

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: P182648

Luminaire Tested: **LDSQA4A09835D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182648
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: LDSQA4A09835D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 984.3 lumens
Efficiency: N/A
Efficacy: 71.1 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

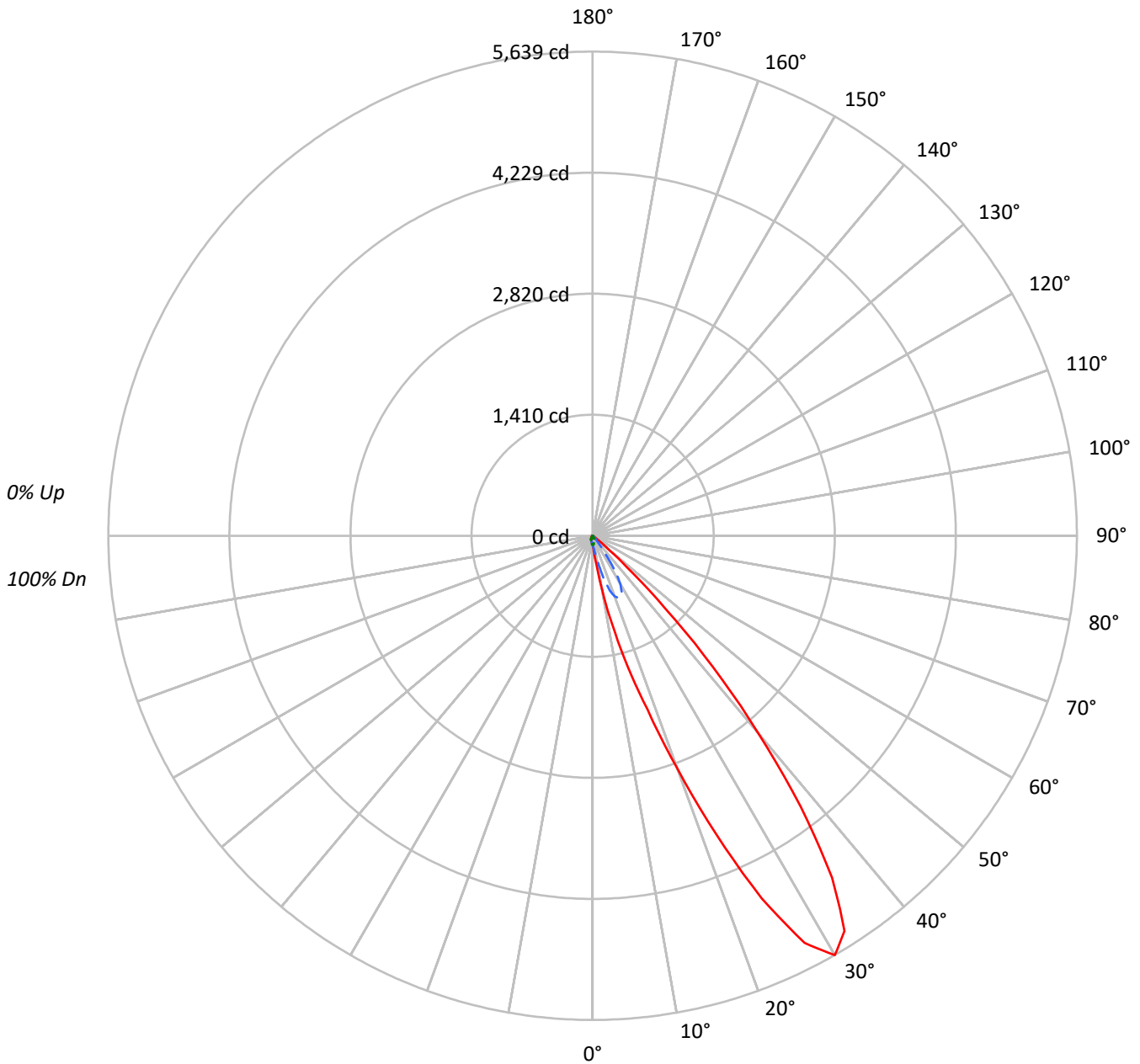
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	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°	10288	10288	10288
5°	19712	9802	7964
10°	64472	8696	6768
15°	157881	7181	5977
20°	297464	5474	5361
25°	497959	3880	4692
30°	630813	2674	4005
35°	574782	1727	3394
40°	378538	1239	2883
45°	163978	822	2370
50°	29087	573	1959
55°	4662	456	1655
60°	1163	426	1259
65°	367	504	986
70°	312	623	765
75°	412	599	599
80°	0	893	614
85°	0	1778	556



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	13.6	1.4
10°-20°	109.5	11.1
20°-30°	329.8	33.5
30°-40°	375.4	38.1
40°-50°	138.8	14.1
50°-60°	11.0	1.1
60°-70°	3.0	0.3
70°-80°	2.1	0.2
80°-90°	1.2	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°	452.9	46.0
0°-40°	828.3	84.1
0°-60°	978.1	99.4
0°-90°	984.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	984.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	106	106	106	106	106	
5°	203	149	101	85	82	33
15°	1574	532	72	56	60	494
25°	4659	777	36	35	44	2126
35°	4860	272	15	20	29	2890
45°	1197	32	6	11	17	1013
55°	28	6	3	6	10	45
65°	2	2	2	4	4	2
75°	1	2	2	3	2	1
85°	0	1	2	2	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°	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2
2.5°	136.6	137.7	136.6	134.4	134.4	131.7	130.6	129.6	126.8	125.2	123.1
5°	202.7	199.5	196.8	190.3	188.1	182.1	177.8	171.8	163.7	156.7	149.1
7.5°	346.9	342.0	331.7	312.2	300.3	285.7	274.3	255.3	230.9	210.9	190.8
10°	655.4	634.2	609.8	565.9	533.9	499.8	472.7	421.7	360.5	310.1	261.3
12.5°	1056.0	1057.6	1012.0	937.8	878.7	818.5	771.9	677.6	569.2	474.3	380.5
15°	1574.2	1544.4	1497.2	1383.4	1265.2	1177.9	1103.7	960.6	807.1	668.4	531.8
17.5°	2120.0	2132.5	2022.5	1836.5	1649.5	1518.9	1406.7	1189.8	1007.7	835.9	668.9
20°	2885.4	2799.8	2642.6	2341.2	2050.7	1861.5	1695.1	1413.7	1159.5	941.0	753.5
22.5°	3767.9	3629.7	3309.9	2885.4	2445.8	2184.0	1952.0	1565.0	1256.0	994.7	782.2
25°	4658.6	4552.9	4043.3	3409.1	2779.2	2439.9	2139.6	1667.4	1302.1	1007.2	777.3
27.5°	5345.9	5173.5	4593.0	3766.3	2978.1	2577.5	2226.8	1698.9	1292.3	976.8	731.3
30°	5639.2	5421.3	4777.8	3847.6	2979.8	2554.8	2183.5	1636.5	1222.9	899.8	644.5
32.5°	5458.1	5206.6	4557.7	3622.7	2775.9	2377.0	2016.0	1501.5	1108.0	779.0	484.1
35°	4860.2	4609.8	4008.6	3178.7	2450.7	2102.2	1788.3	1325.4	943.7	577.3	272.1
37.5°	3979.9	3766.3	3336.4	2664.3	2065.3	1782.3	1521.1	1116.7	703.1	331.2	136.6
40°	2993.3	2843.2	2585.1	2113.0	1671.7	1456.5	1246.2	855.4	427.2	166.4	77.5
42.5°	2075.0	1977.5	1847.9	1563.3	1289.6	1141.6	973.0	571.3	219.5	91.6	48.2
45°	1196.9	1135.6	1099.9	978.4	871.7	799.6	650.5	307.9	111.1	54.7	32.0
47.5°	528.5	487.9	470.5	419.6	390.3	370.8	294.3	131.2	59.6	35.2	26.6
50°	193.0	193.0	193.5	170.2	139.3	125.2	98.1	58.0	33.6	27.6	19.5
52.5°	68.3	67.2	69.9	66.1	58.0	52.0	43.4	29.3	20.6	17.3	10.8
55°	27.6	26.6	27.6	26.0	24.4	22.8	20.1	15.7	13.0	10.8	6.0
57.5°	12.5	12.5	13.0	12.5	12.5	11.4	10.3	11.9	9.2	6.0	3.8
60°	6.0	6.0	6.5	6.5	6.5	6.0	6.0	6.5	5.4	3.8	2.7
62.5°	2.7	2.7	3.3	3.3	3.3	3.3	3.3	3.8	2.7	2.2	1.6
65°	1.6	1.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
67.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6	1.6
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6
77.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.1	1.1	1.6
80°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.1	1.1
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°	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2
2.5°	120.9	119.3	116.0	114.4	112.2	110.6	109.5	107.3	105.2	103.5	102.5
5°	142.0	136.1	129.0	123.6	119.3	116.5	112.2	108.4	104.1	100.8	98.1
7.5°	172.9	158.3	142.6	131.7	125.8	120.3	112.8	106.2	100.3	95.9	92.2
10°	221.2	189.7	162.1	140.9	130.6	123.1	111.1	101.9	94.3	88.4	84.6
12.5°	301.4	236.9	188.1	152.3	136.6	125.2	108.4	95.9	86.7	80.8	75.9
15°	411.4	306.3	223.9	165.9	143.6	127.4	104.1	88.9	78.6	71.6	67.2
17.5°	515.0	378.9	264.5	182.1	150.7	128.5	98.1	79.7	68.8	62.3	58.0
20°	580.0	426.1	291.6	191.4	152.9	125.2	90.0	69.9	59.1	53.1	48.8
22.5°	595.2	431.5	289.5	182.7	143.6	115.5	78.6	60.2	49.9	44.4	40.7
25°	573.0	401.1	259.1	157.7	122.5	97.0	65.6	48.8	41.2	36.3	33.6
27.5°	517.1	341.5	204.9	118.7	91.6	71.6	49.9	37.9	33.1	29.3	27.6
30°	416.9	240.1	128.5	73.7	58.5	47.2	35.8	29.3	25.5	23.9	22.2
32.5°	252.6	123.6	67.8	43.9	36.9	32.0	26.0	21.7	19.5	18.4	17.9
35°	120.3	65.0	41.7	29.8	26.0	22.8	19.0	16.3	15.2	14.6	14.6
37.5°	68.3	42.3	28.2	20.1	17.9	15.7	14.1	12.5	11.9	11.9	11.9
40°	43.4	27.1	18.4	14.6	13.0	11.9	10.8	9.8	9.8	9.8	9.8
42.5°	28.2	19.5	14.1	10.8	9.8	9.2	8.1	7.6	7.6	7.6	8.1
45°	22.2	16.3	11.4	8.7	7.6	7.0	6.5	6.0	6.0	6.0	6.5
47.5°	19.0	11.4	7.6	6.0	4.9	4.9	4.3	4.3	4.3	4.9	5.4
50°	11.4	7.0	4.9	3.8	3.3	3.3	3.3	3.3	3.3	3.8	4.3
52.5°	6.5	4.3	3.3	2.7	2.2	2.2	2.2	2.2	2.7	3.3	3.3
55°	4.3	3.3	2.2	2.2	1.6	1.6	1.6	2.2	2.2	2.7	3.3
57.5°	2.7	2.2	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.7	2.7
60°	2.2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.7
62.5°	1.6	1.6	2.2	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.7
65°	1.6	1.6	2.2	2.2	1.6	1.6	1.6	1.6	1.6	2.2	2.7
67.5°	1.6	1.6	2.2	2.2	2.2	2.2	1.6	1.6	1.6	2.2	2.2
70°	1.6	2.2	2.2	2.2	2.2	2.2	2.2	1.6	1.6	2.2	2.2
72.5°	1.6	2.2	2.2	2.2	2.2	2.2	2.2	1.6	1.6	2.2	2.2
75°	1.6	1.6	2.2	2.2	2.2	2.2	2.2	1.6	1.6	1.6	2.2
77.5°	1.6	1.6	2.2	2.2	2.2	2.2	2.2	1.6	1.6	1.6	2.2
80°	1.6	1.6	1.6	2.2	1.6	2.2	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
85°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2
2.5°	100.8	99.7	98.1	97.6	98.1	97.6	94.9	94.3	93.2	93.2	93.2
5°	95.4	93.8	91.6	90.5	90.5	89.4	86.7	86.2	84.6	84.6	84.0
7.5°	88.9	86.7	84.0	82.9	82.9	81.9	79.1	78.1	77.0	77.0	76.4
10°	81.3	78.6	75.9	75.3	74.8	73.2	71.6	71.0	69.4	69.9	69.4
12.5°	72.6	70.5	68.3	67.2	67.2	65.6	64.5	64.0	63.4	63.4	63.4
15°	64.5	61.8	59.6	59.1	59.1	58.5	57.5	57.5	56.4	57.5	57.5
17.5°	55.3	53.1	52.6	51.5	52.0	51.5	50.4	51.0	51.0	51.5	52.0
20°	46.6	45.0	44.4	43.9	44.4	44.4	43.9	44.4	45.0	46.6	47.7
22.5°	39.0	37.9	37.9	37.4	37.9	38.5	37.9	39.0	40.1	41.2	42.8
25°	32.5	32.0	32.0	32.0	32.5	33.1	33.6	34.7	35.2	36.9	37.9
27.5°	26.6	26.6	26.6	27.1	27.6	28.2	28.7	30.4	30.9	32.5	33.6
30°	22.2	21.7	22.2	22.8	23.3	24.4	24.9	26.0	26.6	28.2	29.3
32.5°	17.9	18.4	19.0	19.5	20.1	20.6	21.1	22.2	23.3	24.4	25.5
35°	15.2	15.2	15.7	16.3	16.8	17.9	18.4	19.0	20.1	21.1	21.7
37.5°	12.5	13.0	13.6	14.1	14.6	15.2	15.7	16.3	16.8	17.9	19.0
40°	10.3	10.8	11.4	11.9	11.9	13.0	13.0	14.1	14.6	15.7	16.8
42.5°	8.7	9.2	9.8	10.3	10.3	10.8	11.4	11.9	12.5	13.6	14.6
45°	7.0	7.6	8.1	8.7	8.7	9.2	9.8	10.3	10.8	11.9	12.5
47.5°	6.0	6.5	7.0	7.6	7.6	8.1	8.7	9.2	9.2	10.3	10.8
50°	4.9	5.4	6.0	6.5	6.5	7.0	7.6	8.1	8.1	8.7	9.2
52.5°	3.8	4.3	5.4	5.4	6.0	6.5	6.5	7.0	7.0	7.6	8.1
55°	3.8	4.3	4.9	4.9	5.4	6.0	6.0	6.5	6.5	6.5	7.0
57.5°	3.3	3.8	4.3	4.9	4.9	5.4	5.4	5.4	5.4	6.0	6.0
60°	3.3	3.8	3.8	4.3	4.3	4.9	4.9	4.9	4.9	5.4	5.4
62.5°	3.3	3.3	3.8	3.8	4.3	4.3	4.3	4.9	4.9	4.9	4.9
65°	2.7	3.3	3.8	3.8	3.8	4.3	4.3	4.3	4.3	4.3	4.3
67.5°	2.7	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
70°	2.7	2.7	3.3	3.3	3.3	3.8	3.8	3.8	3.3	3.8	3.3
72.5°	2.2	2.7	2.7	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
75°	2.2	2.7	2.7	2.7	2.7	3.3	3.3	2.7	2.7	2.7	2.7
77.5°	2.2	2.2	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.2
80°	2.2	2.2	2.2	2.2	2.7	2.7	2.2	2.2	2.2	2.2	2.2
82.5°	1.6	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.6	1.6	1.6
85°	1.6	1.6	2.2	2.2	2.2	2.2	1.6	1.6	1.6	1.6	1.1
87.5°	1.6	1.6	1.6	2.2	1.6	1.6	1.6	1.6	1.1	1.1	1.1
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: P182648

CATALOG NUMBER: LDSQA4A09835D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2
2.5°	91.6	91.1	91.6	91.1	91.1	91.6	90.0	91.1
5°	82.9	81.9	82.4	81.9	81.3	81.9	80.8	81.9
7.5°	75.3	74.8	74.8	74.8	74.3	74.8	73.7	74.8
10°	68.8	68.3	68.3	68.3	68.3	68.8	67.8	68.8
12.5°	62.3	62.3	62.9	62.3	62.9	63.4	62.3	63.4
15°	56.9	57.5	58.0	58.0	58.5	59.1	58.5	59.6
17.5°	52.6	53.1	54.2	54.2	54.7	55.8	55.3	56.4
20°	48.2	48.8	49.9	49.9	50.4	51.5	51.0	52.0
22.5°	43.4	44.4	45.0	45.5	46.1	47.2	46.6	47.7
25°	38.5	40.1	40.7	41.2	41.7	42.8	42.8	43.9
27.5°	34.7	35.8	36.3	36.9	37.9	39.0	39.0	39.6
30°	30.4	31.4	32.5	33.1	33.6	34.7	34.7	35.8
32.5°	26.6	27.6	28.2	28.7	29.8	30.9	31.4	32.0
35°	22.8	24.4	24.9	26.0	26.6	28.2	28.2	28.7
37.5°	20.1	21.1	22.2	22.8	23.9	24.9	24.9	26.0
40°	17.9	19.0	19.5	20.1	21.1	22.2	22.2	22.8
42.5°	15.2	16.8	17.3	17.9	18.4	19.5	20.1	20.6
45°	13.6	14.1	14.6	15.2	15.7	16.8	16.8	17.3
47.5°	11.4	11.9	12.5	13.0	13.6	14.1	14.6	15.2
50°	9.8	10.3	10.8	10.8	11.4	12.5	12.5	13.0
52.5°	8.1	8.7	9.2	9.2	9.8	10.8	10.8	11.4
55°	7.0	7.6	8.1	8.1	8.7	9.2	9.2	9.8
57.5°	6.5	6.5	7.0	7.0	7.6	7.6	8.1	8.1
60°	5.4	6.0	6.0	6.0	6.5	6.5	6.5	6.5
62.5°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	5.4
65°	4.3	4.3	4.3	4.3	4.3	4.3	3.8	4.3
67.5°	3.8	3.8	3.8	3.8	3.3	3.3	3.3	3.3
70°	3.3	3.3	3.3	3.3	3.3	2.7	2.7	2.7
72.5°	2.7	2.7	2.7	2.7	2.7	2.2	2.2	2.2
75°	2.7	2.7	2.2	2.2	2.2	2.2	2.2	1.6
77.5°	2.2	2.2	2.2	2.2	1.6	1.6	1.6	1.6
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.1	1.1
82.5°	1.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	1.1	1.1	1.1	1.1	0.5	0.5	0.5	0.5
87.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)