

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: P182664

Luminaire Tested: **LDSQA4A28835D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182664
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26830)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A28835D010TE LAR15SP 4LSQA1H-LSF-20 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 15° SPOT WITH SOLITE LENS, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2487.3 lumens
Efficiency: N/A
Efficacy: 55.9 lumens/watt
Spacing Criteria (0/90/45): 2.28 / 0.64 / 1.15
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

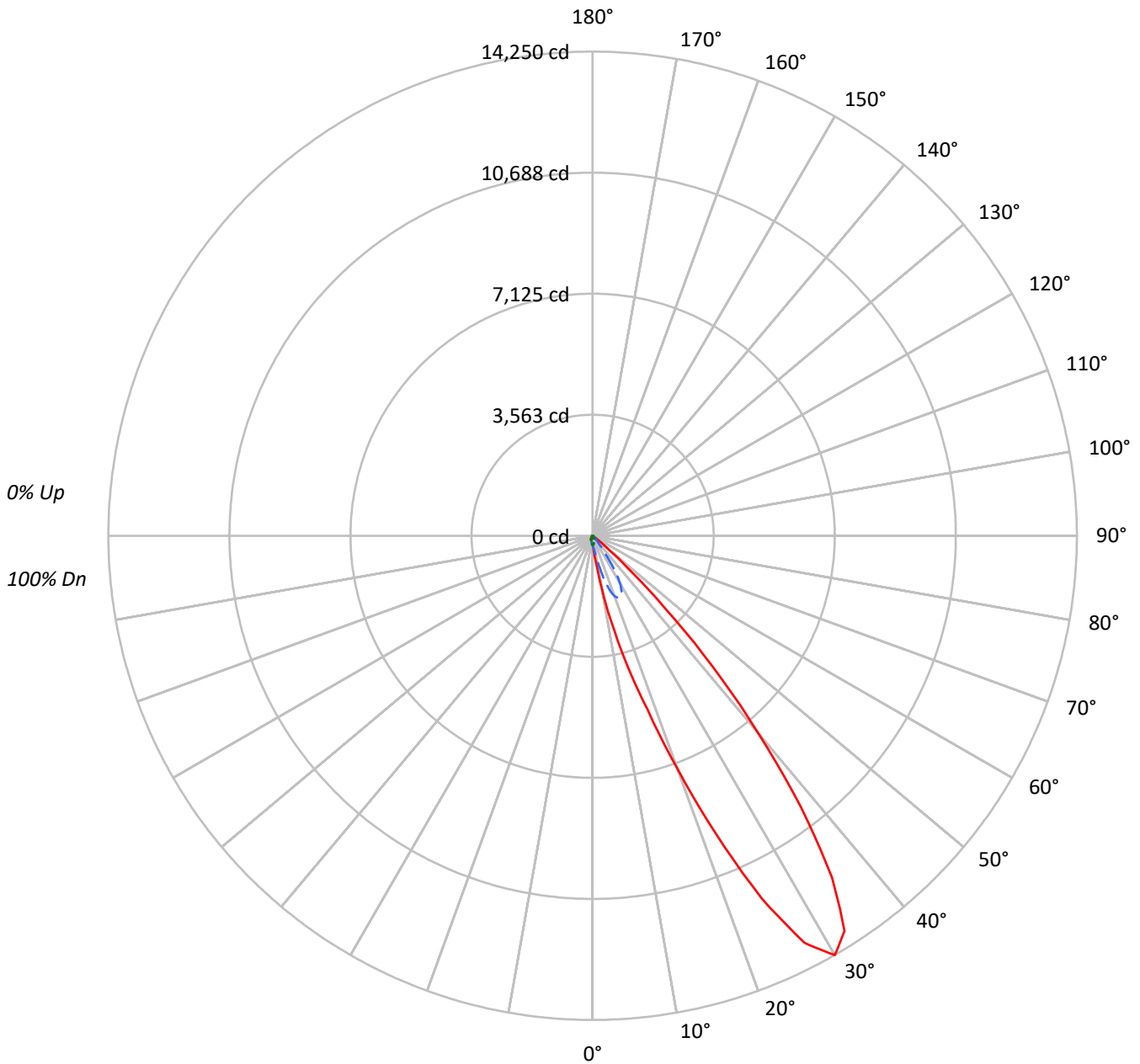
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	112	109	106	104	110	107	105	102	103	101	99	99	98	96	96	94	93	91					91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83					83			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74					74			
4	92	83	77	72	90	82	76	71	80	75	70	78	73	70	76	72	69	67					67			
5	86	76	69	64	85	75	69	64	73	68	63	72	67	63	70	66	62	60					60			
6	81	70	63	58	79	69	62	57	67	61	57	66	61	57	64	60	56	54					54			
7	75	64	57	52	74	63	57	52	62	56	51	61	55	51	59	55	51	49					49			
8	70	59	52	47	69	58	51	47	57	51	46	56	50	46	55	50	46	44					44			
9	66	54	47	42	65	54	47	42	53	46	42	52	46	42	51	46	42	40					40			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36					36			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	26011	26011	26011
5°	49819	24778	20110
10°	162910	21966	17116
15°	398965	18133	15114
20°	751711	13835	13557
25°	1258344	9813	11865
30°	1594069	6745	10112
35°	1452495	4376	8586
40°	956583	3124	7272
45°	414378	2069	6001
50°	73502	1447	4958
55°	11806	1149	4172
60°	2926	1066	3178
65°	940	1261	2521
70°	765	1558	1926
75°	1011	1535	1535
80°	0	2287	1506
85°	0	4557	1556



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	34.4	1.4
10°-20°	276.7	11.1
20°-30°	833.4	33.5
30°-40°	948.5	38.1
40°-50°	350.7	14.1
50°-60°	27.8	1.1
60°-70°	7.5	0.3
70°-80°	5.2	0.2
80°-90°	3.0	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°	1144.5	46.0
0°-40°	2093.0	84.1
0°-60°	2471.6	99.4
0°-90°	2487.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2487.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	268	268	268	268	268	
5°	512	377	255	214	207	83
15°	3978	1344	181	142	151	1248
25°	11772	1964	92	89	111	5374
35°	12282	688	37	51	73	7302
45°	3025	81	15	27	44	2561
55°	70	15	7	16	25	114
65°	4	4	6	11	11	6
75°	3	4	4	7	4	2
85°	0	3	4	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°	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5
2.5°	345.2	347.9	345.2	339.7	339.7	332.9	330.1	327.4	320.5	316.4	311.0
5°	512.3	504.1	497.2	480.8	475.3	460.3	449.3	434.2	413.7	395.9	376.7
7.5°	876.7	864.4	838.3	789.0	758.9	721.9	693.1	645.2	583.5	532.9	482.2
10°	1656.1	1602.7	1541.1	1430.1	1349.3	1263.0	1194.5	1065.7	910.9	783.5	660.3
12.5°	2668.4	2672.5	2557.5	2369.8	2220.5	2068.4	1950.6	1712.3	1438.3	1198.6	961.6
15°	3978.0	3902.6	3783.5	3495.8	3197.2	2976.6	2789.0	2427.3	2039.7	1689.0	1343.8
17.5°	5357.4	5388.9	5110.8	4641.0	4168.4	3838.3	3554.7	3006.8	2546.5	2112.3	1690.4
20°	7291.6	7075.2	6677.9	5916.3	5182.1	4704.0	4283.5	3572.5	2930.1	2378.0	1904.1
22.5°	9521.7	9172.4	8364.2	7291.6	6180.7	5519.0	4932.8	3954.7	3173.9	2513.6	1976.7
25°	11772.3	11505.2	10217.5	8614.9	7023.1	6165.6	5406.7	4213.6	3290.3	2545.1	1964.3
27.5°	13509.2	13073.6	11606.6	9517.6	7525.8	6513.5	5627.3	4293.0	3265.7	2468.4	1847.9
30°	14250.3	13699.7	12073.7	9723.0	7529.9	6456.0	5517.7	4135.5	3090.3	2273.9	1628.7
32.5°	13792.8	13157.2	11517.5	9154.6	7014.9	6006.7	5094.4	3794.4	2799.9	1968.4	1223.3
35°	12281.9	11649.0	10129.9	8032.7	6193.0	5312.2	4519.1	3349.2	2384.9	1458.9	687.7
37.5°	10057.3	9517.6	8431.3	6732.7	5219.0	4504.0	3843.7	2821.8	1776.7	837.0	345.2
40°	7564.2	7184.7	6532.7	5339.6	4224.6	3680.7	3149.2	2161.6	1079.4	420.5	195.9
42.5°	5243.7	4997.1	4669.7	3950.6	3258.8	2884.9	2458.8	1443.8	554.8	231.5	121.9
45°	3024.6	2869.8	2779.4	2472.5	2202.7	2020.5	1643.8	778.1	280.8	138.4	80.8
47.5°	1335.6	1232.8	1189.0	1060.2	986.3	937.0	743.8	331.5	150.7	89.0	67.1
50°	487.7	487.7	489.0	430.1	352.0	316.4	247.9	146.6	84.9	69.9	49.3
52.5°	172.6	169.9	176.7	167.1	146.6	131.5	109.6	74.0	52.1	43.8	27.4
55°	69.9	67.1	69.9	65.8	61.6	57.5	50.7	39.7	32.9	27.4	15.1
57.5°	31.5	31.5	32.9	31.5	31.5	28.8	26.0	30.1	23.3	15.1	9.6
60°	15.1	15.1	16.4	16.4	16.4	15.1	15.1	16.4	13.7	9.6	6.8
62.5°	6.8	6.8	8.2	8.2	8.2	8.2	8.2	9.6	6.8	5.5	4.1
65°	4.1	2.7	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
67.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.1	4.1
70°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.1
72.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.1
75°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.1
77.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.7	2.7	4.1
80°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	2.7
82.5°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	2.7
85°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.7	2.7
87.5°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.7	2.7
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5
2.5°	305.5	301.4	293.1	289.0	283.6	279.4	276.7	271.2	265.7	261.6	258.9
5°	358.9	343.8	326.0	312.3	301.4	294.5	283.6	274.0	263.0	254.8	247.9
7.5°	437.0	400.0	360.3	332.9	317.8	304.1	284.9	268.5	253.4	242.5	232.9
10°	558.9	479.4	409.6	356.2	330.1	311.0	280.8	257.5	238.4	223.3	213.7
12.5°	761.6	598.6	475.3	384.9	345.2	316.4	274.0	242.5	219.2	204.1	191.8
15°	1039.7	774.0	565.7	419.2	363.0	321.9	263.0	224.7	198.6	180.8	169.9
17.5°	1301.3	957.5	668.5	460.3	380.8	324.6	247.9	201.4	174.0	157.5	146.6
20°	1465.7	1076.7	737.0	483.5	386.3	316.4	227.4	176.7	149.3	134.2	123.3
22.5°	1504.1	1090.4	731.5	461.6	363.0	291.8	198.6	152.1	126.0	112.3	102.7
25°	1447.9	1013.7	654.8	398.6	309.6	245.2	165.7	123.3	104.1	91.8	84.9
27.5°	1306.8	863.0	517.8	300.0	231.5	180.8	126.0	95.9	83.6	74.0	69.9
30°	1053.4	606.8	324.6	186.3	147.9	119.2	90.4	74.0	64.4	60.3	56.2
32.5°	638.3	312.3	171.2	111.0	93.1	80.8	65.8	54.8	49.3	46.6	45.2
35°	304.1	164.4	105.5	75.3	65.8	57.5	47.9	41.1	38.4	37.0	37.0
37.5°	172.6	106.8	71.2	50.7	45.2	39.7	35.6	31.5	30.1	30.1	30.1
40°	109.6	68.5	46.6	37.0	32.9	30.1	27.4	24.7	24.7	24.7	24.7
42.5°	71.2	49.3	35.6	27.4	24.7	23.3	20.5	19.2	19.2	19.2	20.5
45°	56.2	41.1	28.8	21.9	19.2	17.8	16.4	15.1	15.1	15.1	16.4
47.5°	47.9	28.8	19.2	15.1	12.3	12.3	11.0	11.0	11.0	12.3	13.7
50°	28.8	17.8	12.3	9.6	8.2	8.2	8.2	8.2	8.2	9.6	11.0
52.5°	16.4	11.0	8.2	6.8	5.5	5.5	5.5	5.5	6.8	8.2	8.2
55°	11.0	8.2	5.5	5.5	4.1	4.1	4.1	5.5	5.5	6.8	8.2
57.5°	6.8	5.5	4.1	4.1	4.1	4.1	4.1	4.1	5.5	6.8	6.8
60°	5.5	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	6.8
62.5°	4.1	4.1	5.5	4.1	4.1	4.1	4.1	4.1	5.5	5.5	6.8
65°	4.1	4.1	5.5	5.5	4.1	4.1	4.1	4.1	4.1	5.5	6.8
67.5°	4.1	4.1	5.5	5.5	5.5	5.5	4.1	4.1	4.1	5.5	5.5
70°	4.1	5.5	5.5	5.5	5.5	5.5	5.5	4.1	4.1	5.5	5.5
72.5°	4.1	5.5	5.5	5.5	5.5	5.5	5.5	4.1	4.1	5.5	5.5
75°	4.1	4.1	5.5	5.5	5.5	5.5	5.5	4.1	4.1	4.1	5.5
77.5°	4.1	4.1	5.5	5.5	5.5	5.5	5.5	4.1	4.1	4.1	5.5
80°	4.1	4.1	4.1	5.5	4.1	5.5	4.1	4.1	4.1	4.1	4.1
82.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
85°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
87.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5
2.5°	254.8	252.0	247.9	246.6	247.9	246.6	239.7	238.4	235.6	235.6	235.6
5°	241.1	237.0	231.5	228.8	228.8	226.0	219.2	217.8	213.7	213.7	212.3
7.5°	224.7	219.2	212.3	209.6	209.6	206.8	200.0	197.3	194.5	194.5	193.1
10°	205.5	198.6	191.8	190.4	189.0	184.9	180.8	179.4	175.3	176.7	175.3
12.5°	183.6	178.1	172.6	169.9	169.9	165.7	163.0	161.6	160.3	160.3	160.3
15°	163.0	156.2	150.7	149.3	149.3	147.9	145.2	145.2	142.5	145.2	145.2
17.5°	139.7	134.2	132.9	130.1	131.5	130.1	127.4	128.8	128.8	130.1	131.5
20°	117.8	113.7	112.3	111.0	112.3	112.3	111.0	112.3	113.7	117.8	120.5
22.5°	98.6	95.9	95.9	94.5	95.9	97.3	95.9	98.6	101.4	104.1	108.2
25°	82.2	80.8	80.8	80.8	82.2	83.6	84.9	87.7	89.0	93.1	95.9
27.5°	67.1	67.1	67.1	68.5	69.9	71.2	72.6	76.7	78.1	82.2	84.9
30°	56.2	54.8	56.2	57.5	58.9	61.6	63.0	65.8	67.1	71.2	74.0
32.5°	45.2	46.6	47.9	49.3	50.7	52.1	53.4	56.2	58.9	61.6	64.4
35°	38.4	38.4	39.7	41.1	42.5	45.2	46.6	47.9	50.7	53.4	54.8
37.5°	31.5	32.9	34.2	35.6	37.0	38.4	39.7	41.1	42.5	45.2	47.9
40°	26.0	27.4	28.8	30.1	30.1	32.9	32.9	35.6	37.0	39.7	42.5
42.5°	21.9	23.3	24.7	26.0	26.0	27.4	28.8	30.1	31.5	34.2	37.0
45°	17.8	19.2	20.5	21.9	21.9	23.3	24.7	26.0	27.4	30.1	31.5
47.5°	15.1	16.4	17.8	19.2	19.2	20.5	21.9	23.3	23.3	26.0	27.4
50°	12.3	13.7	15.1	16.4	16.4	17.8	19.2	20.5	20.5	21.9	23.3
52.5°	9.6	11.0	13.7	13.7	15.1	16.4	16.4	17.8	17.8	19.2	20.5
55°	9.6	11.0	12.3	12.3	13.7	15.1	15.1	16.4	16.4	16.4	17.8
57.5°	8.2	9.6	11.0	12.3	12.3	13.7	13.7	13.7	13.7	15.1	15.1
60°	8.2	9.6	9.6	11.0	11.0	12.3	12.3	12.3	12.3	13.7	13.7
62.5°	8.2	8.2	9.6	9.6	11.0	11.0	11.0	12.3	12.3	12.3	12.3
65°	6.8	8.2	9.6	9.6	9.6	11.0	11.0	11.0	11.0	11.0	11.0
67.5°	6.8	8.2	8.2	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
70°	6.8	6.8	8.2	8.2	8.2	9.6	9.6	9.6	8.2	9.6	8.2
72.5°	5.5	6.8	6.8	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
75°	5.5	6.8	6.8	6.8	6.8	8.2	8.2	6.8	6.8	6.8	6.8
77.5°	5.5	5.5	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	5.5
80°	5.5	5.5	5.5	5.5	6.8	6.8	5.5	5.5	5.5	5.5	5.5
82.5°	4.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	4.1	4.1	4.1
85°	4.1	4.1	5.5	5.5	5.5	5.5	4.1	4.1	4.1	4.1	2.7
87.5°	4.1	4.1	4.1	5.5	4.1	4.1	4.1	4.1	2.7	2.7	2.7
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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CATALOG NUMBER: LDSQA4A28835D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	268.5	268.5	268.5	268.5	268.5	268.5	268.5	268.5
2.5°	231.5	230.1	231.5	230.1	230.1	231.5	227.4	230.1
5°	209.6	206.8	208.2	206.8	205.5	206.8	204.1	206.8
7.5°	190.4	189.0	189.0	189.0	187.7	189.0	186.3	189.0
10°	174.0	172.6	172.6	172.6	172.6	174.0	171.2	174.0
12.5°	157.5	157.5	158.9	157.5	158.9	160.3	157.5	160.3
15°	143.8	145.2	146.6	146.6	147.9	149.3	147.9	150.7
17.5°	132.9	134.2	137.0	137.0	138.4	141.1	139.7	142.5
20°	121.9	123.3	126.0	126.0	127.4	130.1	128.8	131.5
22.5°	109.6	112.3	113.7	115.1	116.4	119.2	117.8	120.5
25°	97.3	101.4	102.7	104.1	105.5	108.2	108.2	111.0
27.5°	87.7	90.4	91.8	93.1	95.9	98.6	98.6	100.0
30°	76.7	79.5	82.2	83.6	84.9	87.7	87.7	90.4
32.5°	67.1	69.9	71.2	72.6	75.3	78.1	79.5	80.8
35°	57.5	61.6	63.0	65.8	67.1	71.2	71.2	72.6
37.5°	50.7	53.4	56.2	57.5	60.3	63.0	63.0	65.8
40°	45.2	47.9	49.3	50.7	53.4	56.2	56.2	57.5
42.5°	38.4	42.5	43.8	45.2	46.6	49.3	50.7	52.1
45°	34.2	35.6	37.0	38.4	39.7	42.5	42.5	43.8
47.5°	28.8	30.1	31.5	32.9	34.2	35.6	37.0	38.4
50°	24.7	26.0	27.4	27.4	28.8	31.5	31.5	32.9
52.5°	20.5	21.9	23.3	23.3	24.7	27.4	27.4	28.8
55°	17.8	19.2	20.5	20.5	21.9	23.3	23.3	24.7
57.5°	16.4	16.4	17.8	17.8	19.2	19.2	20.5	20.5
60°	13.7	15.1	15.1	15.1	16.4	16.4	16.4	16.4
62.5°	12.3	12.3	12.3	12.3	12.3	12.3	12.3	13.7
65°	11.0	11.0	11.0	11.0	11.0	11.0	9.6	11.0
67.5°	9.6	9.6	9.6	9.6	8.2	8.2	8.2	8.2
70°	8.2	8.2	8.2	8.2	8.2	6.8	6.8	6.8
72.5°	6.8	6.8	6.8	6.8	6.8	5.5	5.5	5.5
75°	6.8	6.8	5.5	5.5	5.5	5.5	5.5	4.1
77.5°	5.5	5.5	5.5	5.5	4.1	4.1	4.1	4.1
80°	4.1	4.1	4.1	4.1	4.1	4.1	2.7	2.7
82.5°	4.1	2.7	2.7	2.7	2.7	2.7	2.7	2.7
85°	2.7	2.7	2.7	2.7	1.4	1.4	1.4	1.4
87.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)