	2.5	2.5	2.5	1.9
77.5°	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.2	1.2
82.5°	1.9	1.2	1.2	1.2	1.2	1.2	1.2	1.2
85°	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6
87.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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)