

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: P182649

Luminaire Tested: **LDSQA4A09840D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182649
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: LDSQA4A09840D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1032.2 lumens
Efficiency: N/A
Efficacy: 74.6 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

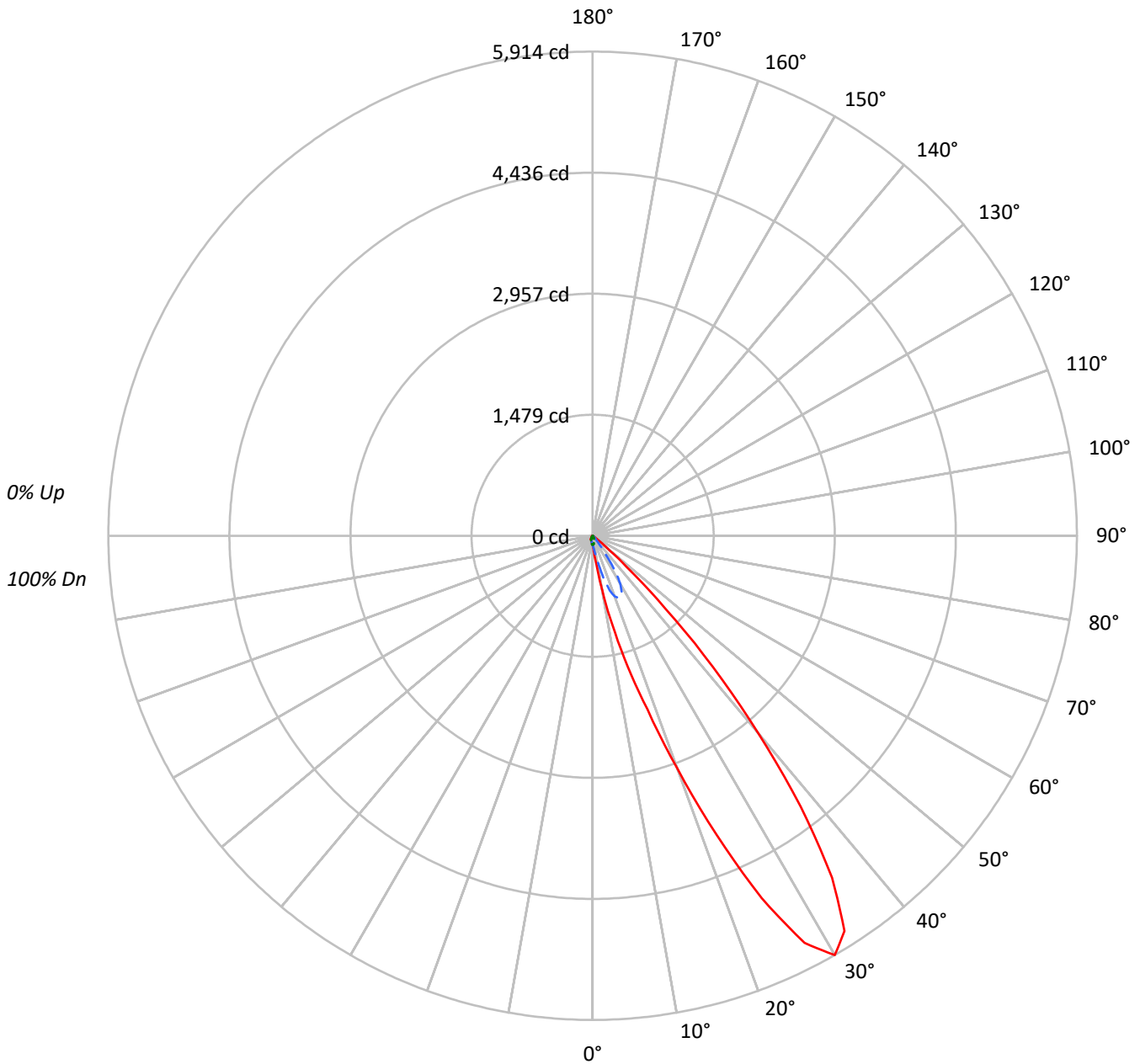
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	10792	10792	10792
5°	20674	10279	8344
10°	67610	9119	7102
15°	165563	7522	6268
20°	311948	5742	5629
25°	522201	4073	4917
30°	661519	2797	4195
35°	602763	1809	3560
40°	396964	1290	3022
45°	171966	863	2493
50°	30504	603	2050
55°	4898	473	1723
60°	1221	446	1318
65°	390	527	1032
70°	312	651	793
75°	412	636	636
80°	0	948	614
85°	0	1890	667



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	14.3	1.4
10°-20°	114.8	11.1
20°-30°	345.8	33.5
30°-40°	393.6	38.1
40°-50°	145.5	14.1
50°-60°	11.6	1.1
60°-70°	3.1	0.3
70°-80°	2.2	0.2
80°-90°	1.3	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°	475.0	46.0
0°-40°	868.6	84.1
0°-60°	1025.7	99.4
0°-90°	1032.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1032.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	111	111	111	111	111	
5°	213	156	106	89	86	34
15°	1651	558	75	59	62	518
25°	4885	815	38	37	46	2230
35°	5097	285	15	21	30	3030
45°	1255	34	6	11	18	1063
55°	29	6	3	7	10	47
65°	2	2	2	4	4	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°	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4
2.5°	143.3	144.4	143.3	141.0	141.0	138.1	137.0	135.9	133.0	131.3	129.0
5°	212.6	209.2	206.4	199.5	197.3	191.0	186.5	180.2	171.7	164.3	156.3
7.5°	363.8	358.7	347.9	327.4	314.9	299.6	287.6	267.7	242.2	221.1	200.1
10°	687.3	665.1	639.5	593.5	559.9	524.1	495.7	442.3	378.0	325.2	274.0
12.5°	1107.4	1109.1	1061.3	983.4	921.5	858.4	809.5	710.6	596.9	497.4	399.1
15°	1650.8	1619.5	1570.1	1450.7	1326.8	1235.3	1157.4	1007.3	846.4	700.9	557.7
17.5°	2223.3	2236.3	2120.9	1926.0	1729.8	1592.8	1475.2	1247.8	1056.8	876.6	701.5
20°	3025.9	2936.1	2771.3	2455.2	2150.5	1952.1	1777.6	1482.5	1215.9	986.9	790.2
22.5°	3951.4	3806.4	3471.0	3025.9	2564.9	2290.3	2047.0	1641.2	1317.1	1043.1	820.3
25°	4885.4	4774.5	4240.2	3575.1	2914.5	2558.6	2243.7	1748.6	1365.4	1056.2	815.2
27.5°	5606.2	5425.4	4816.6	3949.7	3123.1	2703.0	2335.2	1781.6	1355.2	1024.4	766.9
30°	5913.7	5685.2	5010.4	4034.9	3124.8	2679.2	2289.8	1716.2	1282.5	943.6	675.9
32.5°	5723.8	5460.1	4779.6	3799.0	2911.1	2492.7	2114.1	1574.6	1161.9	816.9	507.6
35°	5096.8	4834.2	4203.8	3333.5	2570.0	2204.5	1875.4	1389.9	989.7	605.4	285.4
37.5°	4173.7	3949.7	3498.9	2794.0	2165.8	1869.1	1595.1	1171.0	737.3	347.3	143.3
40°	3139.0	2981.6	2711.0	2215.9	1753.1	1527.5	1306.9	897.0	447.9	174.5	81.3
42.5°	2176.1	2073.8	1937.9	1639.4	1352.4	1197.2	1020.4	599.2	230.2	96.1	50.6
45°	1255.2	1190.9	1153.4	1026.1	914.1	838.5	682.2	322.9	116.5	57.4	33.5
47.5°	554.3	511.6	493.4	440.0	409.3	388.8	308.7	137.6	62.5	37.0	27.9
50°	202.4	202.4	202.9	178.5	146.1	131.3	102.9	60.8	35.2	29.0	20.5
52.5°	71.6	70.5	73.3	69.4	60.8	54.6	45.5	30.7	21.6	18.2	11.4
55°	29.0	27.9	29.0	27.3	25.6	23.9	21.0	16.5	13.6	11.4	6.3
57.5°	13.1	13.1	13.6	13.1	13.1	11.9	10.8	12.5	9.7	6.3	4.0
60°	6.3	6.3	6.8	6.8	6.8	6.3	6.3	6.8	5.7	4.0	2.8
62.5°	2.8	2.8	3.4	3.4	3.4	3.4	3.4	4.0	2.8	2.3	1.7
65°	1.7	1.1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
67.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.7	1.7
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.7
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.7
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.7
77.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.7
80°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	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°	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4
2.5°	126.8	125.1	121.7	119.9	117.7	116.0	114.8	112.6	110.3	108.6	107.4
5°	148.9	142.7	135.3	129.6	125.1	122.2	117.7	113.7	109.1	105.7	102.9
7.5°	181.3	166.0	149.5	138.1	131.9	126.2	118.2	111.4	105.2	100.6	96.6
10°	231.9	199.0	170.0	147.8	137.0	129.0	116.5	106.9	98.9	92.7	88.7
12.5°	316.1	248.4	197.3	159.7	143.3	131.3	113.7	100.6	91.0	84.7	79.6
15°	431.5	321.2	234.8	173.9	150.6	133.6	109.1	93.2	82.4	75.0	70.5
17.5°	540.0	397.4	277.4	191.0	158.0	134.7	102.9	83.6	72.2	65.4	60.8
20°	608.3	446.8	305.8	200.7	160.3	131.3	94.4	73.3	62.0	55.7	51.2
22.5°	624.2	452.5	303.6	191.6	150.6	121.1	82.4	63.1	52.3	46.6	42.6
25°	600.9	420.7	271.7	165.4	128.5	101.8	68.8	51.2	43.2	38.1	35.2
27.5°	542.3	358.1	214.9	124.5	96.1	75.0	52.3	39.8	34.7	30.7	29.0
30°	437.1	251.8	134.7	77.3	61.4	49.5	37.5	30.7	26.7	25.0	23.3
32.5°	264.9	129.6	71.1	46.0	38.7	33.5	27.3	22.7	20.5	19.3	18.8
35°	126.2	68.2	43.8	31.3	27.3	23.9	19.9	17.1	15.9	15.3	15.3
37.5°	71.6	44.3	29.6	21.0	18.8	16.5	14.8	13.1	12.5	12.5	12.5
40°	45.5	28.4	19.3	15.3	13.6	12.5	11.4	10.2	10.2	10.2	10.2
42.5°	29.6	20.5	14.8	11.4	10.2	9.7	8.5	8.0	8.0	8.0	8.5
45°	23.3	17.1	11.9	9.1	8.0	7.4	6.8	6.3	6.3	6.3	6.8
47.5°	19.9	11.9	8.0	6.3	5.1	5.1	4.5	4.5	4.5	5.1	5.7
50°	11.9	7.4	5.1	4.0	3.4	3.4	3.4	3.4	3.4	4.0	4.5
52.5°	6.8	4.5	3.4	2.8	2.3	2.3	2.3	2.3	2.8	3.4	3.4
55°	4.5	3.4	2.3	2.3	1.7	1.7	1.7	2.3	2.3	2.8	3.4
57.5°	2.8	2.3	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.8	2.8
60°	2.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.8
62.5°	1.7	1.7	2.3	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.8
65°	1.7	1.7	2.3	2.3	1.7	1.7	1.7	1.7	1.7	2.3	2.8
67.5°	1.7	1.7	2.3	2.3	2.3	2.3	1.7	1.7	1.7	2.3	2.3
70°	1.7	2.3	2.3	2.3	2.3	2.3	2.3	1.7	1.7	2.3	2.3
72.5°	1.7	2.3	2.3	2.3	2.3	2.3	2.3	1.7	1.7	2.3	2.3
75°	1.7	1.7	2.3	2.3	2.3	2.3	2.3	1.7	1.7	1.7	2.3
77.5°	1.7	1.7	2.3	2.3	2.3	2.3	2.3	1.7	1.7	1.7	2.3
80°	1.7	1.7	1.7	2.3	1.7	2.3	1.7	1.7	1.7	1.7	1.7
82.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
85°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
87.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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°	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4
2.5°	105.7	104.6	102.9	102.3	102.9	102.3	99.5	98.9	97.8	97.8	97.8
5°	100.0	98.3	96.1	94.9	94.9	93.8	91.0	90.4	88.7	88.7	88.1
7.5°	93.2	91.0	88.1	87.0	87.0	85.8	83.0	81.9	80.7	80.7	80.2
10°	85.3	82.4	79.6	79.0	78.4	76.7	75.0	74.5	72.8	73.3	72.8
12.5°	76.2	73.9	71.6	70.5	70.5	68.8	67.6	67.1	66.5	66.5	66.5
15°	67.6	64.8	62.5	62.0	62.0	61.4	60.3	60.3	59.1	60.3	60.3
17.5°	58.0	55.7	55.1	54.0	54.6	54.0	52.9	53.4	53.4	54.0	54.6
20°	48.9	47.2	46.6	46.0	46.6	46.6	46.0	46.6	47.2	48.9	50.0
22.5°	40.9	39.8	39.8	39.2	39.8	40.4	39.8	40.9	42.1	43.2	44.9
25°	34.1	33.5	33.5	33.5	34.1	34.7	35.2	36.4	37.0	38.7	39.8
27.5°	27.9	27.9	27.9	28.4	29.0	29.6	30.1	31.8	32.4	34.1	35.2
30°	23.3	22.7	23.3	23.9	24.4	25.6	26.1	27.3	27.9	29.6	30.7
32.5°	18.8	19.3	19.9	20.5	21.0	21.6	22.2	23.3	24.4	25.6	26.7
35°	15.9	15.9	16.5	17.1	17.6	18.8	19.3	19.9	21.0	22.2	22.7
37.5°	13.1	13.6	14.2	14.8	15.3	15.9	16.5	17.1	17.6	18.8	19.9
40°	10.8	11.4	11.9	12.5	12.5	13.6	13.6	14.8	15.3	16.5	17.6
42.5°	9.1	9.7	10.2	10.8	10.8	11.4	11.9	12.5	13.1	14.2	15.3
45°	7.4	8.0	8.5	9.1	9.1	9.7	10.2	10.8	11.4	12.5	13.1
47.5°	6.3	6.8	7.4	8.0	8.0	8.5	9.1	9.7	9.7	10.8	11.4
50°	5.1	5.7	6.3	6.8	6.8	7.4	8.0	8.5	8.5	9.1	9.7
52.5°	4.0	4.5	5.7	5.7	6.3	6.8	6.8	7.4	7.4	8.0	8.5
55°	4.0	4.5	5.1	5.1	5.7	6.3	6.3	6.8	6.8	6.8	7.4
57.5°	3.4	4.0	4.5	5.1	5.1	5.7	5.7	5.7	5.7	6.3	6.3
60°	3.4	4.0	4.0	4.5	4.5	5.1	5.1	5.1	5.1	5.7	5.7
62.5°	3.4	3.4	4.0	4.0	4.5	4.5	4.5	5.1	5.1	5.1	5.1
65°	2.8	3.4	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
67.5°	2.8	3.4	3.4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
70°	2.8	2.8	3.4	3.4	3.4	4.0	4.0	4.0	3.4	4.0	3.4
72.5°	2.3	2.8	2.8	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
75°	2.3	2.8	2.8	2.8	2.8	3.4	3.4	2.8	2.8	2.8	2.8
77.5°	2.3	2.3	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.3
80°	2.3	2.3	2.3	2.3	2.8	2.8	2.3	2.3	2.3	2.3	2.3
82.5°	1.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.7	1.7	1.7
85°	1.7	1.7	2.3	2.3	2.3	2.3	1.7	1.7	1.7	1.7	1.1
87.5°	1.7	1.7	1.7	2.3	1.7	1.7	1.7	1.7	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: P182649

CATALOG NUMBER: LDSQA4A09840D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.4
2.5°	96.1	95.5	96.1	95.5	95.5	96.1	94.4	95.5
5°	87.0	85.8	86.4	85.8	85.3	85.8	84.7	85.8
7.5°	79.0	78.4	78.4	78.4	77.9	78.4	77.3	78.4
10°	72.2	71.6	71.6	71.6	71.6	72.2	71.1	72.2
12.5°	65.4	65.4	65.9	65.4	65.9	66.5	65.4	66.5
15°	59.7	60.3	60.8	60.8	61.4	62.0	61.4	62.5
17.5°	55.1	55.7	56.8	56.8	57.4	58.6	58.0	59.1
20°	50.6	51.2	52.3	52.3	52.9	54.0	53.4	54.6
22.5°	45.5	46.6	47.2	47.8	48.3	49.5	48.9	50.0
25°	40.4	42.1	42.6	43.2	43.8	44.9	44.9	46.0
27.5°	36.4	37.5	38.1	38.7	39.8	40.9	40.9	41.5
30°	31.8	33.0	34.1	34.7	35.2	36.4	36.4	37.5
32.5°	27.9	29.0	29.6	30.1	31.3	32.4	33.0	33.5
35°	23.9	25.6	26.1	27.3	27.9	29.6	29.6	30.1
37.5°	21.0	22.2	23.3	23.9	25.0	26.1	26.1	27.3
40°	18.8	19.9	20.5	21.0	22.2	23.3	23.3	23.9
42.5°	15.9	17.6	18.2	18.8	19.3	20.5	21.0	21.6
45°	14.2	14.8	15.3	15.9	16.5	17.6	17.6	18.2
47.5°	11.9	12.5	13.1	13.6	14.2	14.8	15.3	15.9
50°	10.2	10.8	11.4	11.4	11.9	13.1	13.1	13.6
52.5°	8.5	9.1	9.7	9.7	10.2	11.4	11.4	11.9
55°	7.4	8.0	8.5	8.5	9.1	9.7	9.7	10.2
57.5°	6.8	6.8	7.4	7.4	8.0	8.0	8.5	8.5
60°	5.7	6.3	6.3	6.3	6.8	6.8	6.8	6.8
62.5°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.7
65°	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5
67.5°	4.0	4.0	4.0	4.0	3.4	3.4	3.4	3.4
70°	3.4	3.4	3.4	3.4	3.4	2.8	2.8	2.8
72.5°	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3
75°	2.8	2.8	2.3	2.3	2.3	2.3	2.3	1.7
77.5°	2.3	2.3	2.3	2.3	1.7	1.7	1.7	1.7
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.1	1.1
82.5°	1.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	1.1	1.1	1.1	1.1	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)