

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: P182714

Luminaire Tested: **LDSQA4A09927D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182714  
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: LDSQA4A09927D010TE 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 90CRI / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 898.2 lumens  
Efficiency: N/A  
Efficacy: 64.9 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

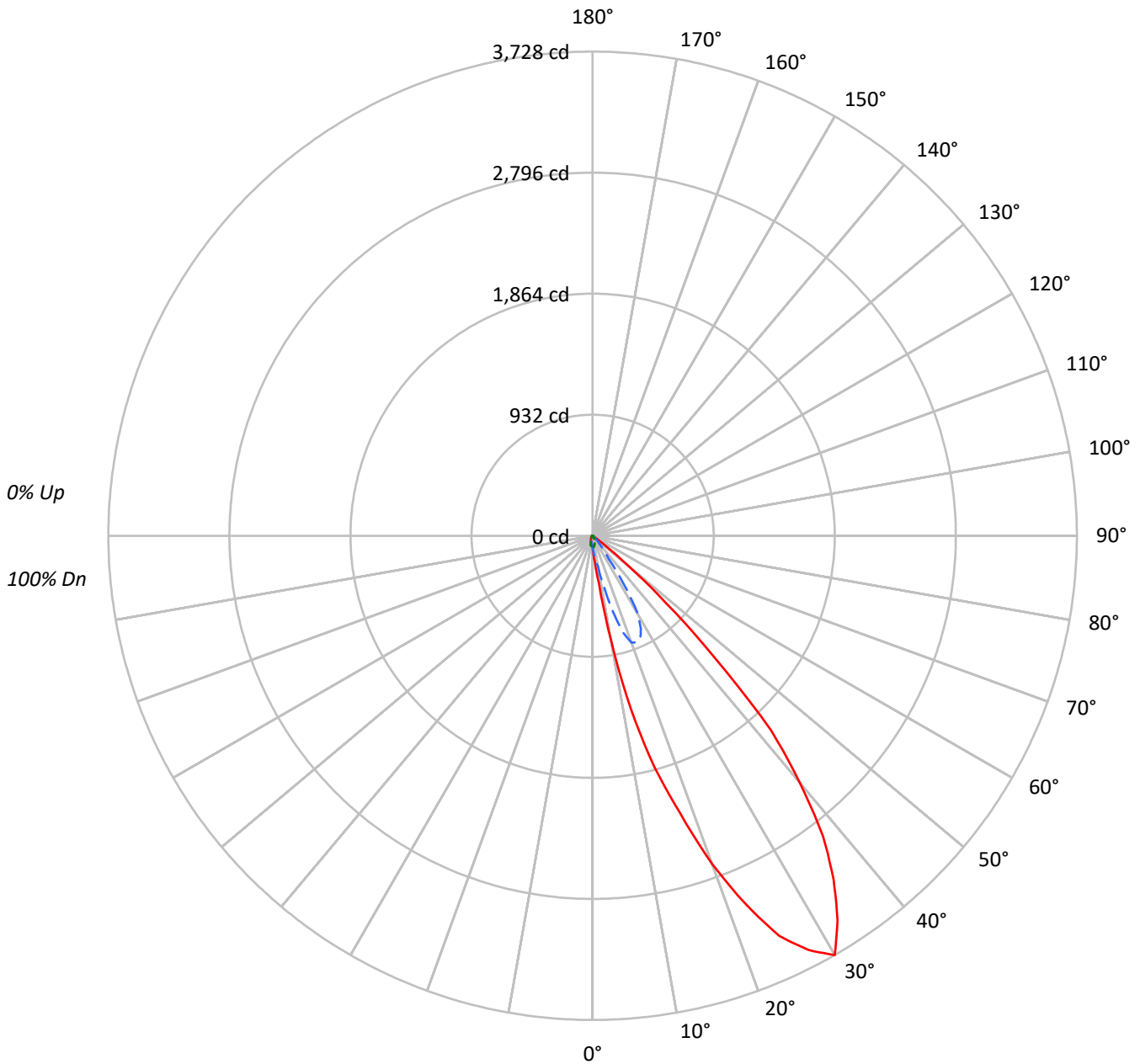
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	9087	9087	9087
5°	20110	8597	6039
10°	80496	7466	5046
15°	185552	5937	4433
20°	276989	4216	3959
25°	363309	2811	3517
30°	417044	1767	3076
35°	382392	1135	2661
40°	313575	733	2264
45°	181802	521	1822
50°	51513	377	1507
55°	4712	355	1267
60°	736	407	1046
65°	183	390	756
70°	227	482	595
75°	299	636	636
80°	0	948	446
85°	0	1890	445



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	13.3	1.5
10°-20°	119.4	13.3
20°-30°	291.0	32.4
30°-40°	315.4	35.1
40°-50°	142.9	15.9
50°-60°	11.1	1.2
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°	423.8	47.2
0°-40°	739.1	82.3
0°-60°	893.1	99.4
0°-90°	898.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	898.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	94	94	94	94	94	
5°	207	153	88	67	62	37
15°	1850	605	59	43	44	538
25°	3399	869	26	26	33	1549
35°	3233	221	10	15	22	1989
45°	1327	28	4	8	13	1048
55°	28	4	2	5	8	64
65°	1	1	2	3	3	1
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°	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8
2.5°	140.5	138.0	139.2	135.9	133.8	132.2	133.0	132.2	126.7	125.5	121.3
5°	206.8	203.0	203.0	195.9	188.4	183.8	183.8	178.4	166.8	161.3	152.6
7.5°	370.6	363.1	356.9	334.8	306.0	289.7	285.6	262.6	233.0	214.3	192.2
10°	818.3	787.1	765.0	707.5	630.3	582.4	562.0	482.8	388.5	317.7	253.5
12.5°	1376.1	1333.6	1294.9	1200.6	1089.7	1014.3	973.8	857.1	674.1	543.2	406.5
15°	1850.1	1804.3	1758.4	1643.8	1526.6	1461.2	1387.0	1232.3	990.5	804.6	605.3
17.5°	2239.1	2213.3	2166.1	1998.1	1850.6	1748.4	1671.3	1469.1	1220.2	1008.0	782.5
20°	2686.8	2623.1	2538.8	2335.0	2133.2	2005.2	1896.8	1650.5	1362.8	1118.9	876.3
22.5°	3063.7	3018.3	2897.4	2628.5	2331.6	2222.4	2089.9	1793.4	1454.5	1166.0	887.1
25°	3398.9	3327.6	3175.8	2856.1	2552.2	2366.2	2203.7	1871.0	1488.3	1169.4	869.2
27.5°	3595.2	3502.3	3323.8	2975.3	2628.5	2422.9	2242.9	1884.3	1467.0	1125.2	803.8
30°	3728.2	3543.1	3345.9	2976.6	2604.3	2394.2	2207.4	1817.2	1378.6	1024.3	693.7
32.5°	3508.9	3401.8	3213.4	2858.2	2472.6	2267.4	2081.9	1671.7	1240.7	874.6	482.8
35°	3233.4	3146.7	2982.8	2630.1	2275.0	2081.5	1884.7	1485.0	1061.0	601.2	220.9
37.5°	2913.2	2845.3	2668.9	2346.7	2034.0	1844.7	1647.5	1265.7	747.1	298.1	134.2
40°	2479.6	2422.1	2277.5	2018.6	1730.5	1550.4	1368.6	946.7	405.6	166.3	87.5
42.5°	2038.2	1989.8	1858.1	1634.2	1381.1	1232.7	1072.6	577.0	201.8	104.6	48.8
45°	1327.0	1266.5	1195.6	1093.1	968.0	876.7	687.9	278.5	119.6	58.4	27.9
47.5°	760.8	720.8	604.5	476.9	387.3	353.5	257.2	129.7	65.9	33.8	17.1
50°	341.8	316.0	265.1	215.9	156.3	122.1	103.8	65.0	32.5	18.3	11.7
52.5°	84.2	85.9	81.3	71.3	63.4	53.8	46.7	30.4	17.1	11.3	7.5
55°	27.9	28.3	25.8	24.6	22.5	20.8	19.2	13.8	10.4	10.0	3.8
57.5°	10.0	10.0	10.4	9.6	9.2	8.8	8.3	7.1	6.3	3.8	2.1
60°	3.8	3.8	3.8	4.2	4.2	4.2	4.6	4.2	2.9	2.1	1.7
62.5°	1.7	1.7	1.7	1.7	2.1	2.1	2.5	2.1	1.7	1.7	1.3
65°	0.8	0.8	1.3	1.3	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	1.3	1.3
70°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.3	1.3
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.3	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	1.3
82.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	0.8	0.8	1.3
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	0.8	1.3
87.5°	0.0	0.0	0.0	0.0	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°	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8
2.5°	117.1	114.6	109.6	105.9	103.0	102.6	100.1	95.9	94.2	91.3	88.8
5°	144.2	138.0	130.1	122.6	117.1	114.2	105.5	97.6	93.0	88.4	84.2
7.5°	173.4	159.3	145.5	133.4	125.9	121.3	110.9	98.0	89.6	83.0	77.5
10°	210.1	180.9	157.2	138.4	128.4	122.1	109.6	94.2	83.8	75.9	70.5
12.5°	293.9	214.3	168.0	140.9	128.4	119.6	104.6	89.2	77.5	68.0	62.1
15°	437.3	299.3	199.3	142.2	124.2	114.2	97.1	80.9	69.2	59.2	53.8
17.5°	572.4	394.0	248.9	150.9	121.7	106.3	87.1	71.3	59.2	49.6	45.0
20°	642.4	441.1	276.4	157.6	117.6	96.3	75.5	60.9	49.2	40.9	37.1
22.5°	644.1	436.9	263.1	142.2	102.1	82.5	64.6	50.0	40.0	32.9	30.0
25°	604.5	386.5	216.4	110.9	82.5	69.2	53.8	40.9	31.3	26.3	24.2
27.5°	529.9	312.7	159.7	80.0	64.6	55.0	42.1	31.3	23.8	20.4	19.2
30°	409.8	193.4	88.4	59.2	48.8	41.3	30.4	20.8	17.9	15.8	15.0
32.5°	203.4	94.6	62.5	42.1	33.4	26.3	19.2	15.4	13.8	12.5	12.1
35°	110.5	68.0	39.2	25.4	20.0	16.7	12.9	10.8	10.0	9.6	9.6
37.5°	77.1	40.4	23.8	15.4	12.5	11.3	9.2	7.9	7.5	7.5	7.5
40°	42.5	24.2	14.6	10.0	8.3	7.5	6.3	5.8	5.8	5.8	6.3
42.5°	24.6	15.0	10.0	7.1	5.8	5.4	4.6	4.2	4.6	4.6	5.0
45°	15.8	11.3	6.7	5.0	4.2	3.8	3.3	3.3	3.8	3.8	4.2
47.5°	11.3	7.9	4.6	3.3	2.5	2.5	2.5	2.5	2.9	3.3	3.8
50°	6.7	4.2	2.5	2.1	1.7	1.7	1.7	2.1	2.5	2.5	2.9
52.5°	3.8	2.5	1.7	1.7	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	1.7	2.1	2.5
57.5°	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.1	2.1
60°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	2.1	2.1
62.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	2.1
65°	1.3	1.3	1.3	1.7	1.3	1.7	1.7	1.7	1.7	1.7	2.1
67.5°	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.1
70°	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.1
72.5°	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.1
75°	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
77.5°	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
80°	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
82.5°	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
85°	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
87.5°	1.3	1.3	1.3	1.3	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°	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8
2.5°	88.0	85.0	83.0	82.1	80.5	80.9	79.6	78.8	76.3	76.3	74.6
5°	81.3	77.5	75.0	73.8	72.1	71.7	70.5	69.2	66.7	66.3	65.0
7.5°	74.2	70.5	67.5	66.3	64.6	64.2	62.5	61.7	59.6	59.2	57.9
10°	66.7	62.5	60.0	58.8	57.1	57.1	55.9	55.0	53.4	53.4	52.5
12.5°	58.8	55.0	53.4	51.7	50.9	50.9	50.0	49.2	47.9	48.4	47.9
15°	50.4	47.5	45.9	45.0	44.6	44.6	44.2	43.8	42.9	43.8	42.9
17.5°	42.5	40.4	39.2	38.8	38.4	38.4	38.4	38.8	38.4	39.2	39.2
20°	35.0	33.4	32.5	32.5	32.1	32.9	32.9	33.8	33.8	35.0	35.4
22.5°	28.8	27.5	27.1	27.1	27.1	27.9	28.3	29.2	29.6	30.8	31.7
25°	22.9	22.5	22.5	22.5	22.9	23.8	24.6	25.4	25.8	27.5	27.9
27.5°	18.8	18.3	18.8	18.8	19.2	20.4	21.3	22.1	22.9	24.2	25.0
30°	15.0	15.0	15.4	15.8	16.3	17.1	18.3	19.2	20.0	21.3	22.1
32.5°	12.1	12.5	12.9	13.3	13.3	14.6	15.4	16.7	17.1	18.3	19.2
35°	10.0	10.4	10.8	11.3	11.3	12.5	13.3	14.2	15.0	15.8	16.7
37.5°	7.9	8.3	9.2	9.6	9.6	10.8	11.3	12.1	12.9	13.8	14.6
40°	6.7	7.1	7.9	7.9	8.3	9.2	9.6	10.4	11.3	12.1	12.9
42.5°	5.4	5.8	6.7	7.1	7.1	7.9	8.3	9.2	9.6	10.4	10.8
45°	5.0	5.0	5.8	5.8	6.3	6.7	7.5	7.9	8.3	9.2	9.6
47.5°	4.2	4.6	5.0	5.4	5.4	5.8	6.3	6.7	7.1	7.9	8.3
50°	3.3	3.8	4.6	4.6	4.6	5.4	5.8	6.3	6.3	6.7	7.1
52.5°	3.3	3.3	3.8	4.2	4.2	4.6	5.0	5.4	5.4	5.8	6.3
55°	2.9	2.9	3.3	3.8	3.8	4.2	4.6	4.6	5.0	5.0	5.4
57.5°	2.5	2.9	3.3	3.3	3.3	3.8	4.2	4.2	4.6	4.6	5.0
60°	2.5	2.9	2.9	3.3	3.3	3.8	3.8	3.8	4.2	4.2	4.2
62.5°	2.5	2.5	2.9	2.9	2.9	3.3	3.3	3.8	3.8	3.8	3.8
65°	2.5	2.5	2.9	2.9	2.9	3.3	3.3	3.3	3.3	3.3	3.3
67.5°	2.1	2.5	2.5	2.5	2.9	2.9	2.9	2.9	2.9	2.9	2.9
70°	2.1	2.1	2.5	2.5	2.5	2.9	2.9	2.9	2.9	2.9	2.9
72.5°	2.1	2.1	2.5	2.5	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	2.1	2.1
77.5°	1.7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.7
80°	1.7	1.7	2.1	1.7	2.1	2.1	2.1	2.1	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	0.8
87.5°	1.7	1.7	1.7	1.7	1.7	1.7	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 LAR25NF 4LSQA1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	93.8	93.8	93.8	93.8	93.8	93.8	93.8	93.8
2.5°	73.8	74.6	73.8	74.6	72.5	73.4	74.2	72.1
5°	64.2	63.4	63.8	64.6	62.9	63.4	63.8	62.1
7.5°	57.5	57.9	57.1	57.9	56.7	57.1	57.5	56.3
10°	52.1	52.5	52.1	52.5	51.3	52.1	52.5	51.3
12.5°	47.1	47.9	47.5	48.4	47.1	47.9	48.8	47.1
15°	43.4	44.2	43.8	44.6	43.8	44.6	45.4	44.2
17.5°	39.6	40.4	40.4	41.3	40.9	41.7	42.5	41.3
20°	35.9	37.1	37.1	37.9	37.9	38.4	39.6	38.4
22.5°	32.5	33.8	33.8	34.6	34.6	35.4	36.3	35.4
25°	28.8	30.4	30.8	31.7	31.7	32.5	33.8	32.9
27.5°	26.3	27.5	27.9	28.8	29.2	30.0	30.8	30.0
30°	22.9	24.6	25.0	25.8	26.3	27.5	27.9	27.5
32.5°	20.4	21.7	22.1	22.9	23.8	24.6	25.4	25.0
35°	17.9	19.2	19.6	20.4	20.8	22.1	22.9	22.5
37.5°	15.8	17.1	17.5	17.9	18.3	19.6	20.4	20.0
40°	13.8	14.6	15.0	15.8	16.3	17.1	17.9	17.9
42.5°	12.1	12.9	13.3	13.8	14.2	15.0	15.8	15.4
45°	10.4	11.3	11.7	12.1	12.5	12.9	13.8	13.3
47.5°	8.8	9.6	10.0	10.4	10.8	11.3	12.1	11.7
50°	7.5	8.3	8.3	8.8	9.2	9.6	10.4	10.0
52.5°	6.7	7.1	7.5	7.5	7.9	8.3	9.2	8.8
55°	5.8	6.3	6.3	6.7	6.7	7.1	7.5	7.5
57.5°	5.0	5.4	5.4	5.8	5.8	6.3	6.7	6.7
60°	4.6	4.6	5.0	5.0	5.0	5.4	5.4	5.4
62.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
65°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
67.5°	2.9	2.9	2.9	2.9	2.9	2.5	2.5	2.5
70°	2.5	2.5	2.5	2.5	2.5	2.1	2.1	2.1
72.5°	2.5	2.5	2.1	2.1	2.1	2.1	2.1	1.7
75°	2.1	2.1	2.1	2.1	1.7	1.7	1.7	1.7
77.5°	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3
80°	1.7	1.3	1.3	1.3	1.3	1.3	1.3	0.8
82.5°	1.3	1.3	1.3	0.8	0.8	0.8	0.8	0.8
85°	0.8	0.8	0.8	0.8	0.4	0.4	0.4	0.4
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)