

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: P182844

Luminaire Tested: **LDSQA4A09935D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182844
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26804)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A09935D010TE LAR35FL 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 897.9 lumens
Efficiency: N/A
Efficacy: 64.9 lumens/watt
Spacing Criteria (0/90/45): 2.46 / 0.61 / 1.2
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

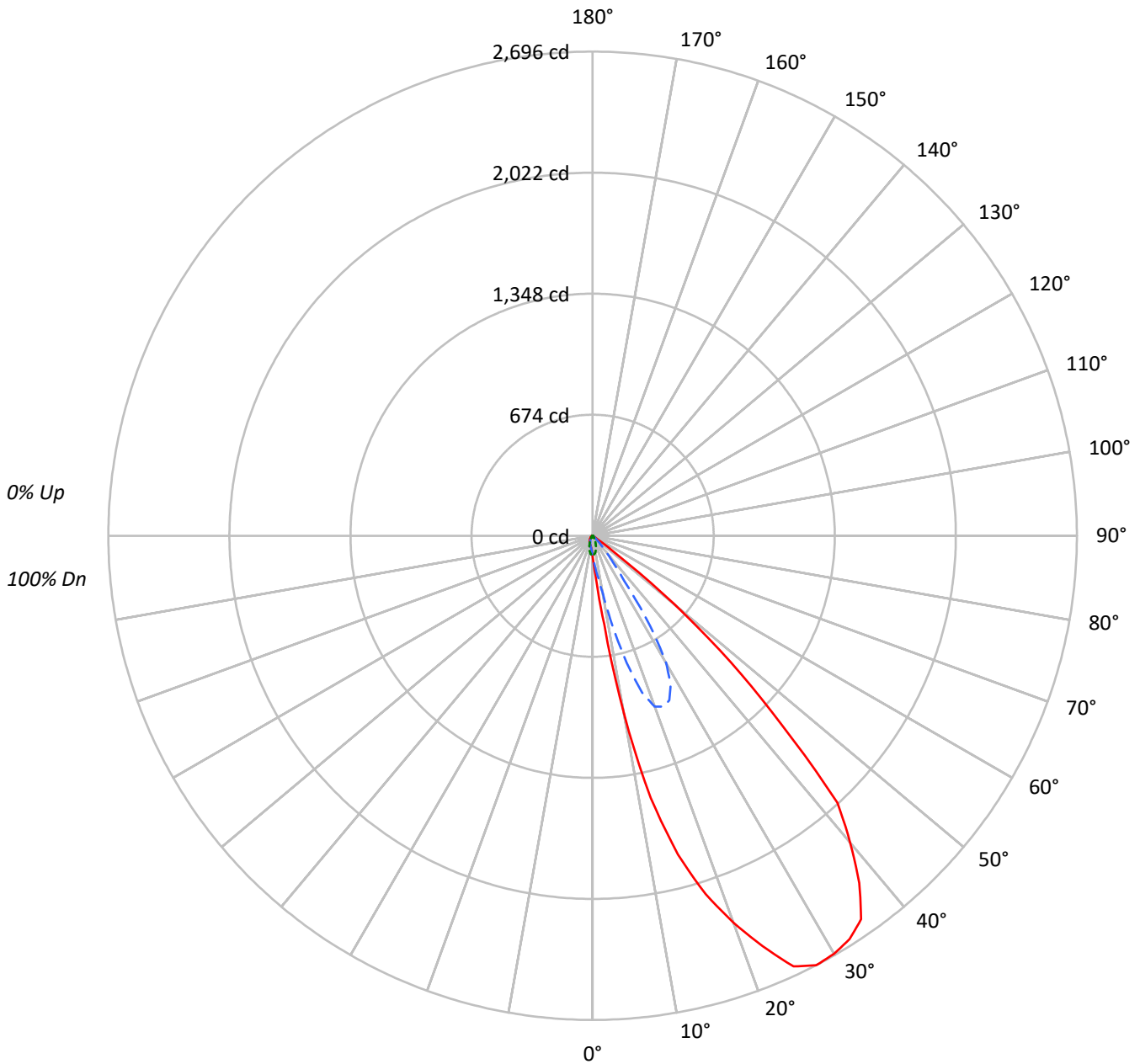
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									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	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82																			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74																			
4	92	83	77	71	90	82	76	71	80	74	70	78	73	69	76	72	68	67																			
5	86	76	69	64	84	75	68	64	73	67	63	71	66	62	70	65	62	60																			
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54																			
7	75	64	57	52	74	63	56	51	62	56	51	60	55	51	59	54	50	49																			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44																			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40																			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	10753	10753	10753
5°	25206	10152	7099
10°	99590	8922	5922
15°	184318	7141	5185
20°	236340	5196	4701
25°	282767	3688	4158
30°	300674	2427	3658
35°	308146	1466	3193
40°	282073	948	2744
45°	203545	671	2247
50°	88859	527	1869
55°	6131	456	1571
60°	1104	426	1279
65°	413	413	917
70°	368	510	623
75°	337	674	674
80°	0	1004	725
85°	0	2001	445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	16.2	1.8
10°-20°	127.1	14.2
20°-30°	266.1	29.6
30°-40°	296.2	33.0
40°-50°	170.0	18.9
50°-60°	17.0	1.9
60°-70°	2.7	0.3
70°-80°	1.7	0.2
80°-90°	1.0	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°	409.3	45.6
0°-40°	705.5	78.6
0°-60°	892.5	99.4
0°-90°	897.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	897.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	111	111	111	111	111	
5°	259	179	104	76	73	48
15°	1838	734	71	50	52	520
25°	2645	1010	34	30	39	1198
35°	2606	308	12	18	27	1591
45°	1486	37	5	10	16	1134
55°	36	5	3	6	9	108
65°	2	1	2	4	4	2
75°	1	1	2	2	2	1
85°	0	1	2	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°	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0
2.5°	165.9	162.3	158.8	156.6	154.4	157.5	155.2	154.4	148.2	145.1	142.4
5°	259.2	252.6	242.8	234.9	226.9	228.7	222.5	215.0	199.5	188.4	178.7
7.5°	500.2	483.9	453.8	424.6	395.4	390.1	370.7	337.0	293.7	261.0	232.7
10°	1012.4	962.9	907.6	847.9	778.0	758.6	710.3	619.2	519.7	406.0	323.8
12.5°	1494.6	1472.0	1407.0	1329.6	1253.9	1207.5	1157.5	1007.1	849.2	666.1	513.1
15°	1837.8	1824.1	1767.0	1696.7	1615.3	1585.2	1524.2	1374.2	1174.8	955.8	733.8
17.5°	2092.1	2068.7	2009.0	1932.4	1836.0	1810.4	1737.4	1588.3	1381.3	1161.5	915.1
20°	2292.5	2277.9	2200.5	2108.5	1993.0	1962.1	1876.7	1721.5	1496.3	1262.8	1012.0
22.5°	2472.5	2447.7	2352.6	2242.9	2111.1	2078.0	1982.9	1812.6	1570.6	1310.6	1029.2
25°	2645.4	2607.8	2492.4	2348.6	2193.8	2148.7	2044.3	1863.9	1598.1	1314.5	1009.8
27.5°	2695.9	2676.8	2570.2	2403.0	2223.9	2173.0	2064.2	1875.4	1587.9	1278.3	939.9
30°	2687.9	2672.0	2583.1	2408.4	2218.6	2165.1	2054.5	1840.0	1528.6	1183.6	816.5
32.5°	2662.7	2656.5	2549.0	2362.4	2169.1	2110.7	1991.3	1752.0	1417.6	1039.4	596.7
35°	2605.6	2581.3	2447.3	2271.7	2085.9	2021.8	1886.9	1625.9	1271.2	756.8	308.3
37.5°	2438.4	2419.4	2313.7	2159.8	1978.9	1896.6	1754.2	1463.1	984.1	430.4	184.4
40°	2230.5	2221.3	2138.1	2000.5	1807.3	1714.4	1559.6	1197.3	600.7	244.6	121.6
42.5°	2017.4	2014.7	1925.8	1782.0	1572.4	1465.8	1305.2	807.7	319.3	147.7	70.3
45°	1485.7	1501.6	1439.7	1353.5	1193.3	1115.9	907.6	416.2	184.0	81.8	37.2
47.5°	1042.1	1024.4	914.7	763.9	617.5	522.8	395.4	196.8	98.2	42.9	21.2
50°	589.6	592.7	493.6	399.4	261.8	207.4	157.5	99.1	47.3	22.6	12.8
52.5°	153.9	161.0	138.9	119.4	101.7	82.7	66.8	42.9	22.6	13.3	8.4
55°	36.3	37.6	34.9	32.7	31.0	27.4	24.3	18.6	12.4	8.4	5.3
57.5°	12.8	13.3	12.8	12.8	12.4	11.9	11.1	9.7	7.5	5.3	3.5
60°	5.7	6.2	5.7	6.2	6.2	6.2	6.2	6.2	4.4	3.1	2.2
62.5°	2.7	2.7	2.7	2.7	3.1	3.1	3.5	3.5	2.7	2.2	1.8
65°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.3
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
70°	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
77.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9	0.9
80°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9
82.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9
87.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9
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°	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0
2.5°	137.6	137.1	132.2	128.7	126.9	124.3	121.2	116.8	111.9	107.5	105.7
5°	167.2	161.4	151.3	142.9	138.9	134.9	127.8	119.9	112.3	104.4	100.4
7.5°	205.7	188.9	169.0	153.5	146.8	140.2	130.0	119.0	108.8	98.2	92.4
10°	258.3	219.4	184.9	160.1	150.4	141.5	126.9	113.2	102.2	90.7	83.2
12.5°	369.3	272.9	201.7	163.2	150.4	138.9	121.2	105.3	92.9	80.9	73.9
15°	532.1	368.4	238.4	166.3	147.3	132.7	112.3	95.1	81.8	71.2	64.6
17.5°	663.5	456.5	284.0	174.3	143.3	124.3	100.8	82.7	70.3	60.6	55.3
20°	729.8	493.6	304.7	175.6	133.6	111.0	87.1	69.9	58.8	50.4	46.0
22.5°	728.5	481.7	286.2	153.9	117.2	96.0	73.4	57.5	48.7	42.0	38.5
25°	682.5	426.4	238.8	123.0	94.7	79.6	59.7	46.4	39.4	34.5	31.4
27.5°	596.2	346.3	178.2	91.1	73.9	62.8	46.4	37.2	31.4	27.9	25.7
30°	468.0	231.8	112.3	67.7	56.2	47.3	35.8	28.7	24.8	21.7	20.3
32.5°	257.9	120.7	75.6	49.5	41.1	34.5	26.5	20.8	18.1	15.9	15.5
35°	142.4	85.4	54.0	33.2	27.4	23.4	18.1	15.0	13.3	12.4	12.4
37.5°	100.8	54.8	32.3	20.8	17.7	15.5	12.4	10.6	10.2	9.7	9.7
40°	60.6	32.3	19.5	13.7	11.9	10.6	9.3	8.0	8.0	7.5	8.0
42.5°	33.2	19.5	13.3	9.7	8.4	8.0	6.6	6.2	6.2	6.2	6.6
45°	19.9	12.8	9.3	7.1	6.2	5.3	4.9	4.4	4.9	4.9	5.3
47.5°	12.8	9.3	6.2	4.4	4.0	3.5	3.1	3.5	3.5	4.0	4.4
50°	8.8	5.7	4.0	2.7	2.7	2.2	2.7	2.7	3.1	3.5	4.0
52.5°	5.7	4.0	2.7	2.2	1.8	1.8	1.8	2.2	2.7	3.1	3.5
55°	3.5	2.7	2.2	1.8	1.8	1.8	1.8	1.8	2.2	2.7	3.1
57.5°	2.7	2.2	1.8	1.3	1.3	1.3	1.8	1.8	2.2	2.2	2.7
60°	1.8	1.8	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2	2.7
62.5°	1.8	1.8	1.3	1.3	1.3	1.3	1.8	1.8	1.8	2.2	2.2
65°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	2.2
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
77.5°	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
82.5°	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
85°	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
87.5°	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0
2.5°	103.5	100.4	97.7	98.6	96.9	93.8	92.9	90.7	88.0	87.6	87.6
5°	96.0	91.1	87.1	86.7	84.9	81.4	80.5	78.3	76.1	75.6	75.2
7.5°	86.7	81.4	77.8	77.0	75.6	72.5	72.1	69.9	68.6	67.7	67.7
10°	77.4	72.5	69.4	69.0	68.1	65.5	65.0	63.2	61.9	61.5	61.0
12.5°	68.6	64.6	61.9	61.5	60.6	58.4	57.9	56.6	55.7	55.3	55.3
15°	60.2	56.6	54.4	54.0	53.5	51.3	51.3	50.4	50.0	50.0	50.4
17.5°	51.7	48.7	46.9	46.4	46.4	44.7	45.1	44.7	44.7	44.7	45.6
20°	43.3	40.7	39.4	39.8	38.9	38.5	38.9	38.9	38.9	39.8	41.1
22.5°	36.3	34.1	32.7	33.2	33.2	32.7	33.2	33.6	34.5	35.8	37.2
25°	29.6	27.9	27.4	27.9	27.9	27.9	28.7	29.6	30.5	31.8	33.2
27.5°	23.9	22.6	22.6	23.0	23.4	23.4	24.8	25.7	27.0	28.3	29.6
30°	19.0	18.6	18.6	19.5	19.5	19.9	21.7	22.6	23.4	24.8	26.1
32.5°	15.0	15.0	15.5	16.4	16.4	17.2	18.6	19.5	20.3	21.7	23.0
35°	12.4	12.8	13.3	13.7	14.2	14.6	15.9	16.8	17.7	19.0	19.9
37.5°	10.2	10.6	11.1	11.9	11.9	12.4	13.7	14.6	15.0	16.4	17.7
40°	8.4	8.8	9.3	10.2	10.2	10.6	11.9	12.4	12.8	14.2	15.5
42.5°	7.1	7.5	8.0	8.4	8.8	9.3	10.2	10.6	11.5	12.4	13.3
45°	5.7	6.2	6.6	7.1	7.5	8.0	8.4	9.3	9.7	10.6	11.5
47.5°	4.9	5.3	5.7	6.2	6.6	6.6	7.5	8.0	8.4	9.3	10.2
50°	4.4	4.9	5.3	5.3	5.7	6.2	6.6	7.1	7.5	8.0	8.8
52.5°	3.5	4.0	4.4	4.9	4.9	5.3	5.7	6.2	6.6	7.1	7.5
55°	3.5	3.5	4.0	4.4	4.4	4.9	5.3	5.7	5.7	6.2	6.6
57.5°	3.1	3.5	3.5	4.0	4.0	4.4	4.9	4.9	5.3	5.3	5.7
60°	2.7	3.1	3.5	3.5	3.5	4.0	4.0	4.4	4.4	4.9	4.9
62.5°	2.7	3.1	3.1	3.5	3.5	3.5	4.0	4.0	4.0	4.4	4.4
65°	2.7	2.7	3.1	3.1	3.1	3.1	3.5	3.5	3.5	4.0	4.0
67.5°	2.2	2.7	2.7	2.7	3.1	3.1	3.1	3.1	3.1	3.5	3.5
70°	2.2	2.2	2.7	2.7	2.7	2.7	2.7	3.1	3.1	3.1	3.1
72.5°	2.2	2.2	2.2	2.2	2.7	2.7	2.7	2.7	2.7	2.7	2.7
75°	1.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
77.5°	1.8	1.8	1.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
82.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.3	1.3
85°	1.8	1.8	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	0.9	0.9	0.9
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: P182844

CATALOG NUMBER: LDSQA4A09935D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0
2.5°	85.8	84.9	84.5	85.8	84.0	84.9	84.5	84.9
5°	73.9	73.0	72.5	73.9	72.1	73.0	72.1	73.0
7.5°	66.3	65.9	65.5	66.3	65.0	65.9	65.5	65.9
10°	60.2	59.7	59.3	60.6	59.3	60.2	59.7	60.2
12.5°	54.8	54.8	54.4	55.3	54.4	55.3	54.8	55.3
15°	50.0	50.4	50.0	50.9	50.4	51.3	50.9	51.7
17.5°	46.0	46.4	46.4	47.8	47.3	48.7	48.2	48.7
20°	42.0	42.5	42.9	43.8	43.8	45.1	44.7	45.6
22.5°	38.0	38.9	38.9	40.2	40.2	41.6	41.6	42.0
25°	34.1	35.4	35.8	36.7	37.2	38.5	38.5	38.9
27.5°	31.0	31.8	32.3	33.6	34.1	35.4	35.4	36.3
30°	27.4	28.7	29.2	30.1	30.5	31.8	31.8	32.7
32.5°	24.3	25.2	26.1	27.0	27.4	28.7	28.7	29.6
35°	21.2	22.6	23.0	23.9	24.8	26.1	26.1	27.0
37.5°	18.6	19.9	20.3	21.2	22.1	23.4	23.4	24.3
40°	16.4	17.7	18.1	19.0	19.5	21.2	21.2	21.7
42.5°	14.6	15.5	15.9	16.8	17.2	18.1	18.1	19.0
45°	12.4	13.3	13.7	14.2	15.0	15.9	15.9	16.4
47.5°	10.6	11.5	11.9	12.4	12.8	13.7	13.7	14.6
50°	9.3	9.7	10.2	10.6	11.1	11.9	11.9	12.4
52.5°	8.0	8.4	8.8	9.3	9.7	10.2	10.6	11.1
55°	7.1	7.5	7.5	8.0	8.4	8.8	8.8	9.3
57.5°	6.2	6.6	6.6	6.6	7.1	7.5	7.5	8.0
60°	5.3	5.7	5.7	5.7	6.2	6.2	6.2	6.6
62.5°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
65°	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0
67.5°	3.5	3.5	3.5	3.1	3.1	3.1	3.1	3.1
70°	3.1	3.1	3.1	2.7	2.7	2.7	2.2	2.2
72.5°	2.7	2.7	2.7	2.2	2.2	2.2	1.8	1.8
75°	2.2	2.2	2.2	2.2	1.8	1.8	1.8	1.8
77.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.3	1.3
80°	1.8	1.3	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9
85°	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4
87.5°	0.9	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)