

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: P182719

Luminaire Tested: **LDSQA4A13830D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182719
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26800)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A13830D010TE LAR25NF 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1691.3 lumens
Efficiency: N/A
Efficacy: 75.9 lumens/watt
Spacing Criteria (0/90/45): 2.38 / 0.59 / 1.18
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

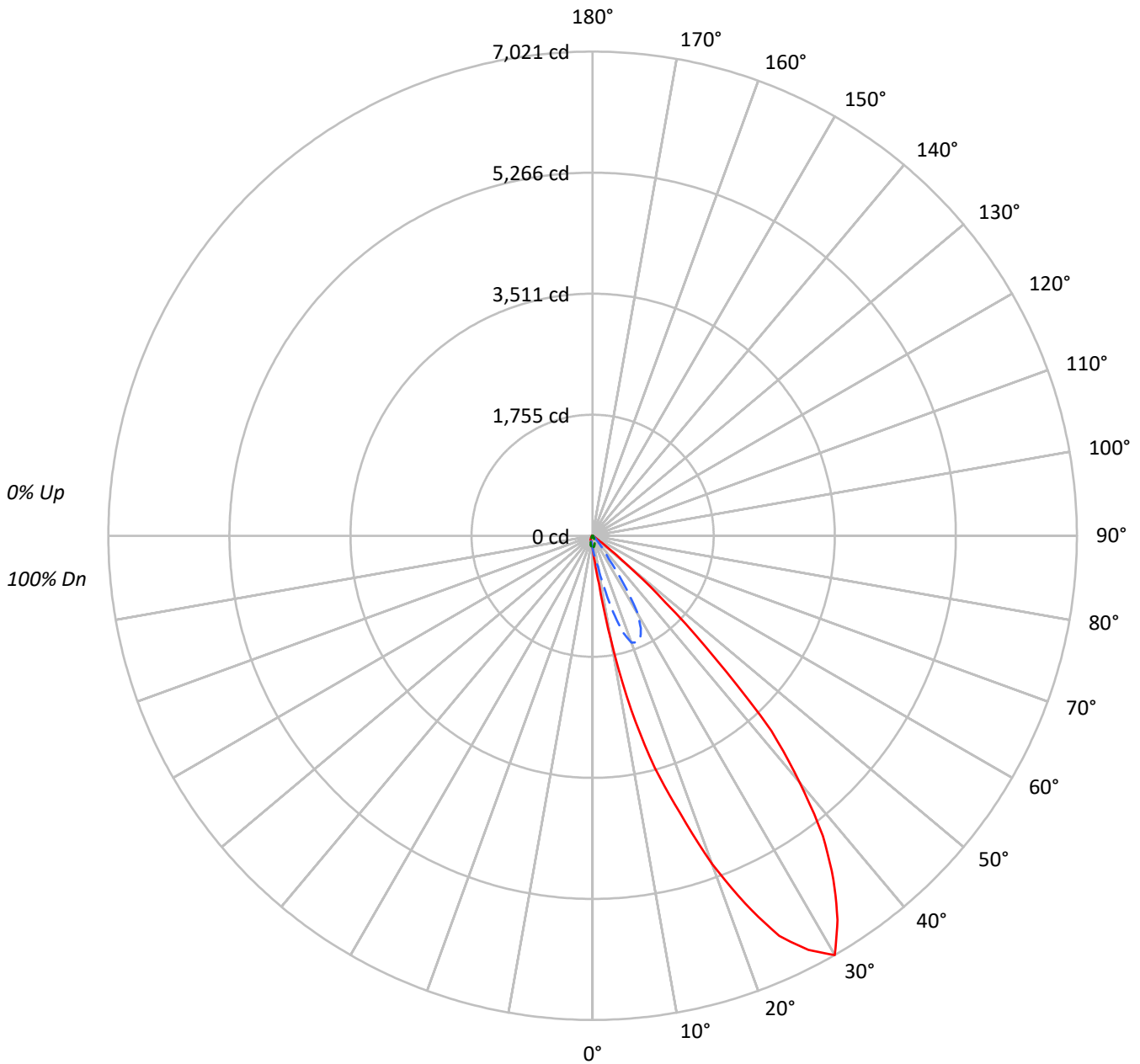
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91								
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83								
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75								
4	93	84	77	72	91	82	76	72	80	75	71	78	73	70	76	72	69	67								
5	87	77	70	64	85	76	69	64	74	68	64	72	67	63	70	66	62	61								
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55								
7	76	64	57	52	74	64	57	52	62	56	52	61	56	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	38	37								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	17108	17108	17108
5°	37867	16182	11378
10°	151598	14057	9503
15°	349430	11183	8344
20°	521618	7928	7443
25°	684161	5291	6627
30°	785362	3333	5794
35°	720104	2141	5014
40°	590526	1391	4274
45°	342356	973	3439
50°	97028	708	2833
55°	8884	659	2381
60°	1376	756	1976
65°	367	711	1444
70°	453	878	1105
75°	599	1160	1160
80°	0	1729	893
85°	0	3446	889



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	25.1	1.5
10°-20°	224.9	13.3
20°-30°	548.0	32.4
30°-40°	593.9	35.1
40°-50°	269.1	15.9
50°-60°	20.8	1.2
60°-70°	4.3	0.3
70°-80°	3.2	0.2
80°-90°	2.0	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°	798.0	47.2
0°-40°	1391.9	82.3
0°-60°	1681.9	99.4
0°-90°	1691.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1691.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	177	177	177	177	177	
5°	389	287	166	126	117	70
15°	3484	1140	112	81	83	1013
25°	6401	1637	50	49	62	2917
35°	6089	416	18	28	42	3745
45°	2499	53	7	16	25	1973
55°	53	7	4	9	14	120
65°	2	2	3	6	6	3
75°	2	2	3	5	3	1
85°	0	2	3	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°	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6
2.5°	264.6	259.9	262.2	255.9	252.0	248.9	250.4	248.9	238.7	236.3	228.5
5°	389.4	382.3	382.3	369.0	354.8	346.2	346.2	336.0	314.0	303.8	287.3
7.5°	697.9	683.8	672.0	630.4	576.2	545.6	537.8	494.6	438.9	403.5	361.9
10°	1541.1	1482.2	1440.6	1332.3	1187.0	1096.7	1058.3	909.1	731.7	598.2	477.3
12.5°	2591.5	2511.4	2438.4	2261.0	2052.2	1910.1	1833.9	1614.1	1269.4	1022.9	765.4
15°	3484.1	3397.8	3311.4	3095.5	2874.9	2751.6	2611.9	2320.6	1865.3	1515.2	1139.9
17.5°	4216.6	4167.9	4079.2	3762.8	3484.9	3292.6	3147.3	2766.6	2297.9	1898.3	1473.6
20°	5059.7	4939.6	4781.0	4397.1	4017.2	3776.2	3572.0	3108.1	2566.4	2107.1	1650.2
22.5°	5769.4	5683.9	5456.2	4949.8	4390.9	4185.2	3935.5	3377.3	2739.1	2195.8	1670.6
25°	6400.6	6266.4	5980.6	5378.5	4806.2	4456.0	4149.8	3523.4	2802.7	2202.1	1636.9
27.5°	6770.4	6595.3	6259.3	5603.0	4949.8	4562.8	4223.6	3548.5	2762.6	2118.9	1513.6
30°	7020.8	6672.3	6300.9	5605.4	4904.3	4508.6	4156.9	3422.1	2596.2	1928.9	1306.3
32.5°	6607.9	6406.1	6051.3	5382.4	4656.2	4270.0	3920.6	3148.1	2336.3	1647.1	909.1
35°	6089.0	5925.7	5617.1	4953.0	4284.1	3919.8	3549.3	2796.4	1998.0	1132.1	416.1
37.5°	5486.0	5358.1	5026.0	4419.1	3830.3	3473.9	3102.6	2383.5	1406.8	561.3	252.8
40°	4669.6	4561.2	4288.8	3801.3	3258.8	2919.7	2577.4	1782.9	763.9	313.2	164.9
42.5°	3838.2	3747.1	3499.0	3077.4	2600.9	2321.4	2020.0	1086.5	380.0	197.1	91.9
45°	2498.9	2385.0	2251.6	2058.4	1822.9	1651.0	1295.4	524.4	225.3	109.9	52.6
47.5°	1432.7	1357.4	1138.3	898.1	729.3	665.7	484.4	244.2	124.0	63.6	32.2
50°	643.8	595.1	499.3	406.7	294.4	230.0	195.5	122.5	61.2	34.5	22.0
52.5°	158.6	161.7	153.1	134.2	119.3	101.3	87.9	57.3	32.2	21.2	14.1
55°	52.6	53.4	48.7	46.3	42.4	39.3	36.1	25.9	19.6	18.8	7.1
57.5°	18.8	18.8	19.6	18.1	17.3	16.5	15.7	13.3	11.8	7.1	3.9
60°	7.1	7.1	7.1	7.9	7.9	7.9	8.6	7.9	5.5	3.9	3.1
62.5°	3.1	3.1	3.1	3.1	3.9	3.9	4.7	3.9	3.1	3.1	2.4
65°	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	2.4
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6
2.5°	220.6	215.9	206.5	199.4	193.9	193.1	188.4	180.6	177.4	171.9	167.2
5°	271.6	259.9	244.9	230.8	220.6	215.1	198.6	183.7	175.1	166.4	158.6
7.5°	326.6	299.9	274.0	251.2	237.1	228.5	208.8	184.5	168.8	156.2	146.0
10°	395.7	340.7	296.0	260.6	241.8	230.0	206.5	177.4	157.8	142.9	132.7
12.5°	553.5	403.5	316.4	265.4	241.8	225.3	197.1	168.0	146.0	128.0	117.0
15°	823.5	563.7	375.3	267.7	233.9	215.1	182.9	152.3	130.3	111.5	101.3
17.5°	1077.9	741.9	468.7	284.2	229.2	200.2	164.1	134.2	111.5	93.4	84.8
20°	1209.8	830.6	520.5	296.8	221.4	181.3	142.1	114.6	92.6	76.9	69.9
22.5°	1212.9	822.7	495.4	267.7	192.3	155.4	121.7	94.2	75.4	62.0	56.5
25°	1138.3	727.8	407.4	208.8	155.4	130.3	101.3	76.9	58.9	49.5	45.5
27.5°	997.8	588.8	300.7	150.7	121.7	103.6	79.3	58.9	44.7	38.5	36.1
30°	771.7	364.3	166.4	111.5	91.9	77.7	57.3	39.3	33.8	29.8	28.3
32.5°	383.1	178.2	117.8	79.3	62.8	49.5	36.1	29.0	25.9	23.6	22.8
35°	208.0	128.0	73.8	47.9	37.7	31.4	24.3	20.4	18.8	18.1	18.1
37.5°	145.2	76.2	44.7	29.0	23.6	21.2	17.3	14.9	14.1	14.1	14.1
40°	80.1	45.5	27.5	18.8	15.7	14.1	11.8	11.0	11.0	11.0	11.8
42.5°	46.3	28.3	18.8	13.3	11.0	10.2	8.6	7.9	8.6	8.6	9.4
45°	29.8	21.2	12.6	9.4	7.9	7.1	6.3	6.3	7.1	7.1	7.9
47.5°	21.2	14.9	8.6	6.3	4.7	4.7	4.7	4.7	5.5	6.3	7.1
50°	12.6	7.9	4.7	3.9	3.1	3.1	3.1	3.9	4.7	4.7	5.5
52.5°	7.1	4.7	3.1	3.1	2.4	2.4	3.1	3.1	3.9	4.7	5.5
55°	3.9	3.1	2.4	2.4	2.4	2.4	2.4	3.1	3.1	3.9	4.7
57.5°	3.1	2.4	2.4	2.4	2.4	2.4	2.4	3.1	3.1	3.9	3.9
60°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.1	3.1	3.9	3.9
62.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.1	3.1	3.1	3.1	3.9
65°	2.4	2.4	2.4	3.1	2.4	3.1	3.1	3.1	3.1	3.1	3.9
67.5°	2.4	2.4	2.4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.9
70°	2.4	2.4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.9
72.5°	2.4	2.4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.9
75°	2.4	2.4	2.4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
77.5°	2.4	2.4	2.4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
80°	2.4	2.4	2.4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
82.5°	2.4	2.4	2.4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
85°	2.4	2.4	2.4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
87.5°	2.4	2.4	2.4	2.4	3.1	3.1	3.1	3.1	3.1	3.1	3.1
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6
2.5°	165.6	160.2	156.2	154.7	151.5	152.3	149.9	148.4	143.7	143.7	140.5
5°	153.1	146.0	141.3	139.0	135.8	135.0	132.7	130.3	125.6	124.8	122.5
7.5°	139.7	132.7	127.2	124.8	121.7	120.9	117.8	116.2	112.3	111.5	109.1
10°	125.6	117.8	113.0	110.7	107.6	107.6	105.2	103.6	100.5	100.5	98.9
12.5°	110.7	103.6	100.5	97.3	95.8	95.8	94.2	92.6	90.3	91.1	90.3
15°	95.0	89.5	86.4	84.8	84.0	84.0	83.2	82.4	80.9	82.4	80.9
17.5°	80.1	76.2	73.8	73.0	72.2	72.2	72.2	73.0	72.2	73.8	73.8
20°	65.9	62.8	61.2	61.2	60.4	62.0	62.0	63.6	63.6	65.9	66.7
22.5°	54.2	51.8	51.0	51.0	51.0	52.6	53.4	55.0	55.7	58.1	59.7
25°	43.2	42.4	42.4	42.4	43.2	44.7	46.3	47.9	48.7	51.8	52.6
27.5°	35.3	34.5	35.3	35.3	36.1	38.5	40.0	41.6	43.2	45.5	47.1
30°	28.3	28.3	29.0	29.8	30.6	32.2	34.5	36.1	37.7	40.0	41.6
32.5°	22.8	23.6	24.3	25.1	25.1	27.5	29.0	31.4	32.2	34.5	36.1
35°	18.8	19.6	20.4	21.2	21.2	23.6	25.1	26.7	28.3	29.8	31.4
37.5°	14.9	15.7	17.3	18.1	18.1	20.4	21.2	22.8	24.3	25.9	27.5
40°	12.6	13.3	14.9	14.9	15.7	17.3	18.1	19.6	21.2	22.8	24.3
42.5°	10.2	11.0	12.6	13.3	13.3	14.9	15.7	17.3	18.1	19.6	20.4
45°	9.4	9.4	11.0	11.0	11.8	12.6	14.1	14.9	15.7	17.3	18.1
47.5°	7.9	8.6	9.4	10.2	10.2	11.0	11.8	12.6	13.3	14.9	15.7
50°	6.3	7.1	8.6	8.6	8.6	10.2	11.0	11.8	11.8	12.6	13.3
52.5°	6.3	6.3	7.1	7.9	7.9	8.6	9.4	10.2	10.2	11.0	11.8
55°	5.5	5.5	6.3	7.1	7.1	7.9	8.6	8.6	9.4	9.4	10.2
57.5°	4.7	5.5	6.3	6.3	6.3	7.1	7.9	7.9	8.6	8.6	9.4
60°	4.7	5.5	5.5	6.3	6.3	7.1	7.1	7.1	7.9	7.9	7.9
62.5°	4.7	4.7	5.5	5.5	5.5	6.3	6.3	7.1	7.1	7.1	7.1
65°	4.7	4.7	5.5	5.5	5.5	6.3	6.3	6.3	6.3	6.3	6.3
67.5°	3.9	4.7	4.7	4.7	5.5	5.5	5.5	5.5	5.5	5.5	5.5
70°	3.9	3.9	4.7	4.7	4.7	5.5	5.5	5.5	5.5	5.5	5.5
72.5°	3.9	3.9	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
75°	3.9	3.9	3.9	3.9	3.9	4.7	4.7	4.7	4.7	3.9	3.9
77.5°	3.1	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.1
80°	3.1	3.1	3.9	3.1	3.9	3.9	3.9	3.9	3.1	3.1	3.1
82.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.4	2.4
85°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.4	2.4	2.4	1.6
87.5°	3.1	3.1	3.1	3.1	3.1	3.1	2.4	2.4	2.4	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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CATALOG NUMBER: LDSQA4A13830D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	176.6	176.6	176.6	176.6	176.6	176.6	176.6	176.6
2.5°	139.0	140.5	139.0	140.5	136.6	138.2	139.7	135.8
5°	120.9	119.3	120.1	121.7	118.5	119.3	120.1	117.0
7.5°	108.3	109.1	107.6	109.1	106.8	107.6	108.3	106.0
10°	98.1	98.9	98.1	98.9	96.6	98.1	98.9	96.6
12.5°	88.7	90.3	89.5	91.1	88.7	90.3	91.9	88.7
15°	81.6	83.2	82.4	84.0	82.4	84.0	85.6	83.2
17.5°	74.6	76.2	76.2	77.7	76.9	78.5	80.1	77.7
20°	67.5	69.9	69.9	71.4	71.4	72.2	74.6	72.2
22.5°	61.2	63.6	63.6	65.2	65.2	66.7	68.3	66.7
25°	54.2	57.3	58.1	59.7	59.7	61.2	63.6	62.0
27.5°	49.5	51.8	52.6	54.2	55.0	56.5	58.1	56.5
30°	43.2	46.3	47.1	48.7	49.5	51.8	52.6	51.8
32.5°	38.5	40.8	41.6	43.2	44.7	46.3	47.9	47.1
35°	33.8	36.1	36.9	38.5	39.3	41.6	43.2	42.4
37.5°	29.8	32.2	33.0	33.8	34.5	36.9	38.5	37.7
40°	25.9	27.5	28.3	29.8	30.6	32.2	33.8	33.8
42.5°	22.8	24.3	25.1	25.9	26.7	28.3	29.8	29.0
45°	19.6	21.2	22.0	22.8	23.6	24.3	25.9	25.1
47.5°	16.5	18.1	18.8	19.6	20.4	21.2	22.8	22.0
50°	14.1	15.7	15.7	16.5	17.3	18.1	19.6	18.8
52.5°	12.6	13.3	14.1	14.1	14.9	15.7	17.3	16.5
55°	11.0	11.8	11.8	12.6	12.6	13.3	14.1	14.1
57.5°	9.4	10.2	10.2	11.0	11.0	11.8	12.6	12.6
60°	8.6	8.6	9.4	9.4	9.4	10.2	10.2	10.2
62.5°	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
65°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
67.5°	5.5	5.5	5.5	5.5	5.5	4.7	4.7	4.7
70°	4.7	4.7	4.7	4.7	4.7	3.9	3.9	3.9
72.5°	4.7	4.7	3.9	3.9	3.9	3.9	3.9	3.1
75°	3.9	3.9	3.9	3.9	3.1	3.1	3.1	3.1
77.5°	3.1	3.1	3.1	3.1	2.4	2.4	2.4	2.4
80°	3.1	2.4	2.4	2.4	2.4	2.4	2.4	1.6
82.5°	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6
85°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
87.5°	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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)