

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: P182821

Luminaire Tested: **LDSQA4A13940D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182821
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26803)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A13940D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, 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: 1408.7 lumens
Efficiency: N/A
Efficacy: 63.3 lumens/watt
Spacing Criteria (0/90/45): 2.36 / 0.61 / 1.19
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

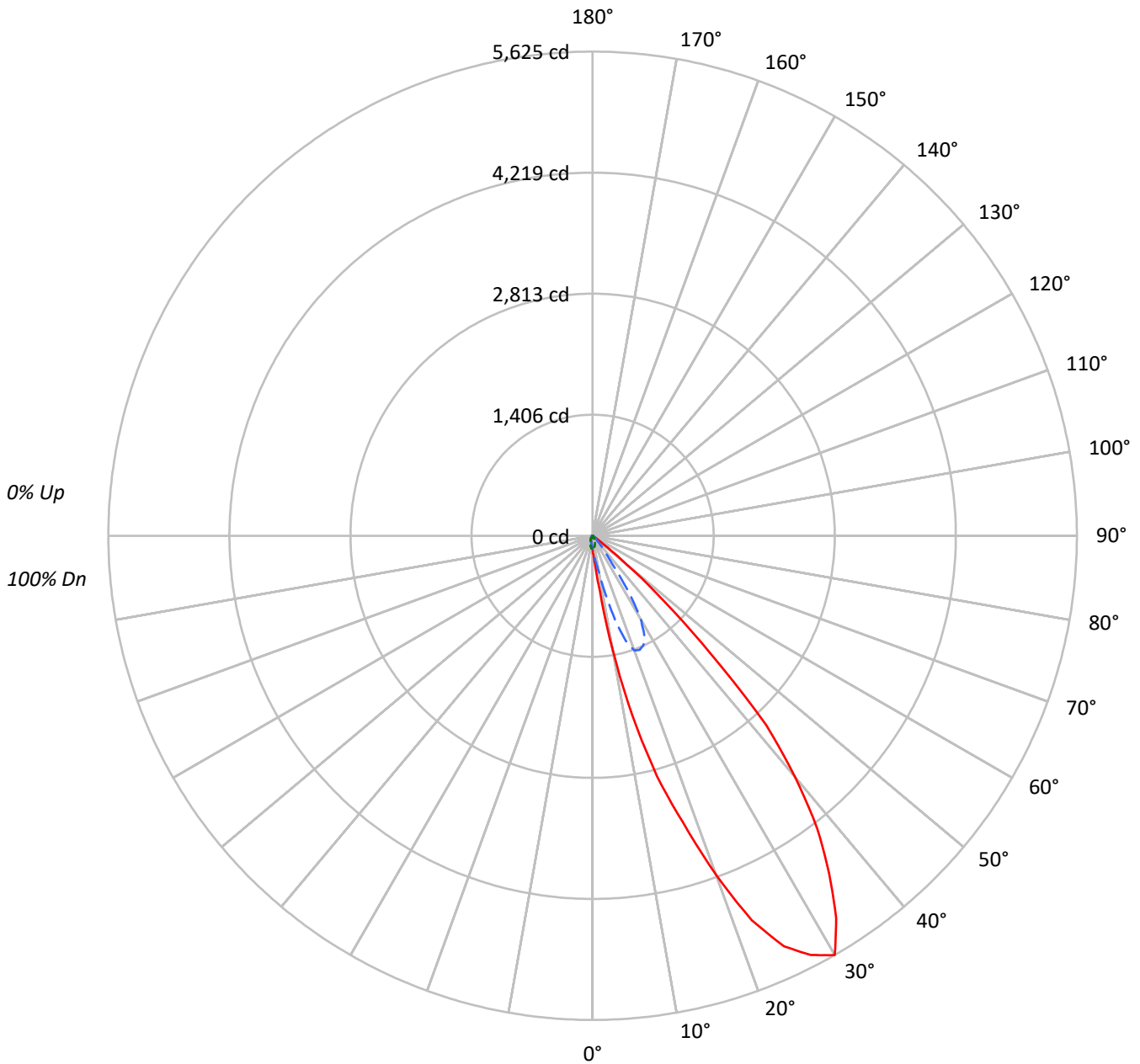
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
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	85	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	83	76	72	80	75	71	78	74	70	76	72	69	67																			
5	87	77	70	65	85	76	69	64	74	68	64	72	67	63	70	66	63	61																			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	57	55																			
7	76	65	57	52	74	64	57	52	62	56	52	61	56	52	60	55	51	50																			
8	71	59	52	47	69	59	52	47	58	51	47	57	51	47	55	50	47	45																			
9	66	55	48	43	65	54	48	43	53	47	43	52	47	43	51	46	42	41																			
10	62	51	44	39	61	50	44	39	49	43	39	48	43	39	48	42	39	37																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	15209	15209	15209
5°	34046	14305	10250
10°	133527	12522	8076
15°	289856	10140	7020
20°	432422	7515	6340
25°	562435	5291	5516
30°	629191	3557	4821
35°	566232	2093	4104
40°	462104	1429	3579
45°	265333	973	2904
50°	77601	754	2457
55°	8952	591	2027
60°	1918	678	1647
65°	642	642	1146
70°	595	793	793
75°	524	1048	786
80°	0	1562	781
85°	0	3112	778



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	22.5	1.6
10°-20°	192.9	13.7
20°-30°	460.1	32.7
30°-40°	485.5	34.5
40°-50°	220.2	15.6
50°-60°	19.3	1.4
60°-70°	4.0	0.3
70°-80°	2.6	0.2
80°-90°	1.6	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°	675.4	47.9
0°-40°	1160.9	82.4
0°-60°	1400.4	99.4
0°-90°	1408.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1408.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	157	157	157	157	157	
5°	350	257	147	113	105	63
15°	2890	1016	101	69	70	841
25°	5262	1399	50	42	52	2390
35°	4788	386	18	24	35	2957
45°	1937	54	7	13	21	1535
55°	53	8	4	8	12	106
65°	3	3	3	6	5	4
75°	1	1	3	4	2	1
85°	0	1	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°	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0
2.5°	233.4	234.8	228.5	229.2	222.8	225.6	223.5	217.9	213.6	206.5	203.7
5°	350.1	352.3	338.1	333.9	319.0	319.0	312.6	297.8	284.3	268.1	256.8
7.5°	640.1	648.6	606.2	574.4	527.7	516.4	494.4	443.5	401.8	359.3	327.5
10°	1357.4	1341.8	1254.1	1181.9	1061.7	1017.1	957.7	811.3	676.9	543.2	438.5
12.5°	2140.4	2190.6	2021.5	1962.8	1772.6	1732.3	1605.6	1366.6	1139.5	903.3	693.9
15°	2890.1	2905.0	2757.2	2661.7	2429.7	2377.3	2221.7	1940.9	1635.3	1305.7	1016.4
17.5°	3492.1	3551.5	3334.4	3231.8	2930.5	2846.3	2663.1	2321.5	1981.2	1621.2	1278.1
20°	4194.5	4210.0	3952.6	3755.2	3361.2	3233.2	3013.9	2590.2	2184.9	1774.0	1419.6
22.5°	4833.2	4829.6	4498.6	4219.9	3721.3	3568.5	3297.6	2795.4	2324.3	1841.9	1433.0
25°	5261.8	5273.1	4918.8	4589.2	3977.3	3770.8	3465.2	2902.2	2371.7	1839.8	1399.1
27.5°	5490.3	5479.0	5099.1	4746.9	4071.4	3840.1	3508.4	2905.7	2328.5	1767.6	1297.2
30°	5624.7	5473.3	5068.0	4702.3	4007.7	3770.1	3432.7	2794.0	2184.9	1606.3	1115.5
32.5°	5265.4	5206.7	4853.7	4465.4	3788.5	3552.9	3219.8	2556.3	1957.2	1359.5	799.3
35°	4787.9	4790.0	4445.6	4082.7	3444.7	3239.6	2895.8	2267.0	1679.2	945.0	386.2
37.5°	4287.1	4294.2	3966.7	3629.3	3061.3	2845.6	2523.8	1937.4	1208.1	481.0	232.7
40°	3654.1	3668.9	3386.7	3115.8	2591.7	2383.7	2096.5	1466.3	675.5	268.8	157.7
42.5°	2985.6	3004.0	2753.6	2513.1	2067.5	1896.4	1641.7	908.2	335.3	174.0	92.7
45°	1936.7	1989.7	1803.7	1702.5	1444.4	1342.5	1071.6	463.3	202.3	101.9	54.5
47.5°	1108.4	1109.1	952.1	762.5	625.3	543.9	425.1	210.8	118.1	57.3	33.2
50°	514.9	527.7	418.0	348.0	249.0	210.8	173.3	113.9	62.2	33.2	20.5
52.5°	150.0	158.4	143.6	130.1	110.3	98.3	84.2	55.9	32.5	19.8	12.7
55°	53.0	56.6	53.0	49.5	44.6	40.3	36.1	26.9	18.4	12.0	8.5
57.5°	21.9	22.6	21.9	21.2	19.8	19.8	17.7	14.9	11.3	7.8	5.7
60°	9.9	10.6	9.9	10.6	9.9	9.9	9.9	10.6	7.1	5.0	4.2
62.5°	4.2	5.0	5.0	5.0	5.0	5.7	5.7	5.0	4.2	3.5	2.8
65°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
67.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
70°	2.1	2.1	2.1	2.1	2.1	2.1	1.4	1.4	2.1	2.1	2.1
72.5°	2.1	2.1	2.1	2.1	1.4	1.4	1.4	1.4	1.4	2.1	2.1
75°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
77.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.4	1.4	1.4
80°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	1.4	1.4
82.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.4	1.4	1.4
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	1.4	1.4
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	1.4	1.4
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°	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0
2.5°	200.2	193.8	183.9	177.5	174.7	170.5	167.6	160.6	157.7	152.1	150.0
5°	246.2	233.4	218.6	206.5	198.8	190.3	177.5	163.4	156.3	147.1	142.2
7.5°	298.5	270.9	244.7	223.5	213.6	202.3	186.0	164.1	150.7	138.6	131.6
10°	365.0	308.4	267.4	233.4	218.6	203.7	183.9	158.4	141.5	127.3	119.5
12.5°	520.6	372.1	287.9	239.1	220.0	201.6	176.8	150.7	130.9	114.6	106.1
15°	749.1	519.9	343.1	244.0	215.0	192.4	164.1	137.9	117.4	101.1	92.7
17.5°	951.4	662.8	419.4	262.4	213.6	181.8	148.5	121.7	101.9	86.3	79.2
20°	1061.7	737.7	470.4	273.7	207.2	165.5	130.9	105.4	86.3	72.9	66.5
22.5°	1063.8	733.5	452.0	249.0	182.5	143.6	113.2	89.1	72.1	60.1	55.2
25°	1000.2	654.3	377.0	195.9	149.2	121.7	94.8	74.3	58.7	49.5	45.3
27.5°	881.3	531.9	277.3	141.5	116.7	98.3	76.4	59.4	46.0	40.3	36.8
30°	693.2	346.6	162.0	105.4	90.5	75.7	58.0	41.7	36.1	31.8	29.0
32.5°	372.1	168.3	113.2	77.8	64.4	53.0	38.2	30.4	26.2	23.3	22.6
35°	194.5	123.1	75.7	49.5	41.0	34.7	26.2	21.2	19.1	17.7	17.7
37.5°	139.3	77.1	48.1	31.8	26.9	21.9	18.4	15.6	14.1	14.1	14.1
40°	82.8	47.4	29.0	20.5	17.7	15.6	13.4	11.3	11.3	11.3	11.3
42.5°	50.2	29.7	20.5	14.1	12.7	11.3	9.9	9.2	8.5	8.5	9.2
45°	31.1	20.5	13.4	10.6	9.9	8.5	7.8	7.1	7.1	7.1	7.8
47.5°	19.8	14.9	9.9	7.1	6.4	5.7	5.0	5.0	5.7	5.7	6.4
50°	14.9	9.2	6.4	5.0	4.2	4.2	3.5	4.2	4.2	5.0	5.7
52.5°	8.5	5.7	4.2	3.5	3.5	2.8	2.8	3.5	3.5	4.2	5.0
55°	5.7	4.2	3.5	2.8	2.8	2.8	2.8	2.8	3.5	3.5	4.2
57.5°	4.2	3.5	2.8	2.8	2.8	2.1	2.8	2.8	2.8	3.5	4.2
60°	3.5	2.8	2.8	2.8	2.8	2.1	2.1	2.8	2.8	3.5	3.5
62.5°	2.8	2.8	2.8	2.8	2.8	2.1	2.8	2.8	2.8	2.8	3.5
65°	2.1	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.5
67.5°	2.1	2.1	2.8	2.8	2.8	2.1	2.8	2.8	2.8	2.8	3.5
70°	2.1	2.1	2.1	2.8	2.8	2.1	2.8	2.8	2.8	2.8	2.8
72.5°	2.1	2.1	2.1	2.8	2.8	2.1	2.8	2.8	2.8	2.8	2.8
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8
77.5°	2.1	2.1	2.1	2.1	2.8	2.1	2.8	2.8	2.8	2.8	2.8
80°	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8
82.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8
85°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8
87.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8
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°	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0
2.5°	144.3	142.2	137.9	137.2	136.5	133.7	131.6	129.4	129.4	127.3	125.9
5°	133.7	130.1	125.2	123.1	122.4	118.8	116.0	113.9	113.2	111.1	108.9
7.5°	122.4	118.1	112.5	110.3	109.6	106.1	103.3	101.1	99.7	97.6	96.2
10°	110.3	105.4	100.4	98.3	97.6	94.1	92.0	89.8	88.4	87.0	85.6
12.5°	97.6	93.4	88.4	86.3	85.6	82.8	80.6	79.2	78.5	77.1	76.4
15°	84.9	80.6	76.4	75.0	74.3	72.1	70.7	70.0	69.3	69.3	68.6
17.5°	72.1	68.6	65.1	64.4	63.7	62.2	61.5	60.8	61.5	61.5	62.2
20°	60.1	57.3	54.5	54.5	53.8	53.0	53.0	53.0	54.5	55.2	56.6
22.5°	49.5	47.4	45.3	45.3	45.3	45.3	45.3	46.7	48.1	49.5	50.2
25°	41.0	38.9	38.2	38.2	38.2	38.9	39.6	41.0	42.4	43.9	45.3
27.5°	33.2	31.8	31.8	31.8	32.5	33.2	34.0	35.4	37.5	38.9	40.3
30°	26.9	26.2	26.2	26.9	27.6	28.3	29.7	31.1	32.5	34.0	35.4
32.5°	21.2	21.9	21.9	22.6	23.3	24.0	25.5	26.9	28.3	29.7	30.4
35°	17.7	17.7	18.4	19.1	19.8	20.5	21.9	23.3	24.0	25.5	26.9
37.5°	14.1	14.9	15.6	16.3	17.0	17.7	18.4	19.8	20.5	21.9	23.3
40°	12.0	12.7	13.4	14.1	14.1	15.6	15.6	17.0	17.7	19.1	20.5
42.5°	9.9	10.6	11.3	12.0	12.0	12.7	13.4	14.1	15.6	16.3	17.7
45°	7.8	8.5	9.2	9.9	10.6	11.3	11.3	12.7	13.4	14.1	15.6
47.5°	7.1	7.8	8.5	8.5	9.2	9.9	9.9	11.3	12.0	12.7	13.4
50°	5.7	6.4	7.1	7.8	7.8	8.5	9.2	9.9	10.6	11.3	11.3
52.5°	5.0	5.7	6.4	6.4	7.1	7.8	7.8	8.5	9.2	9.2	9.9
55°	5.0	5.7	5.7	6.4	6.4	7.1	7.1	7.8	7.8	8.5	8.5
57.5°	4.2	5.0	5.0	5.7	5.7	6.4	6.4	7.1	7.1	7.1	7.8
60°	4.2	4.2	5.0	5.0	5.7	5.7	5.7	6.4	6.4	6.4	7.1
62.5°	3.5	4.2	4.2	5.0	5.0	5.0	5.7	5.7	5.7	6.4	6.4
65°	3.5	4.2	4.2	5.0	5.0	5.0	5.0	5.0	5.7	5.7	5.7
67.5°	3.5	3.5	4.2	4.2	4.2	4.2	5.0	5.0	5.0	5.0	5.0
70°	3.5	3.5	3.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
72.5°	2.8	3.5	3.5	3.5	3.5	4.2	4.2	4.2	4.2	4.2	3.5
75°	2.8	2.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
77.5°	2.8	2.8	2.8	3.5	3.5	3.5	3.5	3.5	3.5	2.8	2.8
80°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.1
82.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.1
85°	2.8	2.1	2.8	2.8	2.8	2.1	2.1	2.1	2.1	2.1	1.4
87.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.4	1.4
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: LDSQA4A13940D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	157.0	157.0	157.0	157.0	157.0	157.0	157.0	157.0
2.5°	124.5	123.1	123.8	123.8	122.4	121.7	121.7	122.4
5°	107.5	106.1	106.8	106.8	105.4	104.7	104.7	105.4
7.5°	94.8	93.4	94.1	94.1	92.7	92.7	92.7	92.7
10°	84.9	84.2	84.2	84.2	82.8	83.5	82.8	82.1
12.5°	75.7	75.7	75.7	75.7	75.0	75.7	75.0	75.0
15°	68.6	68.6	69.3	69.3	69.3	70.0	70.0	70.0
17.5°	63.0	63.7	64.4	65.1	65.1	65.8	65.8	65.8
20°	57.3	58.7	59.4	60.1	60.1	61.5	60.8	61.5
22.5°	51.6	53.0	53.8	54.5	55.2	55.9	55.9	56.6
25°	46.7	48.1	48.8	49.5	50.2	51.6	51.6	51.6
27.5°	41.7	43.1	43.9	45.3	46.0	47.4	47.4	47.4
30°	36.8	38.2	38.9	39.6	41.0	42.4	42.4	43.1
32.5°	31.8	34.0	34.7	35.4	36.8	38.2	38.9	38.9
35°	28.3	29.7	30.4	31.8	32.5	34.7	34.7	34.7
37.5°	24.8	26.2	27.6	28.3	29.0	30.4	31.1	31.8
40°	21.9	23.3	24.0	24.8	26.2	27.6	28.3	28.3
42.5°	19.1	20.5	21.2	21.9	22.6	24.0	24.0	24.0
45°	17.0	17.7	18.4	19.1	19.8	20.5	21.2	21.2
47.5°	14.1	15.6	15.6	16.3	17.0	18.4	18.4	19.1
50°	12.0	13.4	13.4	14.1	14.9	15.6	16.3	16.3
52.5°	10.6	11.3	12.0	12.0	12.7	13.4	14.1	14.1
55°	9.2	9.9	9.9	10.6	10.6	11.3	12.0	12.0
57.5°	7.8	8.5	9.2	9.2	9.2	9.9	9.9	10.6
60°	7.1	7.8	7.8	7.8	7.8	8.5	8.5	8.5
62.5°	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
65°	5.7	5.7	5.7	5.7	5.0	5.0	5.0	5.0
67.5°	5.0	5.0	5.0	5.0	4.2	4.2	4.2	4.2
70°	4.2	4.2	4.2	4.2	3.5	3.5	3.5	2.8
72.5°	3.5	3.5	3.5	3.5	3.5	2.8	2.8	2.8
75°	3.5	2.8	2.8	2.8	2.8	2.8	2.1	2.1
77.5°	2.8	2.8	2.8	2.1	2.1	2.1	2.1	2.1
80°	2.1	2.1	2.1	2.1	2.1	1.4	1.4	1.4
82.5°	2.1	1.4	1.4	1.4	1.4	1.4	1.4	1.4
85°	1.4	1.4	1.4	1.4	0.7	0.7	0.7	0.7
87.5°	1.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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)