

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: P182650

Luminaire Tested: **LDSQA4A09927D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182650
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: LDSQA4A09927D010TE 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: 760.4 lumens
Efficiency: N/A
Efficacy: 54.9 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

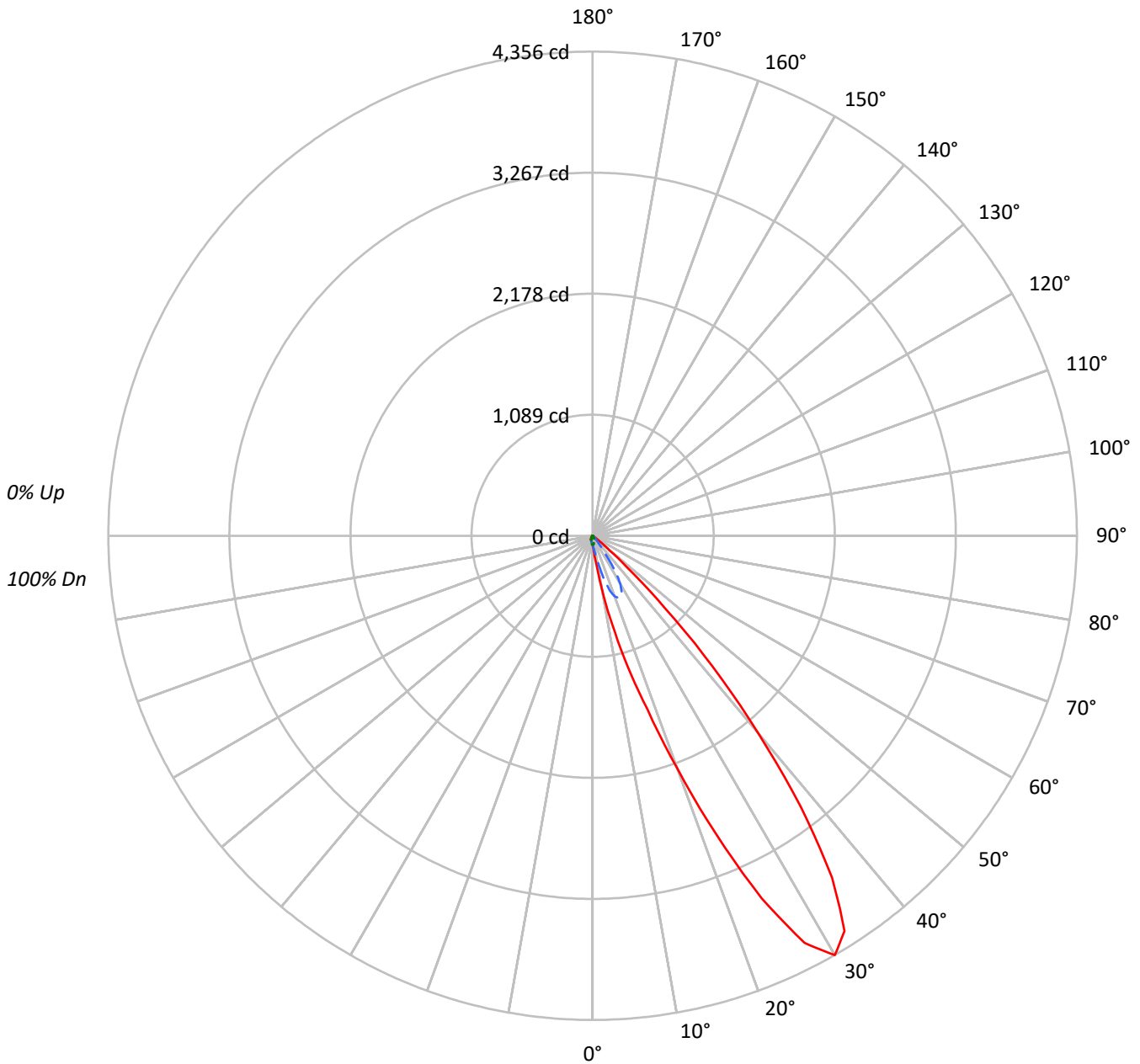
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	7953	7953	7953
5°	15229	7575	6146
10°	49805	6719	5233
15°	121966	5546	4623
20°	229794	4227	4144
25°	384676	3004	3624
30°	487305	2058	3087
35°	444030	1336	2625
40°	292430	948	2226
45°	126673	630	1836
50°	22471	437	1522
55°	3614	355	1267
60°	891	329	969
65°	298	390	779
70°	227	482	595
75°	299	487	487
80°	0	725	446
85°	0	1445	445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	10.5	1.4
10°-20°	84.6	11.1
20°-30°	254.8	33.5
30°-40°	290.0	38.1
40°-50°	107.2	14.1
50°-60°	8.5	1.1
60°-70°	2.3	0.3
70°-80°	1.6	0.2
80°-90°	0.9	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°	349.9	46.0
0°-40°	639.8	84.1
0°-60°	755.6	99.4
0°-90°	760.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	760.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	82	82	82	82	82	
5°	157	115	78	65	63	25
15°	1216	411	55	44	46	381
25°	3599	600	28	27	34	1643
35°	3755	210	11	16	22	2232
45°	925	25	5	8	13	783
55°	21	5	2	5	8	35
65°	1	1	2	3	3	2
75°	1	1	1	2	1	1
85°	0	1	1	1	0	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°	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1
2.5°	105.5	106.4	105.5	103.9	103.9	101.8	100.9	100.1	98.0	96.7	95.1
5°	156.6	154.1	152.0	147.0	145.3	140.7	137.4	132.7	126.5	121.0	115.2
7.5°	268.0	264.2	256.3	241.2	232.0	220.7	211.9	197.2	178.4	162.9	147.4
10°	506.3	489.9	471.1	437.2	412.5	386.1	365.2	325.8	278.5	239.5	201.8
12.5°	815.7	817.0	781.8	724.4	678.8	632.3	596.3	523.4	439.7	366.4	294.0
15°	1216.1	1193.0	1156.6	1068.7	977.4	910.0	852.6	742.0	623.5	516.3	410.8
17.5°	1637.8	1647.4	1562.4	1418.7	1274.3	1173.4	1086.7	919.2	778.5	645.7	516.7
20°	2229.0	2162.9	2041.4	1808.6	1584.2	1438.0	1309.5	1092.1	895.7	727.0	582.1
22.5°	2910.8	2804.0	2556.9	2229.0	1889.4	1687.2	1507.9	1208.9	970.3	768.4	604.3
25°	3598.8	3517.1	3123.5	2633.6	2147.0	1884.8	1652.8	1288.1	1005.9	778.0	600.5
27.5°	4129.8	3996.6	3548.1	2909.5	2300.6	1991.2	1720.3	1312.4	998.3	754.6	564.9
30°	4356.3	4188.0	3690.9	2972.3	2301.9	1973.6	1686.8	1264.2	944.7	695.1	497.9
32.5°	4216.5	4022.2	3520.9	2798.5	2144.5	1836.2	1557.4	1160.0	855.9	601.8	373.9
35°	3754.6	3561.1	3096.7	2455.6	1893.2	1623.9	1381.5	1023.9	729.1	446.0	210.2
37.5°	3074.5	2909.5	2577.4	2058.2	1595.5	1376.9	1175.0	862.6	543.1	255.9	105.5
40°	2312.4	2196.4	1997.0	1632.3	1291.4	1125.2	962.7	660.8	330.0	128.6	59.9
42.5°	1603.0	1527.6	1427.5	1207.7	996.2	881.9	751.7	441.4	169.6	70.8	37.3
45°	924.6	877.3	849.7	755.9	673.4	617.7	502.5	237.9	85.8	42.3	24.7
47.5°	408.3	376.9	363.5	324.1	301.5	286.4	227.4	101.3	46.1	27.2	20.5
50°	149.1	149.1	149.5	131.5	107.6	96.7	75.8	44.8	26.0	21.4	15.1
52.5°	52.8	51.9	54.0	51.1	44.8	40.2	33.5	22.6	15.9	13.4	8.4
55°	21.4	20.5	21.4	20.1	18.8	17.6	15.5	12.1	10.1	8.4	4.6
57.5°	9.6	9.6	10.1	9.6	9.6	8.8	8.0	9.2	7.1	4.6	2.9
60°	4.6	4.6	5.0	5.0	5.0	4.6	4.6	5.0	4.2	2.9	2.1
62.5°	2.1	2.1	2.5	2.5	2.5	2.5	2.5	2.9	2.1	1.7	1.3
65°	1.3	0.8	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
67.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.3	1.3
70°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.3
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.3
75°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.3
77.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.8	0.8	1.3
80°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.8	0.8
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°	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1
2.5°	93.4	92.1	89.6	88.4	86.7	85.4	84.6	82.9	81.2	80.0	79.1
5°	109.7	105.1	99.7	95.5	92.1	90.0	86.7	83.8	80.4	77.9	75.8
7.5°	133.6	122.3	110.1	101.8	97.2	93.0	87.1	82.1	77.5	74.1	71.2
10°	170.9	146.6	125.2	108.9	100.9	95.1	85.8	78.7	72.9	68.3	65.3
12.5°	232.8	183.0	145.3	117.7	105.5	96.7	83.8	74.1	67.0	62.4	58.6
15°	317.8	236.6	172.9	128.1	111.0	98.4	80.4	68.7	60.7	55.3	51.9
17.5°	397.8	292.7	204.4	140.7	116.4	99.2	75.8	61.6	53.2	48.2	44.8
20°	448.1	329.1	225.3	147.8	118.1	96.7	69.5	54.0	45.6	41.0	37.7
22.5°	459.8	333.3	223.6	141.1	111.0	89.2	60.7	46.5	38.5	34.3	31.4
25°	442.6	309.9	200.2	121.9	94.6	75.0	50.7	37.7	31.8	28.1	26.0
27.5°	399.5	263.8	158.3	91.7	70.8	55.3	38.5	29.3	25.5	22.6	21.4
30°	322.0	185.5	99.2	57.0	45.2	36.4	27.6	22.6	19.7	18.4	17.2
32.5°	195.1	95.5	52.3	33.9	28.5	24.7	20.1	16.8	15.1	14.2	13.8
35°	93.0	50.3	32.2	23.0	20.1	17.6	14.7	12.6	11.7	11.3	11.3
37.5°	52.8	32.7	21.8	15.5	13.8	12.1	10.9	9.6	9.2	9.2	9.2
40°	33.5	20.9	14.2	11.3	10.1	9.2	8.4	7.5	7.5	7.5	7.5
42.5°	21.8	15.1	10.9	8.4	7.5	7.1	6.3	5.9	5.9	5.9	6.3
45°	17.2	12.6	8.8	6.7	5.9	5.4	5.0	4.6	4.6	4.6	5.0
47.5°	14.7	8.8	5.9	4.6	3.8	3.8	3.4	3.4	3.4	3.8	4.2
50°	8.8	5.4	3.8	2.9	2.5	2.5	2.5	2.5	2.5	2.9	3.4
52.5°	5.0	3.4	2.5	2.1	1.7	1.7	1.7	1.7	2.1	2.5	2.5
55°	3.4	2.5	1.7	1.7	1.3	1.3	1.3	1.7	1.7	2.1	2.5
57.5°	2.1	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.7	2.1	2.1
60°	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.1
62.5°	1.3	1.3	1.7	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.1
65°	1.3	1.3	1.7	1.7	1.3	1.3	1.3	1.3	1.3	1.7	2.1
67.5°	1.3	1.3	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.7	1.7
70°	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.7	1.7
72.5°	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.7	1.7
75°	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.7
77.5°	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.7
80°	1.3	1.3	1.3	1.7	1.3	1.7	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
85°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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°	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1
2.5°	77.9	77.1	75.8	75.4	75.8	75.4	73.3	72.9	72.0	72.0	72.0
5°	73.7	72.4	70.8	69.9	69.9	69.1	67.0	66.6	65.3	65.3	64.9
7.5°	68.7	67.0	64.9	64.1	64.1	63.2	61.1	60.3	59.5	59.5	59.0
10°	62.8	60.7	58.6	58.2	57.8	56.5	55.3	54.9	53.6	54.0	53.6
12.5°	56.1	54.4	52.8	51.9	51.9	50.7	49.8	49.4	49.0	49.0	49.0
15°	49.8	47.7	46.1	45.6	45.6	45.2	44.4	44.4	43.6	44.4	44.4
17.5°	42.7	41.0	40.6	39.8	40.2	39.8	38.9	39.4	39.4	39.8	40.2
20°	36.0	34.8	34.3	33.9	34.3	34.3	33.9	34.3	34.8	36.0	36.9
22.5°	30.2	29.3	29.3	28.9	29.3	29.7	29.3	30.2	31.0	31.8	33.1
25°	25.1	24.7	24.7	24.7	25.1	25.5	26.0	26.8	27.2	28.5	29.3
27.5°	20.5	20.5	20.5	20.9	21.4	21.8	22.2	23.5	23.9	25.1	26.0
30°	17.2	16.8	17.2	17.6	18.0	18.8	19.3	20.1	20.5	21.8	22.6
32.5°	13.8	14.2	14.7	15.1	15.5	15.9	16.3	17.2	18.0	18.8	19.7
35°	11.7	11.7	12.1	12.6	13.0	13.8	14.2	14.7	15.5	16.3	16.8
37.5°	9.6	10.1	10.5	10.9	11.3	11.7	12.1	12.6	13.0	13.8	14.7
40°	8.0	8.4	8.8	9.2	9.2	10.1	10.1	10.9	11.3	12.1	13.0
42.5°	6.7	7.1	7.5	8.0	8.0	8.4	8.8	9.2	9.6	10.5	11.3
45°	5.4	5.9	6.3	6.7	6.7	7.1	7.5	8.0	8.4	9.2	9.6
47.5°	4.6	5.0	5.4	5.9	5.9	6.3	6.7	7.1	7.1	8.0	8.4
50°	3.8	4.2	4.6	5.0	5.0	5.4	5.9	6.3	6.3	6.7	7.1
52.5°	2.9	3.4	4.2	4.2	4.6	5.0	5.0	5.4	5.4	5.9	6.3
55°	2.9	3.4	3.8	3.8	4.2	4.6	4.6	5.0	5.0	5.0	5.4
57.5°	2.5	2.9	3.4	3.8	3.8	4.2	4.2	4.2	4.2	4.6	4.6
60°	2.5	2.9	2.9	3.4	3.4	3.8	3.8	3.8	3.8	4.2	4.2
62.5°	2.5	2.5	2.9	2.9	3.4	3.4	3.4	3.8	3.8	3.8	3.8
65°	2.1	2.5	2.9	2.9	2.9	3.4	3.4	3.4	3.4	3.4	3.4
67.5°	2.1	2.5	2.5	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
70°	2.1	2.1	2.5	2.5	2.5	2.9	2.9	2.9	2.5	2.9	2.5
72.5°	1.7	2.1	2.1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
75°	1.7	2.1	2.1	2.1	2.1	2.5	2.5	2.1	2.1	2.1	2.1
77.5°	1.7	1.7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.7
80°	1.7	1.7	1.7	1.7	2.1	2.1	1.7	1.7	1.7	1.7	1.7
82.5°	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3
85°	1.3	1.3	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3	0.8
87.5°	1.3	1.3	1.3	1.7	1.3	1.3	1.3	1.3	0.8	0.8	0.8
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: P182650

CATALOG NUMBER: LDSQA4A09927D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1
2.5°	70.8	70.4	70.8	70.4	70.4	70.8	69.5	70.4
5°	64.1	63.2	63.7	63.2	62.8	63.2	62.4	63.2
7.5°	58.2	57.8	57.8	57.8	57.4	57.8	57.0	57.8
10°	53.2	52.8	52.8	52.8	52.8	53.2	52.3	53.2
12.5°	48.2	48.2	48.6	48.2	48.6	49.0	48.2	49.0
15°	44.0	44.4	44.8	44.8	45.2	45.6	45.2	46.1
17.5°	40.6	41.0	41.9	41.9	42.3	43.1	42.7	43.6
20°	37.3	37.7	38.5	38.5	38.9	39.8	39.4	40.2
22.5°	33.5	34.3	34.8	35.2	35.6	36.4	36.0	36.9
25°	29.7	31.0	31.4	31.8	32.2	33.1	33.1	33.9
27.5°	26.8	27.6	28.1	28.5	29.3	30.2	30.2	30.6
30°	23.5	24.3	25.1	25.5	26.0	26.8	26.8	27.6
32.5°	20.5	21.4	21.8	22.2	23.0	23.9	24.3	24.7
35°	17.6	18.8	19.3	20.1	20.5	21.8	21.8	22.2
37.5°	15.5	16.3	17.2	17.6	18.4	19.3	19.3	20.1
40°	13.8	14.7	15.1	15.5	16.3	17.2	17.2	17.6
42.5°	11.7	13.0	13.4	13.8	14.2	15.1	15.5	15.9
45°	10.5	10.9	11.3	11.7	12.1	13.0	13.0	13.4
47.5°	8.8	9.2	9.6	10.1	10.5	10.9	11.3	11.7
50°	7.5	8.0	8.4	8.4	8.8	9.6	9.6	10.1
52.5°	6.3	6.7	7.1	7.1	7.5	8.4	8.4	8.8
55°	5.4	5.9	6.3	6.3	6.7	7.1	7.1	7.5
57.5°	5.0	5.0	5.4	5.4	5.9	5.9	6.3	6.3
60°	4.2	4.6	4.6	4.6	5.0	5.0	5.0	5.0
62.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.2
65°	3.4	3.4	3.4	3.4	3.4	3.4	2.9	3.4
67.5°	2.9	2.9	2.9	2.9	2.5	2.5	2.5	2.5
70°	2.5	2.5	2.5	2.5	2.5	2.1	2.1	2.1
72.5°	2.1	2.1	2.1	2.1	2.1	1.7	1.7	1.7
75°	2.1	2.1	1.7	1.7	1.7	1.7	1.7	1.3
77.5°	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3
80°	1.3	1.3	1.3	1.3	1.3	1.3	0.8	0.8
82.5°	1.3	0.8	0.8	0.8	0.8	0.8	0.8	0.8
85°	0.8	0.8	0.8	0.8	0.4	0.4	0.4	0.4
87.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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)