

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: P182713

Luminaire Tested: **LDSQA4A09840D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182713
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: LDSQA4A09840D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1219.2 lumens
Efficiency: N/A
Efficacy: 88.1 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

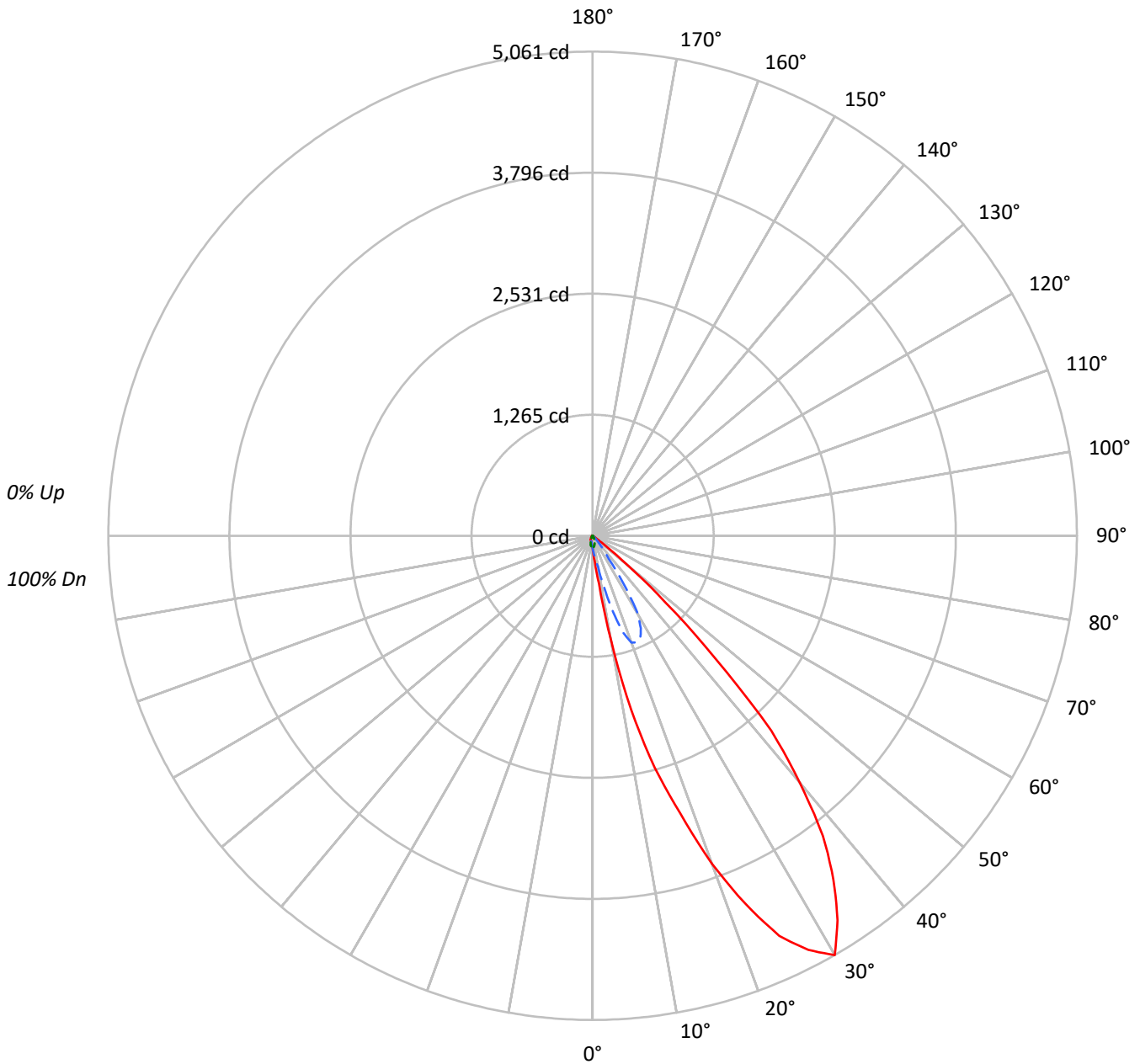
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	12332	12332	12332
5°	27297	11669	8198
10°	109279	10132	6847
15°	251895	8064	6018
20°	376020	5722	5371
25°	493191	3816	4778
30°	566145	2405	4184
35°	519092	1537	3619
40°	425683	999	3073
45°	246783	699	2480
50°	69945	512	2050
55°	6401	473	1723
60°	988	543	1434
65°	252	527	1032
70°	312	651	793
75°	412	861	861
80°	0	1283	614
85°	0	2556	667



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	18.1	1.5
10°-20°	162.1	13.3
20°-30°	395.0	32.4
30°-40°	428.1	35.1
40°-50°	194.0	15.9
50°-60°	15.0	1.2
60°-70°	3.1	0.3
70°-80°	2.3	0.2
80°-90°	1.5	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°	575.3	47.2
0°-40°	1003.4	82.3
0°-60°	1212.4	99.4
0°-90°	1219.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1219.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	127	127	127	127	127	
5°	281	207	120	90	84	51
15°	2512	822	80	58	60	730
25°	4614	1180	36	35	45	2103
35°	4389	300	13	20	31	2700
45°	1801	38	5	11	18	1422
55°	38	5	3	7	10	87
65°	1	2	2	4	4	2
75°	1	2	2	3	2	1
85°	0	2	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°	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3
2.5°	190.7	187.3	189.0	184.5	181.7	179.4	180.5	179.4	172.0	170.3	164.7
5°	280.7	275.6	275.6	266.0	255.8	249.6	249.6	242.2	226.4	219.0	207.1
7.5°	503.1	492.9	484.4	454.4	415.4	393.3	387.7	356.5	316.4	290.9	260.9
10°	1110.9	1068.5	1038.5	960.4	855.7	790.6	762.9	655.3	527.4	431.2	344.1
12.5°	1868.1	1810.4	1757.8	1629.9	1479.3	1376.9	1322.0	1163.5	915.1	737.4	551.8
15°	2511.6	2449.3	2387.1	2231.4	2072.4	1983.6	1882.8	1672.9	1344.6	1092.2	821.7
17.5°	3039.6	3004.5	2940.5	2712.5	2512.1	2373.5	2268.8	1994.3	1656.5	1368.4	1062.2
20°	3647.4	3560.8	3446.5	3169.7	2895.8	2722.1	2575.0	2240.5	1850.0	1518.9	1189.6
22.5°	4159.0	4097.3	3933.2	3568.2	3165.2	3016.9	2837.0	2434.6	1974.5	1582.9	1204.3
25°	4614.0	4517.2	4311.2	3877.1	3464.6	3212.2	2991.5	2539.9	2020.3	1587.4	1180.0
27.5°	4880.5	4754.3	4512.1	4039.0	3568.2	3289.2	3044.7	2558.0	1991.5	1527.4	1091.1
30°	5061.1	4809.8	4542.1	4040.7	3535.3	3250.1	2996.6	2466.9	1871.5	1390.5	941.7
32.5°	4763.4	4617.9	4362.1	3880.0	3356.5	3078.1	2826.2	2269.4	1684.2	1187.3	655.3
35°	4389.3	4271.6	4049.2	3570.4	3088.2	2825.7	2558.5	2015.8	1440.3	816.1	299.9
37.5°	3954.7	3862.4	3623.0	3185.6	2761.1	2504.2	2236.5	1718.1	1014.1	404.6	182.2
40°	3366.1	3288.0	3091.6	2740.2	2349.2	2104.7	1857.9	1285.2	550.6	225.8	118.8
42.5°	2766.8	2701.2	2522.3	2218.4	1874.9	1673.4	1456.1	783.2	273.9	142.0	66.2
45°	1801.3	1719.3	1623.1	1483.9	1314.1	1190.1	933.8	378.0	162.4	79.2	37.9
47.5°	1032.8	978.5	820.6	647.4	525.7	479.9	349.2	176.0	89.4	45.8	23.2
50°	464.1	429.0	359.9	293.1	212.2	165.8	140.9	88.3	44.1	24.9	15.8
52.5°	114.3	116.6	110.4	96.8	86.0	73.0	63.4	41.3	23.2	15.3	10.2
55°	37.9	38.5	35.1	33.4	30.6	28.3	26.0	18.7	14.1	13.6	5.1
57.5°	13.6	13.6	14.1	13.0	12.5	11.9	11.3	9.6	8.5	5.1	2.8
60°	5.1	5.1	5.1	5.7	5.7	5.7	6.2	5.7	4.0	2.8	2.3
62.5°	2.3	2.3	2.3	2.3	2.8	2.8	3.4	2.8	2.3	2.3	1.7
65°	1.1	1.1	1.7	1.7	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	1.7	1.7
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.7	1.7
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.7	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	1.7
82.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.1	1.1	1.7
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.1	1.7
87.5°	0.0	0.0	0.0	0.0	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°	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3
2.5°	159.0	155.6	148.8	143.7	139.8	139.2	135.8	130.2	127.9	123.9	120.5
5°	195.8	187.3	176.6	166.4	159.0	155.1	143.2	132.4	126.2	120.0	114.3
7.5°	235.4	216.2	197.5	181.1	170.9	164.7	150.5	133.0	121.7	112.6	105.3
10°	285.2	245.6	213.4	187.9	174.3	165.8	148.8	127.9	113.8	103.0	95.6
12.5°	399.0	290.9	228.1	191.3	174.3	162.4	142.0	121.1	105.3	92.2	84.3
15°	593.7	406.3	270.5	193.0	168.6	155.1	131.9	109.8	93.9	80.4	73.0
17.5°	777.0	534.8	337.9	204.9	165.2	144.3	118.3	96.8	80.4	67.3	61.1
20°	872.1	598.7	375.2	213.9	159.6	130.7	102.4	82.6	66.8	55.5	50.4
22.5°	874.4	593.1	357.1	193.0	138.7	112.1	87.7	67.9	54.3	44.7	40.7
25°	820.6	524.6	293.7	150.5	112.1	93.9	73.0	55.5	42.4	35.7	32.8
27.5°	719.3	424.4	216.7	108.7	87.7	74.7	57.2	42.4	32.3	27.7	26.0
30°	556.3	262.6	120.0	80.4	66.2	56.0	41.3	28.3	24.3	21.5	20.4
32.5°	276.2	128.5	84.9	57.2	45.3	35.7	26.0	20.9	18.7	17.0	16.4
35°	150.0	92.2	53.2	34.5	27.2	22.6	17.5	14.7	13.6	13.0	13.0
37.5°	104.7	54.9	32.3	20.9	17.0	15.3	12.5	10.8	10.2	10.2	10.2
40°	57.7	32.8	19.8	13.6	11.3	10.2	8.5	7.9	7.9	7.9	8.5
42.5°	33.4	20.4	13.6	9.6	7.9	7.4	6.2	5.7	6.2	6.2	6.8
45°	21.5	15.3	9.1	6.8	5.7	5.1	4.5	4.5	5.1	5.1	5.7
47.5°	15.3	10.8	6.2	4.5	3.4	3.4	3.4	3.4	4.0	4.5	5.1
50°	9.1	5.7	3.4	2.8	2.3	2.3	2.3	2.8	3.4	3.4	4.0
52.5°	5.1	3.4	2.3	2.3	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	2.3	2.8	3.4
57.5°	2.3	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.8	2.8
60°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.8	2.8
62.5°	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.8
65°	1.7	1.7	1.7	2.3	1.7	2.3	2.3	2.3	2.3	2.3	2.8
67.5°	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.8
70°	1.7	1.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.8
72.5°	1.7	1.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.8
75°	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
77.5°	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
80°	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
82.5°	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
85°	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
87.5°	1.7	1.7	1.7	1.7	2.3	2.3	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°	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3
2.5°	119.4	115.4	112.6	111.5	109.2	109.8	108.1	107.0	103.6	103.6	101.3
5°	110.4	105.3	101.9	100.2	97.9	97.3	95.6	93.9	90.5	90.0	88.3
7.5°	100.7	95.6	91.7	90.0	87.7	87.2	84.9	83.8	80.9	80.4	78.7
10°	90.5	84.9	81.5	79.8	77.5	77.5	75.8	74.7	72.4	72.4	71.3
12.5°	79.8	74.7	72.4	70.2	69.0	69.0	67.9	66.8	65.1	65.6	65.1
15°	68.5	64.5	62.3	61.1	60.6	60.6	60.0	59.4	58.3	59.4	58.3
17.5°	57.7	54.9	53.2	52.6	52.1	52.1	52.1	52.6	52.1	53.2	53.2
20°	47.5	45.3	44.1	44.1	43.6	44.7	44.7	45.8	45.8	47.5	48.1
22.5°	39.0	37.4	36.8	36.8	36.8	37.9	38.5	39.6	40.2	41.9	43.0
25°	31.1	30.6	30.6	30.6	31.1	32.3	33.4	34.5	35.1	37.4	37.9
27.5°	25.5	24.9	25.5	25.5	26.0	27.7	28.9	30.0	31.1	32.8	34.0
30°	20.4	20.4	20.9	21.5	22.1	23.2	24.9	26.0	27.2	28.9	30.0
32.5°	16.4	17.0	17.5	18.1	18.1	19.8	20.9	22.6	23.2	24.9	26.0
35°	13.6	14.1	14.7	15.3	15.3	17.0	18.1	19.2	20.4	21.5	22.6
37.5°	10.8	11.3	12.5	13.0	13.0	14.7	15.3	16.4	17.5	18.7	19.8
40°	9.1	9.6	10.8	10.8	11.3	12.5	13.0	14.1	15.3	16.4	17.5
42.5°	7.4	7.9	9.1	9.6	9.6	10.8	11.3	12.5	13.0	14.1	14.7
45°	6.8	6.8	7.9	7.9	8.5	9.1	10.2	10.8	11.3	12.5	13.0
47.5°	5.7	6.2	6.8	7.4	7.4	7.9	8.5	9.1	9.6	10.8	11.3
50°	4.5	5.1	6.2	6.2	6.2	7.4	7.9	8.5	8.5	9.1	9.6
52.5°	4.5	4.5	5.1	5.7	5.7	6.2	6.8	7.4	7.4	7.9	8.5
55°	4.0	4.0	4.5	5.1	5.1	5.7	6.2	6.2	6.8	6.8	7.4
57.5°	3.4	4.0	4.5	4.5	4.5	5.1	5.7	5.7	6.2	6.2	6.8
60°	3.4	4.0	4.0	4.5	4.5	5.1	5.1	5.1	5.7	5.7	5.7
62.5°	3.4	3.4	4.0	4.0	4.0	4.5	4.5	5.1	5.1	5.1	5.1
65°	3.4	3.4	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
67.5°	2.8	3.4	3.4	3.4	4.0	4.0	4.0	4.0	4.0	4.0	4.0
70°	2.8	2.8	3.4	3.4	3.4	4.0	4.0	4.0	4.0	4.0	4.0
72.5°	2.8	2.8	3.4	3.4	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	2.8	2.8
77.5°	2.3	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.3
80°	2.3	2.3	2.8	2.3	2.8	2.8	2.8	2.8	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	1.1
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	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 LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	127.3	127.3	127.3	127.3	127.3	127.3	127.3	127.3
2.5°	100.2	101.3	100.2	101.3	98.5	99.6	100.7	97.9
5°	87.2	86.0	86.6	87.7	85.5	86.0	86.6	84.3
7.5°	78.1	78.7	77.5	78.7	77.0	77.5	78.1	76.4
10°	70.7	71.3	70.7	71.3	69.6	70.7	71.3	69.6
12.5°	63.9	65.1	64.5	65.6	63.9	65.1	66.2	63.9
15°	58.9	60.0	59.4	60.6	59.4	60.6	61.7	60.0
17.5°	53.8	54.9	54.9	56.0	55.5	56.6	57.7	56.0
20°	48.7	50.4	50.4	51.5	51.5	52.1	53.8	52.1
22.5°	44.1	45.8	45.8	47.0	47.0	48.1	49.2	48.1
25°	39.0	41.3	41.9	43.0	43.0	44.1	45.8	44.7
27.5°	35.7	37.4	37.9	39.0	39.6	40.7	41.9	40.7
30°	31.1	33.4	34.0	35.1	35.7	37.4	37.9	37.4
32.5°	27.7	29.4	30.0	31.1	32.3	33.4	34.5	34.0
35°	24.3	26.0	26.6	27.7	28.3	30.0	31.1	30.6
37.5°	21.5	23.2	23.8	24.3	24.9	26.6	27.7	27.2
40°	18.7	19.8	20.4	21.5	22.1	23.2	24.3	24.3
42.5°	16.4	17.5	18.1	18.7	19.2	20.4	21.5	20.9
45°	14.1	15.3	15.8	16.4	17.0	17.5	18.7	18.1
47.5°	11.9	13.0	13.6	14.1	14.7	15.3	16.4	15.8
50°	10.2	11.3	11.3	11.9	12.5	13.0	14.1	13.6
52.5°	9.1	9.6	10.2	10.2	10.8	11.3	12.5	11.9
55°	7.9	8.5	8.5	9.1	9.1	9.6	10.2	10.2
57.5°	6.8	7.4	7.4	7.9	7.9	8.5	9.1	9.1
60°	6.2	6.2	6.8	6.8	6.8	7.4	7.4	7.4
62.5°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
65°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
67.5°	4.0	4.0	4.0	4.0	4.0	3.4	3.4	3.4
70°	3.4	3.4	3.4	3.4	3.4	2.8	2.8	2.8
72.5°	3.4	3.4	2.8	2.8	2.8	2.8	2.8	2.3
75°	2.8	2.8	2.8	2.8	2.3	2.3	2.3	2.3
77.5°	2.3	2.3	2.3	2.3	1.7	1.7	1.7	1.7
80°	2.3	1.7	1.7	1.7	1.7	1.7	1.7	1.1
82.5°	1.7	1.7	1.7	1.1	1.1	1.1	1.1	1.1
85°	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
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)