

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: P182733

Luminaire Tested: **LDSQA4A28940D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182733
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: LDSQA4A28940D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2588.5 lumens
Efficiency: N/A
Efficacy: 58.2 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

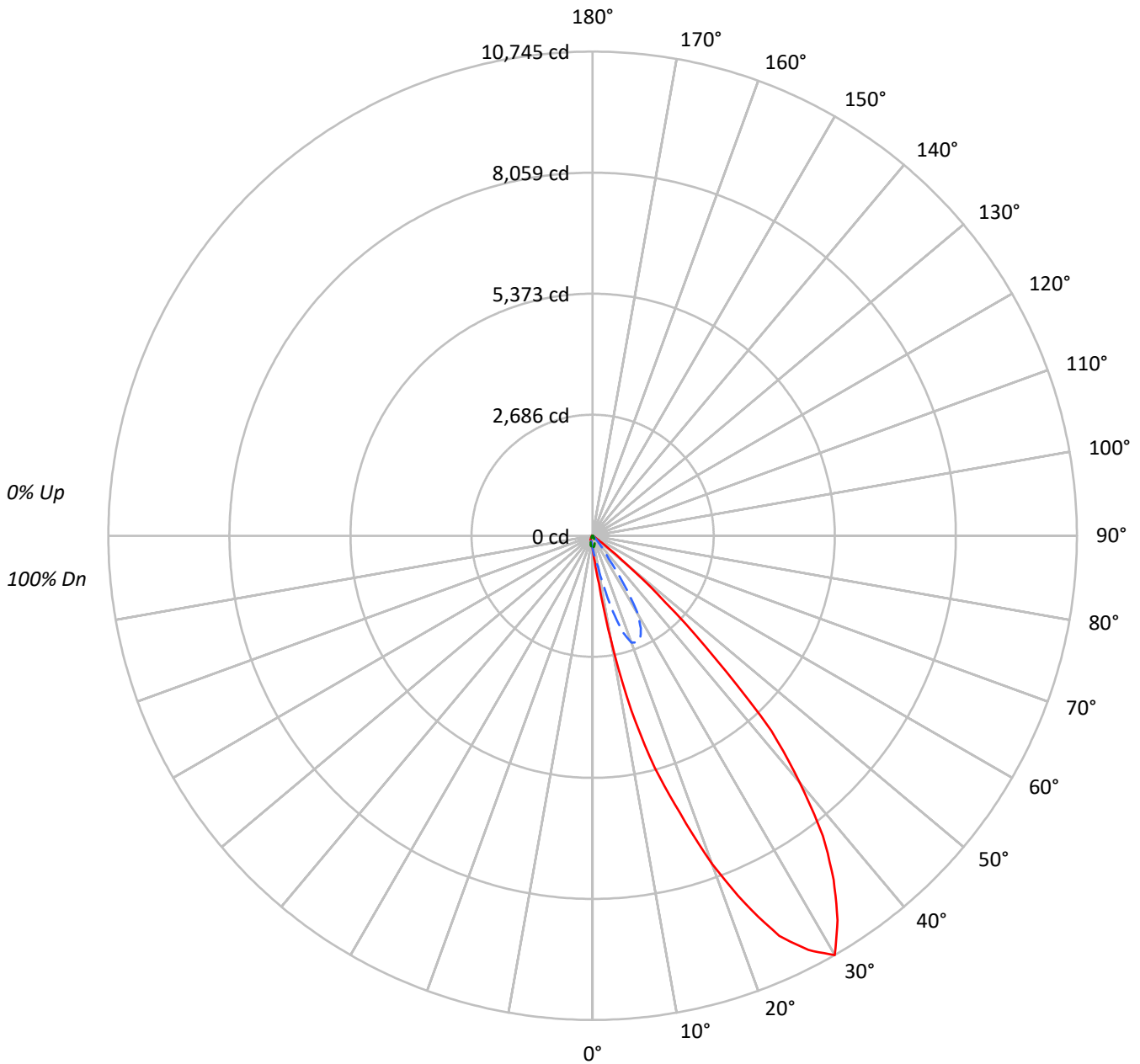
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	26185	26185	26185
5°	57958	24768	17407
10°	232015	21513	14539
15°	534811	17110	12777
20°	798350	12144	11392
25°	1047118	8092	10144
30°	1202003	5112	8871
35°	1102117	3264	7675
40°	903798	2125	6538
45°	523966	1480	5261
50°	148496	1085	4340
55°	13596	1013	3648
60°	2093	1163	3023
65°	550	1100	2201
70°	680	1360	1699
75°	898	1797	1797
80°	0	2678	1339
85°	0	5335	1334



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.4	1.5
10°-20°	344.2	13.3
20°-30°	838.7	32.4
30°-40°	909.0	35.1
40°-50°	411.9	15.9
50°-60°	31.9	1.2
60°-70°	6.6	0.3
70°-80°	4.8	0.2
80°-90°	3.1	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°	1221.4	47.2
0°-40°	2130.4	82.3
0°-60°	2574.1	99.4
0°-90°	2588.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2588.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	270	270	270	270	270	
5°	596	440	255	192	179	107
15°	5332	1745	171	124	127	1550
25°	9796	2505	76	74	95	4465
35°	9319	637	28	43	65	5732
45°	3824	80	11	24	38	3019
55°	80	11	6	14	22	184
65°	2	4	5	10	10	4
75°	2	4	5	7	5	2
85°	0	4	5	4	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°	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3
2.5°	404.9	397.7	401.3	391.7	385.7	380.9	383.3	380.9	365.3	361.7	349.7
5°	596.0	585.2	585.2	564.7	543.1	529.9	529.9	514.3	480.6	465.0	439.8
7.5°	1068.2	1046.5	1028.5	964.8	881.9	835.1	823.1	757.0	671.7	617.6	553.9
10°	2358.6	2268.5	2204.8	2039.0	1816.7	1678.6	1619.7	1391.4	1119.8	915.6	730.5
12.5°	3966.3	3843.8	3732.0	3460.5	3140.8	2923.4	2806.8	2470.4	1942.9	1565.6	1171.5
15°	5332.5	5200.3	5068.1	4737.7	4400.1	4211.4	3997.5	3551.8	2854.9	2319.0	1744.6
17.5°	6453.5	6379.0	6243.2	5759.0	5333.7	5039.3	4817.0	4234.3	3516.9	2905.3	2255.3
20°	7744.0	7560.1	7317.4	6729.9	6148.3	5779.4	5467.0	4756.9	3927.9	3225.0	2525.7
22.5°	8830.2	8699.2	8350.8	7575.8	6720.3	6405.5	6023.4	5169.1	4192.2	3360.7	2556.9
25°	9796.2	9590.8	9153.4	8231.8	7355.9	6820.0	6351.4	5392.5	4289.5	3370.3	2505.2
27.5°	10362.1	10094.2	9579.9	8575.4	7575.8	6983.4	6464.3	5431.0	4228.2	3243.0	2316.6
30°	10745.4	10212.0	9643.6	8579.1	7506.1	6900.5	6362.2	5237.5	3973.5	2952.2	1999.4
32.5°	10113.4	9804.6	9261.5	8237.8	7126.4	6535.2	6000.5	4818.2	3575.8	2520.8	1391.4
35°	9319.2	9069.3	8597.1	7580.6	6556.8	5999.3	5432.2	4279.9	3057.9	1732.6	636.8
37.5°	8396.4	8200.6	7692.3	6763.5	5862.4	5316.8	4748.5	3647.9	2153.2	859.1	386.9
40°	7146.8	6981.0	6564.1	5817.9	4987.6	4468.6	3944.7	2728.7	1169.1	479.4	252.3
42.5°	5874.4	5735.0	5355.3	4710.1	3980.7	3553.0	3091.6	1662.9	581.5	301.6	140.6
45°	3824.5	3650.3	3446.0	3150.5	2790.0	2526.9	1982.6	802.6	344.8	168.2	80.5
47.5°	2192.8	2077.5	1742.2	1374.6	1116.2	1018.9	741.4	373.7	189.8	97.3	49.3
50°	985.3	910.8	764.2	622.4	450.6	352.1	299.2	187.4	93.7	52.9	33.6
52.5°	242.7	247.5	234.3	205.5	182.6	155.0	134.6	87.7	49.3	32.4	21.6
55°	80.5	81.7	74.5	70.9	64.9	60.1	55.3	39.7	30.0	28.8	10.8
57.5°	28.8	28.8	30.0	27.6	26.4	25.2	24.0	20.4	18.0	10.8	6.0
60°	10.8	10.8	10.8	12.0	12.0	12.0	13.2	12.0	8.4	6.0	4.8
62.5°	4.8	4.8	4.8	4.8	6.0	6.0	7.2	6.0	4.8	4.8	3.6
65°	2.4	2.4	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.6	3.6
70°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.6	3.6
72.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.6	3.6
75°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.6
77.5°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	2.4	2.4	2.4	3.6
80°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	2.4	2.4	2.4	3.6
82.5°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	2.4	2.4	2.4	3.6
85°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	2.4	2.4	3.6
87.5°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	2.4	2.4	2.4
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°	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3
2.5°	337.6	330.4	316.0	305.2	296.8	295.6	288.4	276.4	271.5	263.1	255.9
5°	415.7	397.7	374.9	353.3	337.6	329.2	304.0	281.2	267.9	254.7	242.7
7.5°	499.8	459.0	419.3	384.5	362.9	349.7	319.6	282.4	258.3	239.1	223.5
10°	605.6	521.5	453.0	398.9	370.1	352.1	316.0	271.5	241.5	218.7	203.1
12.5°	847.1	617.6	484.2	406.1	370.1	344.8	301.6	257.1	223.5	195.9	179.0
15°	1260.4	862.7	574.3	409.7	358.1	329.2	280.0	233.1	199.5	170.6	155.0
17.5°	1649.7	1135.5	717.3	435.0	350.9	306.4	251.1	205.5	170.6	143.0	129.8
20°	1851.6	1271.2	796.6	454.2	338.8	277.6	217.5	175.4	141.8	117.8	106.9
22.5°	1856.4	1259.2	758.2	409.7	294.4	237.9	186.2	144.2	115.3	94.9	86.5
25°	1742.2	1113.8	623.6	319.6	237.9	199.5	155.0	117.8	90.1	75.7	69.7
27.5°	1527.2	901.2	460.2	230.7	186.2	158.6	121.4	90.1	68.5	58.9	55.3
30°	1181.1	557.5	254.7	170.6	140.6	119.0	87.7	60.1	51.7	45.7	43.3
32.5°	586.4	272.8	180.2	121.4	96.1	75.7	55.3	44.5	39.7	36.0	34.8
35°	318.4	195.9	112.9	73.3	57.7	48.1	37.2	31.2	28.8	27.6	27.6
37.5°	222.3	116.6	68.5	44.5	36.0	32.4	26.4	22.8	21.6	21.6	21.6
40°	122.6	69.7	42.1	28.8	24.0	21.6	18.0	16.8	16.8	16.8	18.0
42.5°	70.9	43.3	28.8	20.4	16.8	15.6	13.2	12.0	13.2	13.2	14.4
45°	45.7	32.4	19.2	14.4	12.0	10.8	9.6	9.6	10.8	10.8	12.0
47.5°	32.4	22.8	13.2	9.6	7.2	7.2	7.2	7.2	8.4	9.6	10.8
50°	19.2	12.0	7.2	6.0	4.8	4.8	4.8	6.0	7.2	7.2	8.4
52.5°	10.8	7.2	4.8	4.8	3.6	3.6	4.8	4.8	6.0	7.2	8.4
55°	6.0	4.8	3.6	3.6	3.6	3.6	3.6	4.8	4.8	6.0	7.2
57.5°	4.8	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	6.0	6.0
60°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	6.0	6.0
62.5°	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8	6.0
65°	3.6	3.6	3.6	4.8	3.6	4.8	4.8	4.8	4.8	4.8	6.0
67.5°	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	6.0
70°	3.6	3.6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	6.0
72.5°	3.6	3.6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	6.0
75°	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
77.5°	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
80°	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
82.5°	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
85°	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
87.5°	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8	4.8	4.8
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3
2.5°	253.5	245.1	239.1	236.7	231.9	233.1	229.5	227.1	219.9	219.9	215.1
5°	234.3	223.5	216.3	212.7	207.9	206.7	203.1	199.5	192.2	191.0	187.4
7.5°	213.9	203.1	194.7	191.0	186.2	185.0	180.2	177.8	171.8	170.6	167.0
10°	192.2	180.2	173.0	169.4	164.6	164.6	161.0	158.6	153.8	153.8	151.4
12.5°	169.4	158.6	153.8	149.0	146.6	146.6	144.2	141.8	138.2	139.4	138.2
15°	145.4	137.0	132.2	129.8	128.6	128.6	127.4	126.2	123.8	126.2	123.8
17.5°	122.6	116.6	112.9	111.7	110.5	110.5	110.5	111.7	110.5	112.9	112.9
20°	100.9	96.1	93.7	93.7	92.5	94.9	94.9	97.3	97.3	100.9	102.1
22.5°	82.9	79.3	78.1	78.1	78.1	80.5	81.7	84.1	85.3	88.9	91.3
25°	66.1	64.9	64.9	64.9	66.1	68.5	70.9	73.3	74.5	79.3	80.5
27.5°	54.1	52.9	54.1	54.1	55.3	58.9	61.3	63.7	66.1	69.7	72.1
30°	43.3	43.3	44.5	45.7	46.9	49.3	52.9	55.3	57.7	61.3	63.7
32.5°	34.8	36.0	37.2	38.4	38.4	42.1	44.5	48.1	49.3	52.9	55.3
35°	28.8	30.0	31.2	32.4	32.4	36.0	38.4	40.9	43.3	45.7	48.1
37.5°	22.8	24.0	26.4	27.6	27.6	31.2	32.4	34.8	37.2	39.7	42.1
40°	19.2	20.4	22.8	22.8	24.0	26.4	27.6	30.0	32.4	34.8	37.2
42.5°	15.6	16.8	19.2	20.4	20.4	22.8	24.0	26.4	27.6	30.0	31.2
45°	14.4	14.4	16.8	16.8	18.0	19.2	21.6	22.8	24.0	26.4	27.6
47.5°	12.0	13.2	14.4	15.6	15.6	16.8	18.0	19.2	20.4	22.8	24.0
50°	9.6	10.8	13.2	13.2	13.2	15.6	16.8	18.0	18.0	19.2	20.4
52.5°	9.6	9.6	10.8	12.0	12.0	13.2	14.4	15.6	15.6	16.8	18.0
55°	8.4	8.4	9.6	10.8	10.8	12.0	13.2	13.2	14.4	14.4	15.6
57.5°	7.2	8.4	9.6	9.6	9.6	10.8	12.0	12.0	13.2	13.2	14.4
60°	7.2	8.4	8.4	9.6	9.6	10.8	10.8	10.8	12.0	12.0	12.0
62.5°	7.2	7.2	8.4	8.4	8.4	9.6	9.6	10.8	10.8	10.8	10.8
65°	7.2	7.2	8.4	8.4	8.4	9.6	9.6	9.6	9.6	9.6	9.6
67.5°	6.0	7.2	7.2	7.2	8.4	8.4	8.4	8.4	8.4	8.4	8.4
70°	6.0	6.0	7.2	7.2	7.2	8.4	8.4	8.4	8.4	8.4	8.4
72.5°	6.0	6.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
75°	6.0	6.0	6.0	6.0	6.0	7.2	7.2	7.2	7.2	6.0	6.0
77.5°	4.8	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.8
80°	4.8	4.8	6.0	4.8	6.0	6.0	6.0	6.0	4.8	4.8	4.8
82.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.6	3.6
85°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.6	3.6	3.6	2.4
87.5°	4.8	4.8	4.8	4.8	4.8	4.8	3.6	3.6	3.6	2.4	2.4
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: LDSQA4A28940D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	270.3	270.3	270.3	270.3	270.3	270.3	270.3	270.3
2.5°	212.7	215.1	212.7	215.1	209.1	211.5	213.9	207.9
5°	185.0	182.6	183.8	186.2	181.4	182.6	183.8	179.0
7.5°	165.8	167.0	164.6	167.0	163.4	164.6	165.8	162.2
10°	150.2	151.4	150.2	151.4	147.8	150.2	151.4	147.8
12.5°	135.8	138.2	137.0	139.4	135.8	138.2	140.6	135.8
15°	125.0	127.4	126.2	128.6	126.2	128.6	131.0	127.4
17.5°	114.1	116.6	116.6	119.0	117.8	120.2	122.6	119.0
20°	103.3	106.9	106.9	109.3	109.3	110.5	114.1	110.5
22.5°	93.7	97.3	97.3	99.7	99.7	102.1	104.5	102.1
25°	82.9	87.7	88.9	91.3	91.3	93.7	97.3	94.9
27.5°	75.7	79.3	80.5	82.9	84.1	86.5	88.9	86.5
30°	66.1	70.9	72.1	74.5	75.7	79.3	80.5	79.3
32.5°	58.9	62.5	63.7	66.1	68.5	70.9	73.3	72.1
35°	51.7	55.3	56.5	58.9	60.1	63.7	66.1	64.9
37.5°	45.7	49.3	50.5	51.7	52.9	56.5	58.9	57.7
40°	39.7	42.1	43.3	45.7	46.9	49.3	51.7	51.7
42.5°	34.8	37.2	38.4	39.7	40.9	43.3	45.7	44.5
45°	30.0	32.4	33.6	34.8	36.0	37.2	39.7	38.4
47.5°	25.2	27.6	28.8	30.0	31.2	32.4	34.8	33.6
50°	21.6	24.0	24.0	25.2	26.4	27.6	30.0	28.8
52.5°	19.2	20.4	21.6	21.6	22.8	24.0	26.4	25.2
55°	16.8	18.0	18.0	19.2	19.2	20.4	21.6	21.6
57.5°	14.4	15.6	15.6	16.8	16.8	18.0	19.2	19.2
60°	13.2	13.2	14.4	14.4	14.4	15.6	15.6	15.6
62.5°	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
65°	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
67.5°	8.4	8.4	8.4	8.4	8.4	7.2	7.2	7.2
70°	7.2	7.2	7.2	7.2	7.2	6.0	6.0	6.0
72.5°	7.2	7.2	6.0	6.0	6.0	6.0	6.0	4.8
75°	6.0	6.0	6.0	6.0	4.8	4.8	4.8	4.8
77.5°	4.8	4.8	4.8	4.8	3.6	3.6	3.6	3.6
80°	4.8	3.6	3.6	3.6	3.6	3.6	3.6	2.4
82.5°	3.6	3.6	3.6	2.4	2.4	2.4	2.4	2.4
85°	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2
87.5°	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
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)