

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: P182746

Luminaire Tested: **LDSQA4A09927D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182746
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26801)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A09927D010TE LAR35FL 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 914.9 lumens
Efficiency: N/A
Efficacy: 66.1 lumens/watt
Spacing Criteria (0/90/45): 2.46 / 0.59 / 1.2
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

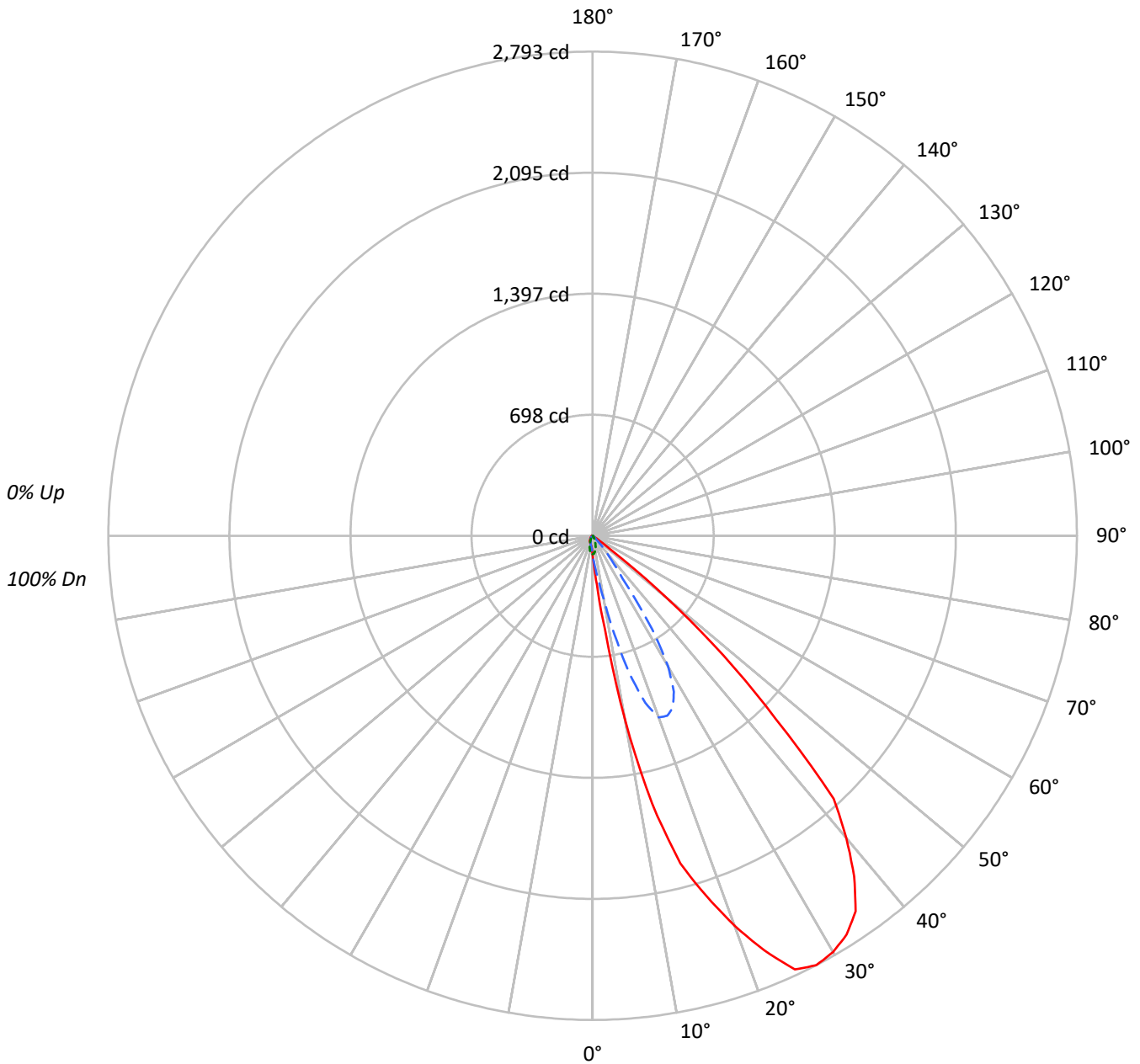
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	105	102	103	101	99	99	98	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83																			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74																			
4	92	83	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67																			
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	60																			
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55																			
7	75	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49																			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45																			
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41																			
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	39	37																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	10346	10346	10346
5°	27200	9851	6428
10°	106623	8529	5351
15°	196293	6720	4744
20°	246660	4753	4320
25°	295028	3132	3848
30°	310250	1969	3367
35°	312758	1183	2921
40°	287802	797	2491
45°	204764	575	2069
50°	84609	437	1703
55°	4881	422	1486
60°	562	407	1221
65°	183	481	871
70°	227	482	595
75°	299	636	636
80°	0	948	725
85°	0	1890	889



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	16.8	1.8
10°-20°	134.1	14.7
20°-30°	277.3	30.3
30°-40°	301.9	33.0
40°-50°	165.5	18.1
50°-60°	14.3	1.6
60°-70°	2.3	0.3
70°-80°	1.7	0.2
80°-90°	1.1	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°	428.1	46.8
0°-40°	730.0	79.8
0°-60°	909.8	99.4
0°-90°	914.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	914.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	107	107	107	107	107	
5°	280	191	101	70	66	51
15°	1957	823	67	45	47	547
25°	2760	1094	29	28	36	1246
35°	2645	299	10	16	25	1623
45°	1495	31	4	9	15	1141
55°	29	3	2	5	9	99
65°	1	1	2	3	4	1
75°	1	1	2	2	2	1
85°	0	1	2	1	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°	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8
2.5°	167.9	162.0	161.2	162.0	157.8	157.4	158.2	154.9	152.0	149.0	146.5
5°	279.7	267.5	263.7	258.7	246.2	242.0	241.1	227.7	214.8	202.6	191.3
7.5°	543.4	519.1	506.1	481.0	442.5	425.3	416.1	372.2	331.1	293.9	260.0
10°	1083.9	1020.2	989.3	941.9	857.8	816.4	786.2	675.7	566.8	462.2	370.1
12.5°	1581.6	1546.5	1500.8	1475.7	1339.2	1286.9	1237.1	1083.9	918.1	749.0	581.1
15°	1957.2	1905.7	1857.1	1845.4	1738.2	1677.1	1621.8	1463.2	1266.0	1050.8	822.6
17.5°	2177.8	2140.9	2094.9	2072.7	1947.1	1897.7	1834.9	1681.3	1489.5	1275.2	1010.2
20°	2392.6	2338.1	2273.2	2239.7	2100.8	2043.8	1972.7	1811.1	1608.0	1380.3	1115.3
22.5°	2588.9	2518.6	2426.5	2374.6	2218.4	2155.6	2076.1	1901.1	1681.3	1420.9	1124.1
25°	2760.1	2696.5	2573.8	2483.0	2298.8	2224.7	2132.2	1949.2	1707.6	1417.5	1094.3
27.5°	2792.8	2750.1	2640.0	2534.9	2326.8	2244.4	2148.5	1959.3	1689.2	1371.1	1014.4
30°	2773.5	2727.5	2639.1	2532.0	2315.1	2231.8	2132.2	1916.6	1617.2	1262.6	867.8
32.5°	2727.0	2687.3	2581.8	2468.7	2257.3	2170.7	2065.6	1816.5	1493.7	1090.1	638.4
35°	2644.6	2584.7	2457.4	2364.5	2165.6	2076.5	1948.0	1682.9	1309.1	783.7	299.3
37.5°	2476.7	2418.5	2326.8	2241.0	2047.2	1942.1	1806.5	1497.1	970.4	427.4	185.0
40°	2275.8	2225.5	2145.6	2062.2	1862.5	1741.6	1592.1	1170.1	571.0	240.7	113.9
42.5°	2057.2	2005.3	1914.9	1817.8	1600.1	1472.4	1310.8	757.3	301.0	141.9	62.0
45°	1494.6	1448.1	1382.4	1312.4	1186.4	1094.3	881.7	397.7	166.6	75.4	30.6
47.5°	1022.7	967.5	846.1	699.1	566.8	484.8	364.6	172.5	85.4	37.7	18.0
50°	561.4	502.8	440.8	343.3	229.8	188.8	146.9	83.3	38.5	18.8	10.0
52.5°	137.7	121.8	111.4	102.6	81.2	73.3	62.0	34.7	17.6	10.5	7.1
55°	28.9	26.8	25.5	25.1	23.0	22.2	19.3	13.4	9.6	6.7	3.3
57.5°	8.4	8.0	8.4	8.4	8.4	8.0	8.0	5.9	5.4	3.3	2.1
60°	2.9	2.9	2.9	3.3	3.3	3.3	3.8	3.8	2.9	2.1	1.7
62.5°	1.3	1.3	1.3	1.7	1.7	2.1	2.1	2.1	1.7	1.7	1.3
65°	0.8	0.8	0.8	0.8	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	0.8	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	0.8	0.8	0.8	1.3
80°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8
2.5°	139.4	135.2	130.2	124.8	123.9	121.0	116.8	110.9	108.8	104.7	100.9
5°	175.0	163.7	152.0	141.5	138.2	133.5	126.0	115.5	108.8	101.3	95.0
7.5°	222.7	196.8	172.9	154.1	148.2	140.7	128.9	115.5	105.5	95.0	86.7
10°	286.4	233.6	192.6	162.0	152.4	142.3	126.8	110.5	98.8	86.7	77.9
12.5°	409.0	287.6	211.0	166.2	152.8	139.8	120.2	102.6	89.2	77.0	68.2
15°	581.5	390.2	248.3	169.1	148.6	132.7	109.7	91.7	78.3	67.0	58.6
17.5°	727.2	487.3	298.1	177.5	145.7	123.5	97.5	79.1	66.1	56.1	49.4
20°	798.4	530.8	320.7	178.8	137.3	109.7	83.3	65.7	54.4	46.1	40.2
22.5°	790.0	516.2	299.7	156.6	116.0	92.5	69.1	53.2	43.5	36.8	32.7
25°	733.9	452.6	244.5	119.7	90.4	74.9	54.0	41.4	33.9	29.3	26.0
27.5°	639.7	363.4	178.3	84.6	68.7	56.9	40.2	31.8	26.0	22.6	20.5
30°	492.7	232.3	102.6	60.7	49.8	40.6	30.1	23.0	19.7	17.6	15.9
32.5°	254.1	113.0	68.2	43.5	35.2	29.3	20.9	16.7	14.7	13.4	12.6
35°	139.4	80.4	47.3	28.0	22.6	18.8	14.2	11.7	10.9	10.0	10.0
37.5°	95.9	49.8	26.4	16.7	13.8	11.7	9.6	8.4	8.0	8.0	8.0
40°	55.3	26.4	15.1	10.5	8.8	8.0	6.7	6.3	6.3	6.3	6.7
42.5°	28.5	15.5	10.0	7.1	6.3	5.4	4.6	4.6	4.6	5.0	5.4
45°	16.7	10.5	6.7	4.6	4.2	3.8	3.3	3.3	3.8	4.2	4.6
47.5°	10.5	7.1	4.2	2.9	2.5	2.5	2.5	2.5	2.9	3.3	3.8
50°	7.1	3.8	2.5	1.7	1.7	1.7	1.7	2.1	2.5	2.9	3.3
52.5°	3.8	2.1	1.7	1.3	1.3	1.3	1.7	1.7	2.1	2.5	2.9
55°	2.1	1.7	1.3	1.3	1.3	1.3	1.3	1.7	2.1	2.5	2.9
57.5°	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.1	2.5
60°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.1	2.5
62.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.1	2.1
65°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.1	2.1
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	2.1
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	2.1
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7
75°	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	2.1
77.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7
85°	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	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°	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8
2.5°	98.8	95.5	92.1	92.1	90.4	87.9	87.1	84.6	82.9	82.1	81.2
5°	90.4	85.4	80.8	80.4	78.3	75.4	74.1	71.6	69.9	69.1	68.7
7.5°	80.8	75.8	71.2	70.3	68.7	66.6	65.3	63.2	62.4	61.5	61.1
10°	71.6	66.6	63.2	62.4	61.1	59.4	58.2	56.9	56.1	55.7	55.7
12.5°	62.4	58.6	55.7	54.8	54.0	52.7	51.9	51.1	50.7	50.7	50.7
15°	54.0	50.7	48.1	48.1	47.3	46.5	46.5	45.6	45.2	45.6	46.1
17.5°	45.6	43.1	41.0	41.0	40.6	40.2	40.2	40.2	40.6	41.0	41.9
20°	37.7	35.6	34.7	34.7	34.3	34.7	34.7	35.2	35.6	36.8	38.1
22.5°	30.6	29.3	28.5	28.9	28.9	29.3	29.7	30.6	31.4	32.7	33.9
25°	24.7	23.9	23.4	23.9	24.3	24.7	25.5	26.4	27.6	28.9	30.6
27.5°	19.7	19.3	19.3	19.7	20.1	20.9	22.2	23.0	24.3	25.5	27.2
30°	15.9	15.5	15.9	16.7	17.2	18.0	18.8	20.1	21.4	22.6	24.3
32.5°	12.6	13.0	13.4	13.8	14.2	15.5	16.3	17.2	18.4	19.7	21.4
35°	10.5	10.9	11.3	11.7	12.1	13.0	13.8	14.7	15.9	17.2	18.8
37.5°	8.4	8.8	9.2	10.0	10.5	10.9	12.1	12.6	13.8	14.7	16.3
40°	7.1	7.5	8.0	8.4	8.8	9.6	10.5	10.9	11.7	13.0	14.2
42.5°	5.9	6.3	6.7	7.1	7.5	8.4	8.8	9.6	10.5	11.3	12.1
45°	5.0	5.4	5.9	6.3	6.7	7.1	7.5	8.4	8.8	9.6	10.5
47.5°	4.2	4.6	5.4	5.4	5.9	6.3	6.7	7.1	8.0	8.4	9.2
50°	3.8	4.2	4.6	5.0	5.0	5.4	5.9	6.3	6.7	7.1	8.0
52.5°	3.3	3.8	4.2	4.2	4.6	5.0	5.4	5.4	5.9	6.3	6.7
55°	2.9	3.3	3.8	3.8	4.2	4.6	4.6	5.0	5.4	5.4	5.9
57.5°	2.9	2.9	3.3	3.3	3.8	3.8	4.2	4.6	4.6	5.0	5.4
60°	2.5	2.9	2.9	3.3	3.3	3.8	3.8	4.2	4.2	4.6	4.6
62.5°	2.5	2.5	2.9	2.9	3.3	3.3	3.8	3.8	3.8	4.2	4.2
65°	2.5	2.5	2.9	2.9	2.9	3.3	3.3	3.3	3.3	3.8	3.8
67.5°	2.1	2.5	2.5	2.9	2.9	2.9	2.9	2.9	3.3	3.3	3.3
70°	2.1	2.5	2.5	2.5	2.5	2.9	2.9	2.9	2.9	2.9	2.9
72.5°	2.1	2.1	2.1	2.1	2.5	2.5	2.5	2.5	2.5	2.5	2.5
75°	2.1	2.1	2.1	2.1	2.1	2.5	2.5	2.5	2.5	2.5	2.5
77.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
80°	1.7	1.7	1.7	1.7	1.7	2.1	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	1.3	1.3
85°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3
87.5°	1.7	1.7	1.7	1.3	1.3	1.3	1.3	1.3	1.3	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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CATALOG NUMBER: LDSQA4A09927D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	106.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8
2.5°	80.0	79.1	80.0	79.1	79.1	77.4	78.7	77.9
5°	67.4	66.6	67.4	67.0	66.1	65.7	66.6	66.1
7.5°	60.3	59.4	60.3	60.3	59.4	59.0	59.9	59.4
10°	54.8	54.4	54.8	54.8	54.4	54.0	54.8	54.4
12.5°	50.2	49.8	50.7	50.7	50.2	50.2	51.1	50.2
15°	46.1	46.1	46.9	46.9	46.9	46.9	47.7	47.3
17.5°	41.9	42.7	43.5	44.0	44.0	44.0	44.8	44.8
20°	38.5	39.4	40.2	40.6	41.0	41.0	41.9	41.9
22.5°	34.7	35.6	36.8	37.3	37.7	38.1	38.9	38.9
25°	31.4	32.2	33.5	33.9	34.7	35.2	36.0	36.0
27.5°	28.0	29.3	30.1	31.0	31.4	32.2	33.1	33.1
30°	25.1	26.4	27.2	28.0	28.5	29.3	30.1	30.1
32.5°	22.2	23.4	24.3	25.1	26.0	26.4	27.6	27.6
35°	19.7	20.5	21.8	22.2	23.0	23.9	24.7	24.7
37.5°	17.2	18.0	18.8	19.7	20.5	20.9	21.8	22.2
40°	15.1	15.9	16.7	17.2	18.0	18.8	19.3	19.7
42.5°	13.0	13.8	14.7	15.1	15.9	16.3	17.2	17.2
45°	11.3	12.1	12.6	13.0	13.8	14.2	15.1	15.1
47.5°	9.6	10.5	10.9	11.3	11.7	12.1	13.0	13.0
50°	8.4	8.8	9.2	9.6	10.0	10.9	11.3	11.3
52.5°	7.1	8.0	8.0	8.4	8.8	9.2	9.6	10.0
55°	6.3	6.7	7.1	7.1	7.5	8.0	8.4	8.8
57.5°	5.4	5.9	6.3	6.3	6.7	6.7	7.1	7.5
60°	5.0	5.0	5.4	5.4	5.4	5.9	5.9	6.3
62.5°	4.2	4.2	4.6	4.6	4.6	4.6	4.6	4.6
65°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
67.5°	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.9
70°	2.9	2.9	2.9	2.9	2.5	2.5	2.5	2.1
72.5°	2.5	2.5	2.5	2.5	2.1	2.1	1.7	1.7
75°	2.1	2.1	2.1	2.1	2.1	1.7	1.7	1.7
77.5°	2.1	1.7	1.7	1.7	1.7	1.7	1.7	1.3
80°	1.7	1.7	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	0.8	0.8	0.8	0.8
85°	1.3	0.8	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.8	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)