

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: P182826

Luminaire Tested: **LDSQA4A28927D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182826
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: LDSQA4A28927D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, 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: 2107.7 lumens
Efficiency: N/A
Efficacy: 47.4 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

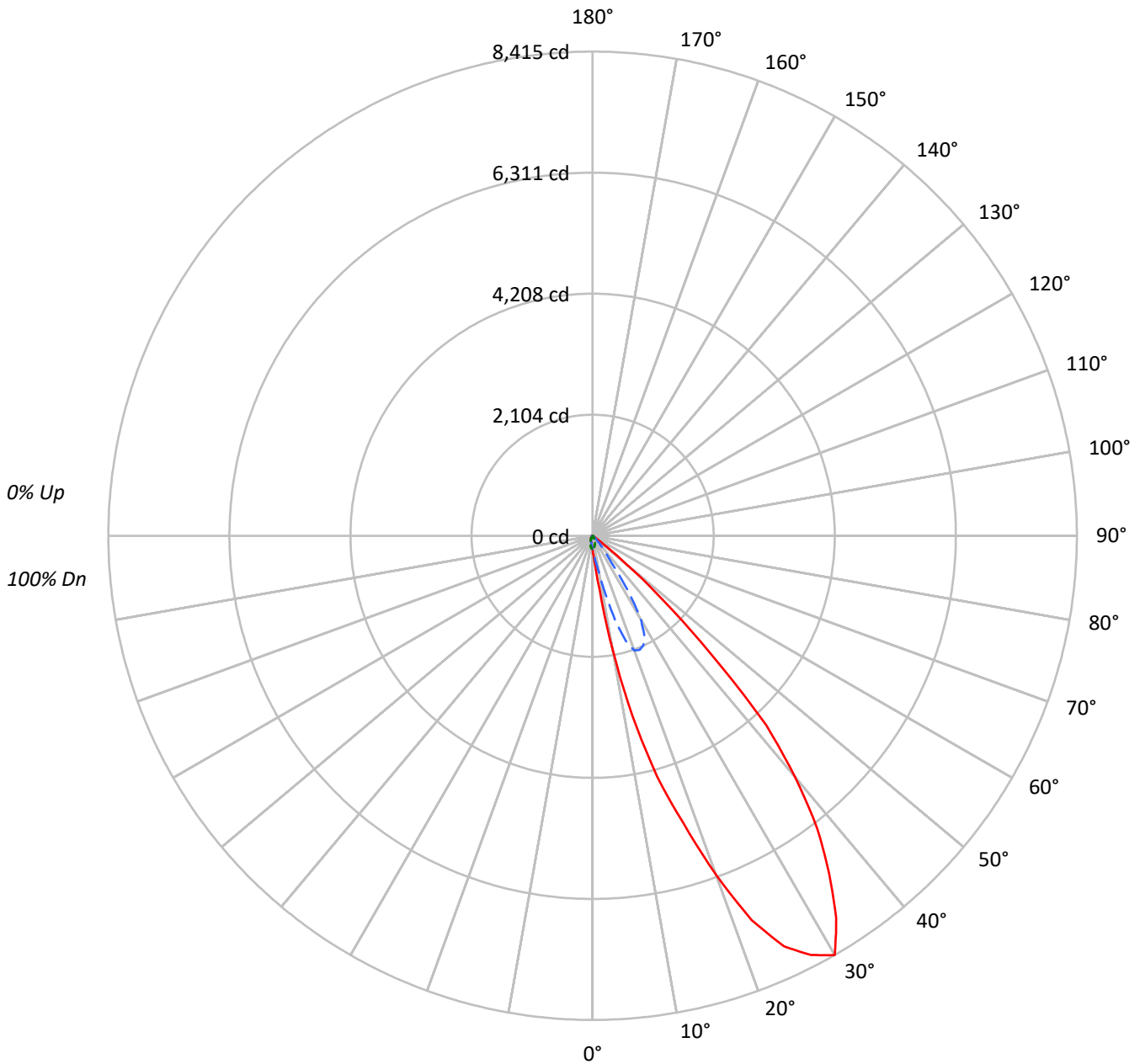
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
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°	22756	22756	22756
5°	50937	21404	15336
10°	199770	18739	12080
15°	433666	15174	10511
20°	646948	11237	9495
25°	841472	7921	8263
30°	941342	5325	7226
35°	847154	3134	6138
40°	691355	2137	5349
45°	396965	1452	4343
50°	116108	1115	3662
55°	13410	895	3040
60°	2868	1027	2461
65°	963	963	1696
70°	906	1190	1190
75°	786	1572	1198
80°	0	2343	1172
85°	0	4668	1223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	33.7	1.6
10°-20°	288.5	13.7
20°-30°	688.3	32.7
30°-40°	726.4	34.5
40°-50°	329.4	15.6
50°-60°	28.9	1.4
60°-70°	6.0	0.3
70°-80°	4.0	0.2
80°-90°	2.5	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°	1010.5	47.9
0°-40°	1736.9	82.4
0°-60°	2095.2	99.4
0°-90°	2107.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2107.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	235	235	235	235	235	
5°	524	384	220	169	158	94
15°	4324	1521	151	104	105	1258
25°	7872	2093	74	64	77	3576
35°	7163	578	26	36	52	4424
45°	2898	82	11	20	32	2297
55°	79	13	5	12	18	158
65°	4	4	4	8	7	6
75°	2	2	4	5	3	2
85°	0	2	4	3	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°	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9
2.5°	349.2	351.3	341.8	342.9	333.3	337.6	334.4	325.9	319.6	309.0	304.8
5°	523.8	527.0	505.8	499.5	477.3	477.3	467.7	445.5	425.4	401.1	384.1
7.5°	957.7	970.4	906.9	859.3	789.5	772.5	739.7	663.5	601.1	537.6	490.0
10°	2030.8	2007.5	1876.3	1768.3	1588.4	1521.8	1432.9	1213.8	1012.7	812.7	656.1
12.5°	3202.3	3277.4	3024.5	2936.6	2652.0	2591.6	2402.2	2044.5	1704.8	1351.4	1038.1
15°	4324.0	4346.2	4125.0	3982.2	3635.1	3556.8	3323.9	2903.8	2446.7	1953.5	1520.7
17.5°	5224.6	5313.5	4988.6	4835.1	4384.3	4258.4	3984.3	3473.2	2964.1	2425.5	1912.2
20°	6275.4	6298.7	5913.5	5618.2	5028.8	4837.2	4509.2	3875.3	3268.9	2654.1	2123.9
22.5°	7231.0	7225.7	6730.4	6313.5	5567.4	5338.8	4933.5	4182.2	3477.4	2755.7	2144.0
25°	7872.3	7889.2	7359.0	6865.9	5950.5	5641.5	5184.3	4342.0	3548.3	2752.5	2093.2
27.5°	8214.1	8197.2	7628.9	7101.9	6091.3	5745.2	5248.9	4347.3	3483.7	2644.6	1940.8
30°	8415.2	8188.7	7582.3	7035.2	5996.0	5640.4	5135.7	4180.1	3268.9	2403.3	1668.9
32.5°	7877.6	7789.7	7261.7	6680.7	5668.0	5315.6	4817.1	3824.5	2928.2	2033.9	1195.8
35°	7163.3	7166.4	6651.1	6108.2	5153.7	4846.8	4332.5	3391.7	2512.3	1413.8	577.8
37.5°	6414.0	6424.6	5934.6	5429.9	4580.1	4257.3	3775.8	2898.5	1807.5	719.6	348.2
40°	5466.9	5489.1	5066.9	4661.6	3877.4	3566.3	3136.6	2193.7	1010.6	402.1	236.0
42.5°	4466.9	4494.4	4119.7	3759.9	3093.3	2837.2	2456.2	1358.8	501.6	260.3	138.6
45°	2897.5	2976.8	2698.5	2547.2	2160.9	2008.5	1603.2	693.2	302.7	152.4	81.5
47.5°	1658.3	1659.3	1424.4	1140.8	935.5	813.8	636.0	315.4	176.7	85.7	49.7
50°	770.4	789.5	625.4	520.7	372.5	315.4	259.3	170.4	93.1	49.7	30.7
52.5°	224.3	237.0	214.8	194.7	165.1	147.1	125.9	83.6	48.7	29.6	19.0
55°	79.4	84.7	79.4	74.1	66.7	60.3	54.0	40.2	27.5	18.0	12.7
57.5°	32.8	33.9	32.8	31.7	29.6	29.6	26.5	22.2	16.9	11.6	8.5
60°	14.8	15.9	14.8	15.9	14.8	14.8	14.8	15.9	10.6	7.4	6.3
62.5°	6.3	7.4	7.4	7.4	7.4	8.5	8.5	7.4	6.3	5.3	4.2
65°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
67.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
70°	3.2	3.2	3.2	3.2	3.2	3.2	2.1	2.1	3.2	3.2	3.2
72.5°	3.2	3.2	3.2	3.2	2.1	2.1	2.1	2.1	2.1	3.2	3.2
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
77.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1
80°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.1	2.1	2.1
82.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1
85°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.1	2.1	2.1
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.1	2.1	2.1
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°	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9
2.5°	299.5	290.0	275.1	265.6	261.4	255.0	250.8	240.2	236.0	227.5	224.3
5°	368.3	349.2	327.0	309.0	297.4	284.7	265.6	244.5	233.9	220.1	212.7
7.5°	446.6	405.3	366.2	334.4	319.6	302.7	278.3	245.5	225.4	207.4	196.8
10°	546.1	461.4	400.0	349.2	327.0	304.8	275.1	237.0	211.6	190.5	178.8
12.5°	778.9	556.6	430.7	357.7	329.1	301.6	264.6	225.4	195.8	171.4	158.7
15°	1120.7	777.8	513.2	365.1	321.7	287.8	245.5	206.4	175.7	151.3	138.6
17.5°	1423.3	991.6	627.5	392.6	319.6	272.0	222.2	182.0	152.4	129.1	118.5
20°	1588.4	1103.8	703.7	409.5	310.1	247.6	195.8	157.7	129.1	109.0	99.5
22.5°	1591.6	1097.4	676.2	372.5	273.0	214.8	169.3	133.3	107.9	90.0	82.5
25°	1496.4	978.9	564.0	293.1	223.3	182.0	141.8	111.1	87.8	74.1	67.7
27.5°	1318.6	795.8	414.8	211.6	174.6	147.1	114.3	88.9	68.8	60.3	55.0
30°	1037.1	518.5	242.3	157.7	135.5	113.2	86.8	62.4	54.0	47.6	43.4
32.5°	556.6	251.9	169.3	116.4	96.3	79.4	57.1	45.5	39.2	34.9	33.9
35°	291.0	184.1	113.2	74.1	61.4	51.9	39.2	31.7	28.6	26.5	26.5
37.5°	208.5	115.3	72.0	47.6	40.2	32.8	27.5	23.3	21.2	21.2	21.2
40°	123.8	70.9	43.4	30.7	26.5	23.3	20.1	16.9	16.9	16.9	16.9
42.5°	75.1	44.4	30.7	21.2	19.0	16.9	14.8	13.8	12.7	12.7	13.8
45°	46.6	30.7	20.1	15.9	14.8	12.7	11.6	10.6	10.6	10.6	11.6
47.5°	29.6	22.2	14.8	10.6	9.5	8.5	7.4	7.4	8.5	8.5	9.5
50°	22.2	13.8	9.5	7.4	6.3	6.3	5.3	6.3	6.3	7.4	8.5
52.5°	12.7	8.5	6.3	5.3	5.3	4.2	4.2	5.3	5.3	6.3	7.4
55°	8.5	6.3	5.3	4.2	4.2	4.2	4.2	4.2	5.3	5.3	6.3
57.5°	6.3	5.3	4.2	4.2	4.2	3.2	4.2	4.2	4.2	5.3	6.3
60°	5.3	4.2	4.2	4.2	4.2	3.2	3.2	4.2	4.2	5.3	5.3
62.5°	4.2	4.2	4.2	4.2	4.2	3.2	4.2	4.2	4.2	4.2	5.3
65°	3.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	5.3
67.5°	3.2	3.2	4.2	4.2	4.2	3.2	4.2	4.2	4.2	4.2	5.3
70°	3.2	3.2	3.2	4.2	4.2	3.2	4.2	4.2	4.2	4.2	4.2
72.5°	3.2	3.2	3.2	4.2	4.2	3.2	4.2	4.2	4.2	4.2	4.2
75°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2
77.5°	3.2	3.2	3.2	3.2	4.2	3.2	4.2	4.2	4.2	4.2	4.2
80°	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2	4.2	4.2
82.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2	4.2
85°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2	4.2
87.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2
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°	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9
2.5°	215.9	212.7	206.4	205.3	204.2	200.0	196.8	193.7	193.7	190.5	188.4
5°	200.0	194.7	187.3	184.1	183.1	177.8	173.6	170.4	169.3	166.1	163.0
7.5°	183.1	176.7	168.3	165.1	164.0	158.7	154.5	151.3	149.2	146.0	143.9
10°	165.1	157.7	150.3	147.1	146.0	140.7	137.6	134.4	132.3	130.2	128.0
12.5°	146.0	139.7	132.3	129.1	128.0	123.8	120.6	118.5	117.5	115.3	114.3
15°	127.0	120.6	114.3	112.2	111.1	107.9	105.8	104.8	103.7	103.7	102.6
17.5°	107.9	102.6	97.4	96.3	95.2	93.1	92.1	91.0	92.1	92.1	93.1
20°	90.0	85.7	81.5	81.5	80.4	79.4	79.4	79.4	81.5	82.5	84.7
22.5°	74.1	70.9	67.7	67.7	67.7	67.7	67.7	69.8	72.0	74.1	75.1
25°	61.4	58.2	57.1	57.1	57.1	58.2	59.3	61.4	63.5	65.6	67.7
27.5°	49.7	47.6	47.6	47.6	48.7	49.7	50.8	52.9	56.1	58.2	60.3
30°	40.2	39.2	39.2	40.2	41.3	42.3	44.4	46.6	48.7	50.8	52.9
32.5°	31.7	32.8	32.8	33.9	34.9	36.0	38.1	40.2	42.3	44.4	45.5
35°	26.5	26.5	27.5	28.6	29.6	30.7	32.8	34.9	36.0	38.1	40.2
37.5°	21.2	22.2	23.3	24.3	25.4	26.5	27.5	29.6	30.7	32.8	34.9
40°	18.0	19.0	20.1	21.2	21.2	23.3	23.3	25.4	26.5	28.6	30.7
42.5°	14.8	15.9	16.9	18.0	18.0	19.0	20.1	21.2	23.3	24.3	26.5
45°	11.6	12.7	13.8	14.8	15.9	16.9	16.9	19.0	20.1	21.2	23.3
47.5°	10.6	11.6	12.7	12.7	13.8	14.8	14.8	16.9	18.0	19.0	20.1
50°	8.5	9.5	10.6	11.6	11.6	12.7	13.8	14.8	15.9	16.9	16.9
52.5°	7.4	8.5	9.5	9.5	10.6	11.6	11.6	12.7	13.8	13.8	14.8
55°	7.4	8.5	8.5	9.5	9.5	10.6	10.6	11.6	11.6	12.7	12.7
57.5°	6.3	7.4	7.4	8.5	8.5	9.5	9.5	10.6	10.6	10.6	11.6
60°	6.3	6.3	7.4	7.4	8.5	8.5	8.5	9.5	9.5	9.5	10.6
62.5°	5.3	6.3	6.3	7.4	7.4	7.4	8.5	8.5	8.5	9.5	9.5
65°	5.3	6.3	6.3	7.4	7.4	7.4	7.4	7.4	8.5	8.5	8.5
67.5°	5.3	5.3	6.3	6.3	6.3	6.3	7.4	7.4	7.4	7.4	7.4
70°	5.3	5.3	5.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
72.5°	4.2	5.3	5.3	5.3	5.3	6.3	6.3	6.3	6.3	6.3	5.3
75°	4.2	4.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
77.5°	4.2	4.2	4.2	5.3	5.3	5.3	5.3	5.3	5.3	4.2	4.2
80°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.2
82.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2	3.2
85°	4.2	3.2	4.2	4.2	4.2	3.2	3.2	3.2	3.2	3.2	2.1
87.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.1	2.1
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: LDSQA4A28927D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	234.9	234.9	234.9	234.9	234.9	234.9	234.9	234.9
2.5°	186.3	184.1	185.2	185.2	183.1	182.0	182.0	183.1
5°	160.9	158.7	159.8	159.8	157.7	156.6	156.6	157.7
7.5°	141.8	139.7	140.7	140.7	138.6	138.6	138.6	138.6
10°	127.0	125.9	125.9	125.9	123.8	124.9	123.8	122.8
12.5°	113.2	113.2	113.2	113.2	112.2	113.2	112.2	112.2
15°	102.6	102.6	103.7	103.7	103.7	104.8	104.8	104.8
17.5°	94.2	95.2	96.3	97.4	97.4	98.4	98.4	98.4
20°	85.7	87.8	88.9	90.0	90.0	92.1	91.0	92.1
22.5°	77.3	79.4	80.4	81.5	82.5	83.6	83.6	84.7
25°	69.8	72.0	73.0	74.1	75.1	77.3	77.3	77.3
27.5°	62.4	64.6	65.6	67.7	68.8	70.9	70.9	70.9
30°	55.0	57.1	58.2	59.3	61.4	63.5	63.5	64.6
32.5°	47.6	50.8	51.9	52.9	55.0	57.1	58.2	58.2
35°	42.3	44.4	45.5	47.6	48.7	51.9	51.9	51.9
37.5°	37.0	39.2	41.3	42.3	43.4	45.5	46.6	47.6
40°	32.8	34.9	36.0	37.0	39.2	41.3	42.3	42.3
42.5°	28.6	30.7	31.7	32.8	33.9	36.0	36.0	36.0
45°	25.4	26.5	27.5	28.6	29.6	30.7	31.7	31.7
47.5°	21.2	23.3	23.3	24.3	25.4	27.5	27.5	28.6
50°	18.0	20.1	20.1	21.2	22.2	23.3	24.3	24.3
52.5°	15.9	16.9	18.0	18.0	19.0	20.1	21.2	21.2
55°	13.8	14.8	14.8	15.9	15.9	16.9	18.0	18.0
57.5°	11.6	12.7	13.8	13.8	13.8	14.8	14.8	15.9
60°	10.6	11.6	11.6	11.6	11.6	12.7	12.7	12.7
62.5°	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
65°	8.5	8.5	8.5	8.5	7.4	7.4	7.4	7.4
67.5°	7.4	7.4	7.4	7.4	6.3	6.3	6.3	6.3
70°	6.3	6.3	6.3	6.3	5.3	5.3	5.3	4.2
72.5°	5.3	5.3	5.3	5.3	5.3	4.2	4.2	4.2
75°	5.3	4.2	4.2	4.2	4.2	4.2	3.2	3.2
77.5°	4.2	4.2	4.2	3.2	3.2	3.2	3.2	3.2
80°	3.2	3.2	3.2	3.2	3.2	2.1	2.1	2.1
82.5°	3.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1
85°	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1
87.5°	2.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)