

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: P182638

Luminaire Tested: **LDSQA4A18827D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182638
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: LDSQA4A18827D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1748.0 lumens
Efficiency: N/A
Efficacy: 60.0 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

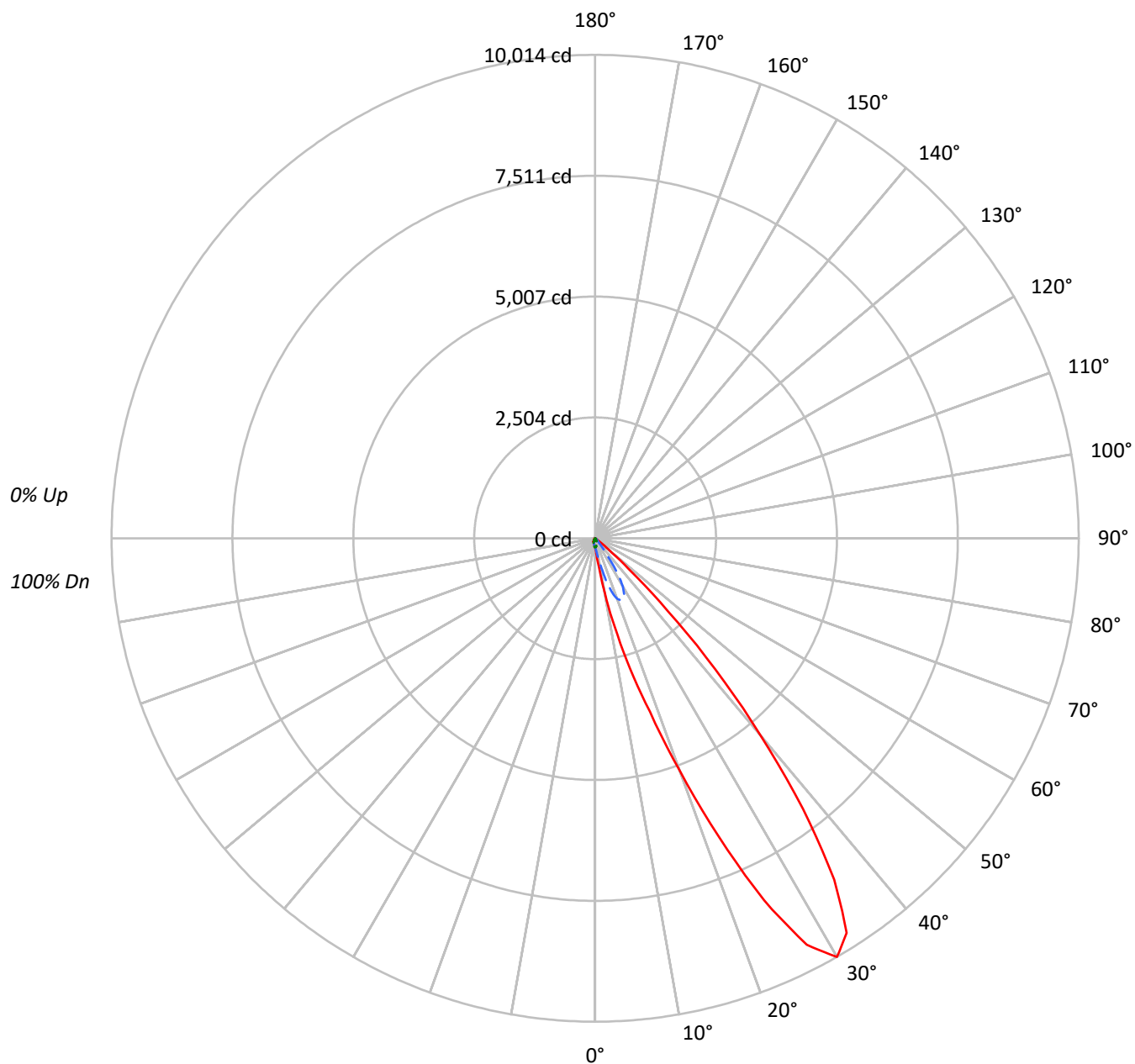
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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
RW	70	50	30	10	70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																				
0	119	119	119	119	116	116	116	116		111	111	111		106	106	106		102	102	102
1	112	109	106	104	110	107	104	102		103	101	99		99	98	96		96	94	93
2	106	100	95	91	103	98	94	90		95	91	88		92	89	86		89	87	84
3	99	91	85	81	97	90	84	80		87	83	79		85	81	77		82	79	76
4	92	83	77	72	90	82	76	71		80	75	70		78	73	70		76	72	69
5	86	76	69	64	85	75	69	64		73	68	63		72	67	63		70	66	62
6	81	70	63	58	79	69	62	57		67	61	57		66	61	57		64	60	56
7	75	64	57	52	74	63	57	52		62	56	51		61	55	51		59	55	51
8	70	59	52	47	69	58	51	47		57	51	46		56	50	46		55	50	46
9	66	54	47	42	65	54	47	42		53	46	42		52	46	42		51	46	42
10	62	50	43	38	60	50	43	38		49	42	38		48	42	38		47	42	38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	18280	18280	18280
5°	35008	17407	14139
10°	114483	15434	12031
15°	280369	12747	10621
20°	528257	9722	9526
25°	884281	6894	8337
30°	1120210	4743	7103
35°	1020717	3075	6031
40°	672221	2188	5109
45°	291199	1452	4220
50°	51649	1010	3481
55°	8293	811	2922
60°	2054	756	2248
65°	665	894	1765
70°	538	1105	1360
75°	711	1085	1085
80°	0	1618	1060
85°	0	3223	1112



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	24.2	1.4
10°-20°	194.4	11.1
20°-30°	585.6	33.5
30°-40°	666.6	38.1
40°-50°	246.5	14.1
50°-60°	19.6	1.1
60°-70°	5.3	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°	804.3	46.0
0°-40°	1470.8	84.1
0°-60°	1736.9	99.4
0°-90°	1748.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1748.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	189	189	189	189	189	
5°	360	265	179	150	145	58
15°	2796	944	127	100	106	877
25°	8273	1380	64	63	78	3776
35°	8631	483	26	36	51	5131
45°	2126	57	11	19	31	1800
55°	49	11	5	12	17	80
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°	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7
2.5°	242.6	244.5	242.6	238.7	238.7	233.9	232.0	230.1	225.3	222.4	218.5
5°	360.0	354.2	349.4	337.9	334.0	323.4	315.7	305.2	290.7	278.2	264.7
7.5°	616.1	607.4	589.1	554.5	533.3	507.3	487.1	453.4	410.1	374.5	338.8
10°	1163.8	1126.3	1083.0	1005.0	948.2	887.5	839.4	748.9	640.1	550.6	464.0
12.5°	1875.2	1878.1	1797.2	1665.3	1560.4	1453.6	1370.8	1203.3	1010.8	842.3	675.8
15°	2795.5	2742.5	2658.8	2456.6	2246.8	2091.8	1959.9	1705.8	1433.4	1186.9	944.3
17.5°	3764.8	3787.0	3591.6	3261.4	2929.3	2697.3	2498.0	2113.0	1789.5	1484.4	1187.9
20°	5124.1	4972.0	4692.8	4157.6	3641.6	3305.7	3010.1	2510.5	2059.1	1671.1	1338.1
22.5°	6691.2	6445.8	5877.8	5124.1	4343.4	3878.4	3466.4	2779.1	2230.4	1766.4	1389.1
25°	8272.8	8085.1	7180.2	6054.0	4935.4	4332.8	3799.5	2961.0	2312.2	1788.6	1380.4
27.5°	9493.4	9187.3	8156.4	6688.3	5288.7	4577.3	3954.5	3016.9	2294.9	1734.7	1298.6
30°	10014.2	9627.2	8484.6	6832.7	5291.6	4536.9	3877.5	2906.2	2171.7	1598.0	1144.6
32.5°	9692.7	9246.0	8093.8	6433.2	4929.6	4221.1	3580.0	2666.5	1967.6	1383.3	859.6
35°	8630.9	8186.2	7118.6	5644.9	4352.0	3733.1	3175.7	2353.6	1675.9	1025.2	483.2
37.5°	7067.6	6688.3	5925.0	4731.3	3667.6	3165.1	2701.1	1983.0	1248.5	588.2	242.6
40°	5315.6	5049.0	4590.8	3752.3	2968.7	2586.6	2213.1	1519.0	758.6	295.5	137.7
42.5°	3684.9	3511.7	3281.6	2776.2	2290.1	2027.3	1727.9	1014.6	389.9	162.7	85.7
45°	2125.5	2016.7	1953.2	1737.5	1547.9	1419.9	1155.2	546.8	197.3	97.2	56.8
47.5°	938.6	866.4	835.6	745.1	693.1	658.4	522.7	233.0	105.9	62.6	47.2
50°	342.7	342.7	343.7	302.3	247.4	222.4	174.2	103.0	59.7	49.1	34.7
52.5°	121.3	119.4	124.2	117.4	103.0	92.4	77.0	52.0	36.6	30.8	19.3
55°	49.1	47.2	49.1	46.2	43.3	40.4	35.6	27.9	23.1	19.3	10.6
57.5°	22.1	22.1	23.1	22.1	22.1	20.2	18.3	21.2	16.4	10.6	6.7
60°	10.6	10.6	11.6	11.6	11.6	10.6	10.6	11.6	9.6	6.7	4.8
62.5°	4.8	4.8	5.8	5.8	5.8	5.8	5.8	6.7	4.8	3.9	2.9
65°	2.9	1.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9	2.9
70°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9
72.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9
75°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9
77.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.9	1.9	2.9
80°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.9	1.9	1.9
82.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.9	1.9	1.9
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.9	1.9
87.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7
2.5°	214.7	211.8	206.0	203.1	199.3	196.4	194.5	190.6	186.7	183.9	181.9
5°	252.2	241.6	229.1	219.5	211.8	207.0	199.3	192.5	184.8	179.0	174.2
7.5°	307.1	281.1	253.2	233.9	223.3	213.7	200.2	188.7	178.1	170.4	163.6
10°	392.8	336.9	287.8	250.3	232.0	218.5	197.3	181.0	167.5	156.9	150.2
12.5°	535.2	420.7	334.0	270.5	242.6	222.4	192.5	170.4	154.0	143.4	134.8
15°	730.6	543.9	397.6	294.6	255.1	226.2	184.8	157.9	139.6	127.1	119.4
17.5°	914.5	672.9	469.8	323.4	267.6	228.1	174.2	141.5	122.3	110.7	103.0
20°	1030.0	756.6	517.9	339.8	271.5	222.4	159.8	124.2	104.9	94.3	86.6
22.5°	1057.0	766.3	514.0	324.4	255.1	205.0	139.6	106.9	88.6	78.9	72.2
25°	1017.5	712.3	460.1	280.1	217.6	172.3	116.5	86.6	73.2	64.5	59.7
27.5°	918.3	606.5	363.9	210.8	162.7	127.1	88.6	67.4	58.7	52.0	49.1
30°	740.3	426.4	228.1	130.9	104.0	83.7	63.5	52.0	45.2	42.4	39.5
32.5°	448.6	219.5	120.3	78.0	65.5	56.8	46.2	38.5	34.7	32.7	31.8
35°	213.7	115.5	74.1	52.9	46.2	40.4	33.7	28.9	27.0	26.0	26.0
37.5°	121.3	75.1	50.1	35.6	31.8	27.9	25.0	22.1	21.2	21.2	21.2
40°	77.0	48.1	32.7	26.0	23.1	21.2	19.3	17.3	17.3	17.3	17.3
42.5°	50.1	34.7	25.0	19.3	17.3	16.4	14.4	13.5	13.5	13.5	14.4
45°	39.5	28.9	20.2	15.4	13.5	12.5	11.6	10.6	10.6	10.6	11.6
47.5°	33.7	20.2	13.5	10.6	8.7	8.7	7.7	7.7	7.7	8.7	9.6
50°	20.2	12.5	8.7	6.7	5.8	5.8	5.8	5.8	5.8	6.7	7.7
52.5°	11.6	7.7	5.8	4.8	3.9	3.9	3.9	3.9	4.8	5.8	5.8
55°	7.7	5.8	3.9	3.9	2.9	2.9	2.9	3.9	3.9	4.8	5.8
57.5°	4.8	3.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	4.8	4.8
60°	3.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	4.8
62.5°	2.9	2.9	3.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	4.8
65°	2.9	2.9	3.9	3.9	2.9	2.9	2.9	2.9	2.9	3.9	4.8
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°	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7
2.5°	179.0	177.1	174.2	173.3	174.2	173.3	168.5	167.5	165.6	165.6	165.6
5°	169.4	166.5	162.7	160.8	160.8	158.8	154.0	153.1	150.2	150.2	149.2
7.5°	157.9	154.0	149.2	147.3	147.3	145.4	140.5	138.6	136.7	136.7	135.7
10°	144.4	139.6	134.8	133.8	132.8	130.0	127.1	126.1	123.2	124.2	123.2
12.5°	129.0	125.1	121.3	119.4	119.4	116.5	114.6	113.6	112.6	112.6	112.6
15°	114.6	109.7	105.9	104.9	104.9	104.0	102.0	102.0	100.1	102.0	102.0
17.5°	98.2	94.3	93.4	91.4	92.4	91.4	89.5	90.5	90.5	91.4	92.4
20°	82.8	79.9	78.9	78.0	78.9	78.9	78.0	78.9	79.9	82.8	84.7
22.5°	69.3	67.4	67.4	66.4	67.4	68.3	67.4	69.3	71.2	73.2	76.0
25°	57.8	56.8	56.8	56.8	57.8	58.7	59.7	61.6	62.6	65.5	67.4
27.5°	47.2	47.2	47.2	48.1	49.1	50.1	51.0	53.9	54.9	57.8	59.7
30°	39.5	38.5	39.5	40.4	41.4	43.3	44.3	46.2	47.2	50.1	52.0
32.5°	31.8	32.7	33.7	34.7	35.6	36.6	37.5	39.5	41.4	43.3	45.2
35°	27.0	27.0	27.9	28.9	29.8	31.8	32.7	33.7	35.6	37.5	38.5
37.5°	22.1	23.1	24.1	25.0	26.0	27.0	27.9	28.9	29.8	31.8	33.7
40°	18.3	19.3	20.2	21.2	21.2	23.1	23.1	25.0	26.0	27.9	29.8
42.5°	15.4	16.4	17.3	18.3	18.3	19.3	20.2	21.2	22.1	24.1	26.0
45°	12.5	13.5	14.4	15.4	15.4	16.4	17.3	18.3	19.3	21.2	22.1
47.5°	10.6	11.6	12.5	13.5	13.5	14.4	15.4	16.4	16.4	18.3	19.3
50°	8.7	9.6	10.6	11.6	11.6	12.5	13.5	14.4	14.4	15.4	16.4
52.5°	6.7	7.7	9.6	9.6	10.6	11.6	11.6	12.5	12.5	13.5	14.4
55°	6.7	7.7	8.7	8.7	9.6	10.6	10.6	11.6	11.6	11.6	12.5
57.5°	5.8	6.7	7.7	8.7	8.7	9.6	9.6	9.6	9.6	10.6	10.6
60°	5.8	6.7	6.7	7.7	7.7	8.7	8.7	8.7	8.7	9.6	9.6
62.5°	5.8	5.8	6.7	6.7	7.7	7.7	7.7	8.7	8.7	8.7	8.7
65°	4.8	5.8	6.7	6.7	6.7	7.7	7.7	7.7	7.7	7.7	7.7
67.5°	4.8	5.8	5.8	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
70°	4.8	4.8	5.8	5.8	5.8	6.7	6.7	6.7	5.8	6.7	5.8
72.5°	3.9	4.8	4.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
75°	3.9	4.8	4.8	4.8	4.8	5.8	5.8	4.8	4.8	4.8	4.8
77.5°	3.9	3.9	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.9
80°	3.9	3.9	3.9	3.9	4.8	4.8	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	1.9
87.5°	2.9	2.9	2.9	3.9	2.9	2.9	2.9	2.9	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



TEST NUMBER: P182638

CATALOG NUMBER: LDSQA4A18827D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	188.7	188.7	188.7	188.7	188.7	188.7	188.7	188.7
2.5°	162.7	161.7	162.7	161.7	161.7	162.7	159.8	161.7
5°	147.3	145.4	146.3	145.4	144.4	145.4	143.4	145.4
7.5°	133.8	132.8	132.8	132.8	131.9	132.8	130.9	132.8
10°	122.3	121.3	121.3	121.3	121.3	122.3	120.3	122.3
12.5°	110.7	110.7	111.7	110.7	111.7	112.6	110.7	112.6
15°	101.1	102.0	103.0	103.0	104.0	104.9	104.0	105.9
17.5°	93.4	94.3	96.3	96.3	97.2	99.2	98.2	100.1
20°	85.7	86.6	88.6	88.6	89.5	91.4	90.5	92.4
22.5°	77.0	78.9	79.9	80.9	81.8	83.7	82.8	84.7
25°	68.3	71.2	72.2	73.2	74.1	76.0	76.0	78.0
27.5°	61.6	63.5	64.5	65.5	67.4	69.3	69.3	70.3
30°	53.9	55.8	57.8	58.7	59.7	61.6	61.6	63.5
32.5°	47.2	49.1	50.1	51.0	52.9	54.9	55.8	56.8
35°	40.4	43.3	44.3	46.2	47.2	50.1	50.1	51.0
37.5°	35.6	37.5	39.5	40.4	42.4	44.3	44.3	46.2
40°	31.8	33.7	34.7	35.6	37.5	39.5	39.5	40.4
42.5°	27.0	29.8	30.8	31.8	32.7	34.7	35.6	36.6
45°	24.1	25.0	26.0	27.0	27.9	29.8	29.8	30.8
47.5°	20.2	21.2	22.1	23.1	24.1	25.0	26.0	27.0
50°	17.3	18.3	19.3	19.3	20.2	22.1	22.1	23.1
52.5°	14.4	15.4	16.4	16.4	17.3	19.3	19.3	20.2
55°	12.5	13.5	14.4	14.4	15.4	16.4	16.4	17.3
57.5°	11.6	11.6	12.5	12.5	13.5	13.5	14.4	14.4
60°	9.6	10.6	10.6	10.6	11.6	11.6	11.6	11.6
62.5°	8.7	8.7	8.7	8.7	8.7	8.7	8.7	9.6
65°	7.7	7.7	7.7	7.7	7.7	7.7	6.7	7.7
67.5°	6.7	6.7	6.7	6.7	5.8	5.8	5.8	5.8
70°	5.8	5.8	5.8	5.8	5.8	4.8	4.8	4.8
72.5°	4.8	4.8	4.8	4.8	4.8	3.9	3.9	3.9
75°	4.8	4.8	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	1.9	1.9
82.5°	2.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
85°	1.9	1.9	1.9	1.9	1.0	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)