

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: P182745

Luminaire Tested: **LDSQA4A09840D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182745
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: LDSQA4A09840D010TE LAR35FL 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1241.9 lumens
Efficiency: N/A
Efficacy: 89.7 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

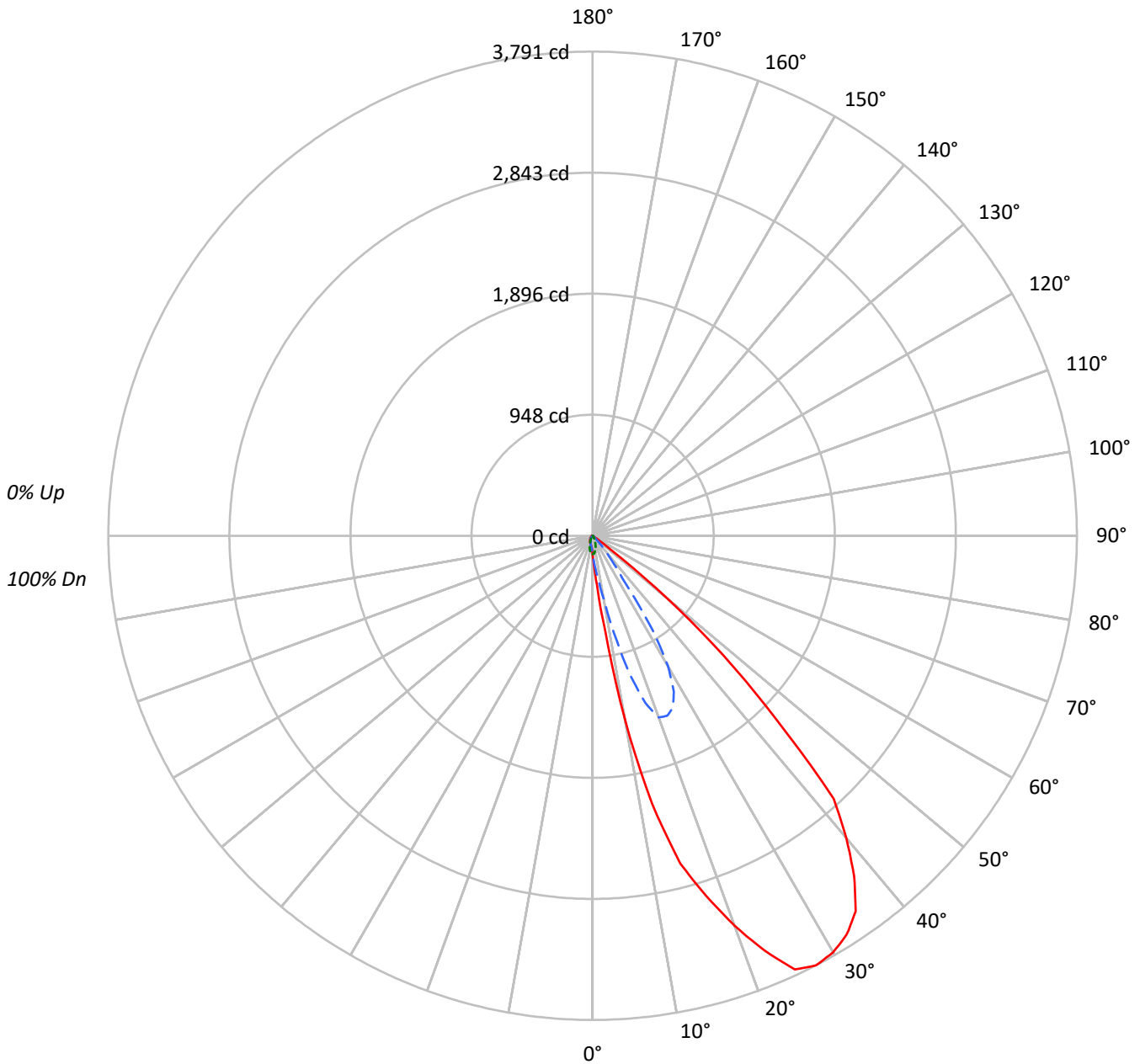
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	14037	14037	14037
5°	36914	13371	8733
10°	144741	11568	7270
15°	266468	9117	6439
20°	334835	6443	5856
25°	400507	4254	5227
30°	421172	2674	4575
35°	424564	1608	3962
40°	390679	1075	3377
45°	277964	781	2809
50°	114857	603	2306
55°	6621	574	2010
60°	775	543	1647
65°	252	642	1169
70°	312	651	793
75°	412	861	861
80°	0	1283	948
85°	0	2556	1223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	22.8	1.8
10°-20°	182.0	14.7
20°-30°	376.4	30.3
30°-40°	409.8	33.0
40°-50°	224.7	18.1
50°-60°	19.5	1.6
60°-70°	3.2	0.3
70°-80°	2.3	0.2
80°-90°	1.4	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°	581.2	46.8
0°-40°	990.9	79.8
0°-60°	1235.1	99.4
0°-90°	1241.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1241.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	145	145	145	145	145	
5°	380	260	138	95	90	69
15°	2657	1117	91	61	64	742
25°	3747	1486	40	38	49	1692
35°	3590	406	14	22	34	2203
45°	2029	42	6	12	20	1549
55°	39	4	3	7	12	134
65°	1	2	3	4	5	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°	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9
2.5°	227.9	219.9	218.8	219.9	214.3	213.7	214.8	210.3	206.3	202.3	198.9
5°	379.6	363.2	358.0	351.2	334.2	328.5	327.3	309.2	291.5	275.1	259.7
7.5°	737.7	704.7	687.1	653.0	600.7	577.4	564.9	505.2	449.5	399.0	352.9
10°	1471.4	1385.0	1342.9	1278.7	1164.5	1108.2	1067.3	917.3	769.5	627.4	502.4
12.5°	2147.1	2099.3	2037.4	2003.3	1818.0	1747.0	1679.4	1471.4	1246.3	1016.7	788.8
15°	2656.9	2586.9	2521.0	2505.1	2359.6	2276.7	2201.6	1986.2	1718.6	1426.5	1116.7
17.5°	2956.3	2906.3	2843.8	2813.7	2643.2	2576.2	2490.9	2282.3	2022.0	1731.1	1371.3
20°	3247.9	3174.0	3085.9	3040.5	2851.8	2774.5	2677.9	2458.5	2182.9	1873.7	1514.0
22.5°	3514.4	3419.0	3293.9	3223.5	3011.5	2926.2	2818.3	2580.7	2282.3	1928.8	1525.9
25°	3746.9	3660.5	3494.0	3370.6	3120.6	3020.0	2894.4	2646.1	2318.1	1924.3	1485.6
27.5°	3791.2	3733.2	3583.8	3441.1	3158.7	3046.7	2916.6	2659.7	2293.1	1861.2	1377.0
30°	3765.1	3702.5	3582.6	3437.1	3142.8	3029.7	2894.4	2601.7	2195.4	1714.0	1178.1
32.5°	3702.0	3648.0	3504.8	3351.3	3064.3	2946.7	2804.0	2465.9	2027.7	1479.9	866.7
35°	3590.0	3508.7	3336.0	3209.8	2939.9	2818.8	2644.3	2284.6	1777.1	1063.9	406.3
37.5°	3362.1	3283.1	3158.7	3042.2	2779.0	2636.4	2452.3	2032.3	1317.3	580.2	251.2
40°	3089.3	3021.1	2912.6	2799.5	2528.4	2364.2	2161.3	1588.4	775.2	326.8	154.6
42.5°	2792.7	2722.2	2599.5	2467.6	2172.1	1998.7	1779.4	1028.1	408.6	192.7	84.1
45°	2028.9	1965.8	1876.6	1781.7	1610.6	1485.6	1196.9	539.9	226.2	102.3	41.5
47.5°	1388.4	1313.4	1148.6	949.1	769.5	658.1	495.0	234.1	115.9	51.1	24.4
50°	762.1	682.5	598.4	466.0	312.0	256.3	199.5	113.1	52.3	25.6	13.6
52.5°	187.0	165.4	151.2	139.2	110.3	99.5	84.1	47.2	23.9	14.2	9.7
55°	39.2	36.4	34.7	34.1	31.3	30.1	26.1	18.2	13.1	9.1	4.5
57.5°	11.4	10.8	11.4	11.4	11.4	10.8	10.8	8.0	7.4	4.5	2.8
60°	4.0	4.0	4.0	4.5	4.5	4.5	5.1	5.1	4.0	2.8	2.3
62.5°	1.7	1.7	1.7	2.3	2.3	2.8	2.8	2.8	2.3	2.3	1.7
65°	1.1	1.1	1.1	1.1	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	1.1	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	1.1	1.1	1.1	1.7
80°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1
87.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9
2.5°	189.2	183.6	176.7	169.4	168.2	164.2	158.6	150.6	147.8	142.1	137.0
5°	237.6	222.2	206.3	192.1	187.5	181.3	171.1	156.9	147.8	137.5	129.0
7.5°	302.3	267.1	234.7	209.1	201.2	191.0	175.0	156.9	143.2	129.0	117.6
10°	388.7	317.1	261.4	219.9	206.9	193.2	172.2	150.0	134.1	117.6	105.7
12.5°	555.2	390.4	286.4	225.6	207.4	189.8	163.1	139.2	121.1	104.6	92.6
15°	789.4	529.7	337.0	229.6	201.8	180.2	148.9	124.5	106.3	90.9	79.6
17.5°	987.2	661.5	404.6	241.0	197.8	167.7	132.4	107.4	89.8	76.2	67.1
20°	1083.8	720.6	435.3	242.7	186.4	148.9	113.1	89.2	73.9	62.5	54.6
22.5°	1072.4	700.7	406.9	212.5	157.4	125.6	93.8	72.2	59.1	50.0	44.3
25°	996.2	614.3	331.9	162.5	122.8	101.7	73.3	56.3	46.0	39.8	35.2
27.5°	868.4	493.3	242.1	114.8	93.2	77.3	54.6	43.2	35.2	30.7	27.8
30°	668.9	315.4	139.2	82.4	67.6	55.1	40.9	31.3	26.7	23.9	21.6
32.5°	345.0	153.4	92.6	59.1	47.7	39.8	28.4	22.7	19.9	18.2	17.0
35°	189.2	109.1	64.2	38.1	30.7	25.6	19.3	15.9	14.8	13.6	13.6
37.5°	130.1	67.6	35.8	22.7	18.8	15.9	13.1	11.4	10.8	10.8	10.8
40°	75.0	35.8	20.5	14.2	11.9	10.8	9.1	8.5	8.5	8.5	9.1
42.5°	38.6	21.0	13.6	9.7	8.5	7.4	6.3	6.3	6.3	6.8	7.4
45°	22.7	14.2	9.1	6.3	5.7	5.1	4.5	4.5	5.1	5.7	6.3
47.5°	14.2	9.7	5.7	4.0	3.4	3.4	3.4	3.4	4.0	4.5	5.1
50°	9.7	5.1	3.4	2.3	2.3	2.3	2.3	2.8	3.4	4.0	4.5
52.5°	5.1	2.8	2.3	1.7	1.7	1.7	2.3	2.3	2.8	3.4	4.0
55°	2.8	2.3	1.7	1.7	1.7	1.7	1.7	2.3	2.8	3.4	4.0
57.5°	2.3	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.8	3.4
60°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.8	3.4
62.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.8	2.8
65°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.8	2.8
67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.8
70°	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.8
72.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3
75°	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3	2.8
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3
80°	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3
82.5°	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3
85°	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3	2.3
87.5°	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3
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°	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9
2.5°	134.1	129.6	125.0	125.0	122.8	119.3	118.2	114.8	112.5	111.4	110.3
5°	122.8	115.9	109.7	109.1	106.3	102.3	100.6	97.2	94.9	93.8	93.2
7.5°	109.7	102.9	96.6	95.5	93.2	90.4	88.7	85.8	84.7	83.5	83.0
10°	97.2	90.4	85.8	84.7	83.0	80.7	79.0	77.3	76.2	75.6	75.6
12.5°	84.7	79.6	75.6	74.4	73.3	71.6	70.5	69.3	68.8	68.8	68.8
15°	73.3	68.8	65.4	65.4	64.2	63.1	63.1	61.9	61.4	61.9	62.5
17.5°	61.9	58.5	55.7	55.7	55.1	54.6	54.6	54.6	55.1	55.7	56.8
20°	51.1	48.3	47.2	47.2	46.6	47.2	47.2	47.7	48.3	50.0	51.7
22.5°	41.5	39.8	38.6	39.2	39.2	39.8	40.4	41.5	42.6	44.3	46.0
25°	33.5	32.4	31.8	32.4	33.0	33.5	34.7	35.8	37.5	39.2	41.5
27.5°	26.7	26.1	26.1	26.7	27.3	28.4	30.1	31.3	33.0	34.7	36.9
30°	21.6	21.0	21.6	22.7	23.3	24.4	25.6	27.3	29.0	30.7	33.0
32.5°	17.0	17.6	18.2	18.8	19.3	21.0	22.2	23.3	25.0	26.7	29.0
35°	14.2	14.8	15.3	15.9	16.5	17.6	18.8	19.9	21.6	23.3	25.6
37.5°	11.4	11.9	12.5	13.6	14.2	14.8	16.5	17.0	18.8	19.9	22.2
40°	9.7	10.2	10.8	11.4	11.9	13.1	14.2	14.8	15.9	17.6	19.3
42.5°	8.0	8.5	9.1	9.7	10.2	11.4	11.9	13.1	14.2	15.3	16.5
45°	6.8	7.4	8.0	8.5	9.1	9.7	10.2	11.4	11.9	13.1	14.2
47.5°	5.7	6.3	7.4	7.4	8.0	8.5	9.1	9.7	10.8	11.4	12.5
50°	5.1	5.7	6.3	6.8	6.8	7.4	8.0	8.5	9.1	9.7	10.8
52.5°	4.5	5.1	5.7	5.7	6.3	6.8	7.4	7.4	8.0	8.5	9.1
55°	4.0	4.5	5.1	5.1	5.7	6.3	6.3	6.8	7.4	7.4	8.0
57.5°	4.0	4.0	4.5	4.5	5.1	5.1	5.7	6.3	6.3	6.8	7.4
60°	3.4	4.0	4.0	4.5	4.5	5.1	5.1	5.7	5.7	6.3	6.3
62.5°	3.4	3.4	4.0	4.0	4.5	4.5	5.1	5.1	5.1	5.7	5.7
65°	3.4	3.4	4.0	4.0	4.0	4.5	4.5	4.5	4.5	5.1	5.1
67.5°	2.8	3.4	3.4	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5
70°	2.8	3.4	3.4	3.4	3.4	4.0	4.0	4.0	4.0	4.0	4.0
72.5°	2.8	2.8	2.8	2.8	3.4	3.4	3.4	3.4	3.4	3.4	3.4
75°	2.8	2.8	2.8	2.8	2.8	3.4	3.4	3.4	3.4	3.4	3.4
77.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
80°	2.3	2.3	2.3	2.3	2.3	2.8	2.3	2.3	2.3	2.3	2.3
82.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.7	1.7
85°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.7	1.7	1.7	1.7
87.5°	2.3	2.3	2.3	1.7	1.7	1.7	1.7	1.7	1.7	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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CATALOG NUMBER: LDSQA4A09840D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	144.9	144.9	144.9	144.9	144.9	144.9	144.9	144.9
2.5°	108.5	107.4	108.5	107.4	107.4	105.1	106.8	105.7
5°	91.5	90.4	91.5	90.9	89.8	89.2	90.4	89.8
7.5°	81.8	80.7	81.8	81.8	80.7	80.1	81.3	80.7
10°	74.4	73.9	74.4	74.4	73.9	73.3	74.4	73.9
12.5°	68.2	67.6	68.8	68.8	68.2	68.2	69.3	68.2
15°	62.5	62.5	63.7	63.7	63.7	63.7	64.8	64.2
17.5°	56.8	58.0	59.1	59.7	59.7	59.7	60.8	60.8
20°	52.3	53.4	54.6	55.1	55.7	55.7	56.8	56.8
22.5°	47.2	48.3	50.0	50.6	51.1	51.7	52.9	52.9
25°	42.6	43.8	45.5	46.0	47.2	47.7	48.9	48.9
27.5°	38.1	39.8	40.9	42.1	42.6	43.8	44.9	44.9
30°	34.1	35.8	36.9	38.1	38.6	39.8	40.9	40.9
32.5°	30.1	31.8	33.0	34.1	35.2	35.8	37.5	37.5
35°	26.7	27.8	29.6	30.1	31.3	32.4	33.5	33.5
37.5°	23.3	24.4	25.6	26.7	27.8	28.4	29.6	30.1
40°	20.5	21.6	22.7	23.3	24.4	25.6	26.1	26.7
42.5°	17.6	18.8	19.9	20.5	21.6	22.2	23.3	23.3
45°	15.3	16.5	17.0	17.6	18.8	19.3	20.5	20.5
47.5°	13.1	14.2	14.8	15.3	15.9	16.5	17.6	17.6
50°	11.4	11.9	12.5	13.1	13.6	14.8	15.3	15.3
52.5°	9.7	10.8	10.8	11.4	11.9	12.5	13.1	13.6
55°	8.5	9.1	9.7	9.7	10.2	10.8	11.4	11.9
57.5°	7.4	8.0	8.5	8.5	9.1	9.1	9.7	10.2
60°	6.8	6.8	7.4	7.4	7.4	8.0	8.0	8.5
62.5°	5.7	5.7	6.3	6.3	6.3	6.3	6.3	6.3
65°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
67.5°	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0
70°	4.0	4.0	4.0	4.0	3.4	3.4	3.4	2.8
72.5°	3.4	3.4	3.4	3.4	2.8	2.8	2.3	2.3
75°	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3
77.5°	2.8	2.3	2.3	2.3	2.3	2.3	2.3	1.7
80°	2.3	2.3	1.7	1.7	1.7	1.7	1.7	1.7
82.5°	1.7	1.7	1.7	1.7	1.1	1.1	1.1	1.1
85°	1.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1
87.5°	1.1	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)