

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: P182660

Luminaire Tested: **LDSQA4A13935D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182660
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: LDSQA4A13935D010TE 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 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1189.5 lumens
Efficiency: N/A
Efficacy: 53.4 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

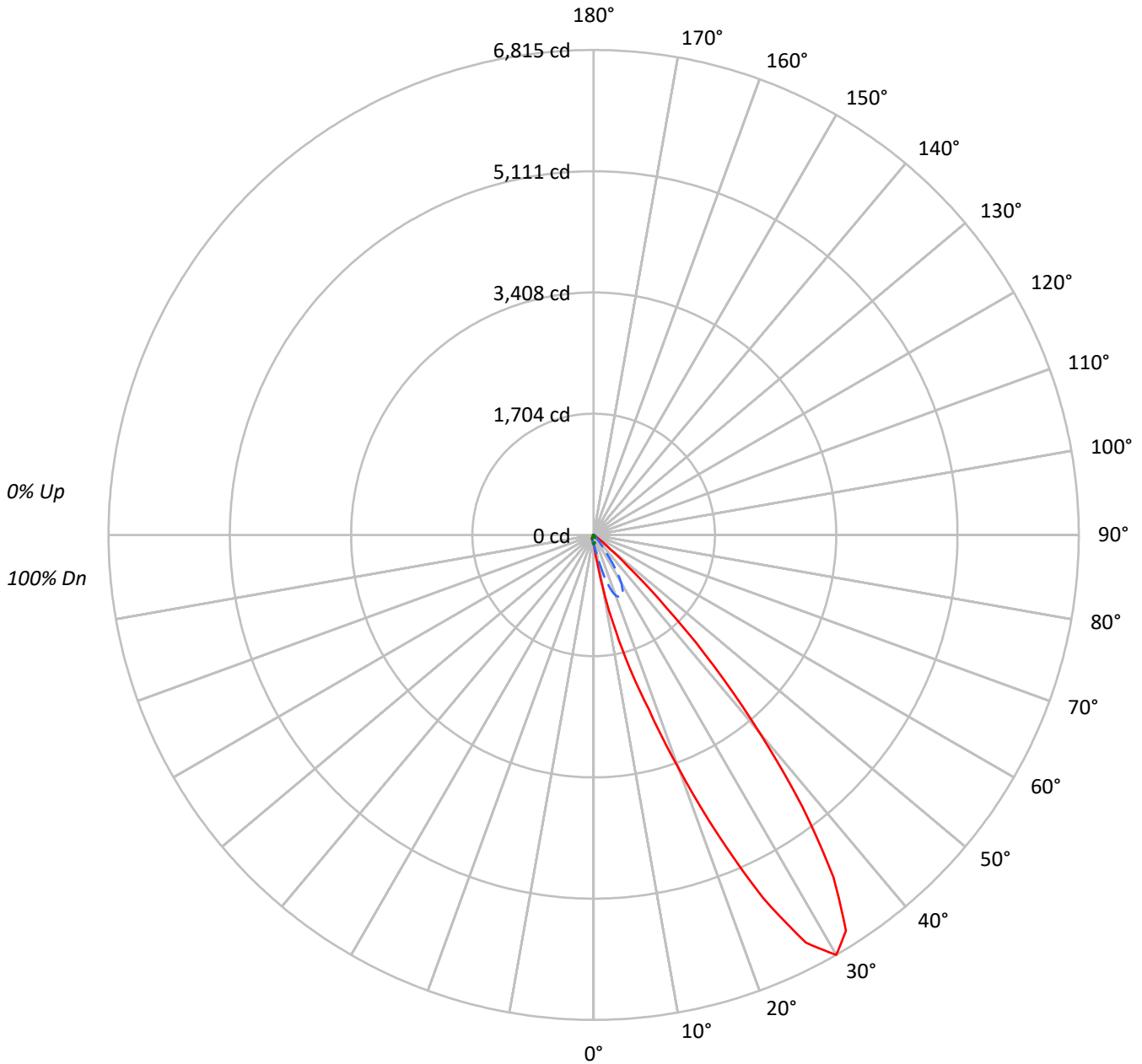
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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	104	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°	12439	12439	12439
5°	23825	11844	9618
10°	77909	10506	8184
15°	190787	8675	7231
20°	359484	6619	6485
25°	601760	4692	5676
30°	762318	3222	4832
35°	694606	2093	4104
40°	457451	1492	3478
45°	198160	986	2877
50°	35146	693	2366
55°	5641	557	1993
60°	1395	504	1531
65°	458	596	1192
70°	368	736	935
75°	487	749	749
80°	0	1116	725
85°	0	2223	778



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	16.5	1.4
10°-20°	132.3	11.1
20°-30°	398.5	33.5
30°-40°	453.6	38.1
40°-50°	167.7	14.1
50°-60°	13.3	1.1
60°-70°	3.6	0.3
70°-80°	2.5	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°	547.3	46.0
0°-40°	1000.9	84.1
0°-60°	1182.0	99.4
0°-90°	1189.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1189.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	128	128	128	128	128	
5°	245	180	122	102	99	40
15°	1902	643	86	68	72	597
25°	5630	939	44	43	53	2570
35°	5873	329	18	24	35	3492
45°	1446	39	7	13	21	1225
55°	33	7	3	8	12	55
65°	2	2	3	5	5	3
75°	1	2	2	3	2	1
85°	0	1	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°	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4
2.5°	165.1	166.4	165.1	162.5	162.5	159.2	157.9	156.6	153.3	151.3	148.7
5°	245.0	241.1	237.8	229.9	227.3	220.1	214.9	207.7	197.8	189.3	180.1
7.5°	419.3	413.4	400.9	377.3	362.9	345.2	331.5	308.5	279.1	254.8	230.6
10°	792.0	766.4	737.0	683.9	645.3	604.0	571.2	509.7	435.6	374.7	315.7
12.5°	1276.1	1278.1	1223.0	1133.3	1061.9	989.2	932.8	818.8	687.8	573.2	459.9
15°	1902.3	1866.3	1809.3	1671.8	1529.0	1423.5	1333.7	1160.8	975.4	807.7	642.6
17.5°	2562.0	2577.1	2444.1	2219.4	1993.4	1835.5	1699.9	1437.9	1217.8	1010.1	808.4
20°	3487.0	3383.5	3193.5	2829.3	2478.2	2249.5	2048.4	1708.4	1401.2	1137.2	910.6
22.5°	4553.5	4386.4	3999.9	3487.0	2955.7	2639.3	2358.9	1891.2	1517.8	1202.1	945.3
25°	5629.7	5502.0	4886.2	4119.8	3358.6	2948.5	2585.6	2015.0	1573.5	1217.1	939.4
27.5°	6460.4	6252.1	5550.5	4551.5	3599.0	3114.9	2691.1	2053.0	1561.7	1180.5	883.7
30°	6814.8	6551.4	5773.9	4649.7	3601.0	3087.4	2638.7	1977.7	1477.9	1087.4	778.9
32.5°	6596.0	6292.0	5507.9	4377.9	3354.7	2872.5	2436.2	1814.6	1339.0	941.3	585.0
35°	5873.4	5570.8	4844.3	3841.4	2961.6	2540.4	2161.1	1601.7	1140.5	697.7	328.8
37.5°	4809.6	4551.5	4032.0	3219.7	2495.8	2153.9	1838.2	1349.5	849.6	400.3	165.1
40°	3617.3	3435.9	3124.1	2553.5	2020.3	1760.2	1506.0	1033.7	516.2	201.1	93.7
42.5°	2507.6	2389.7	2233.2	1889.2	1558.4	1379.6	1175.9	690.5	265.3	110.7	58.3
45°	1446.4	1372.4	1329.2	1182.4	1053.4	966.2	786.1	372.1	134.3	66.2	38.6
47.5°	638.7	589.6	568.6	507.0	471.7	448.1	355.7	158.5	72.1	42.6	32.1
50°	233.2	233.2	233.9	205.7	168.4	151.3	118.6	70.1	40.6	33.4	23.6
52.5°	82.5	81.2	84.5	79.9	70.1	62.9	52.4	35.4	24.9	21.0	13.1
55°	33.4	32.1	33.4	31.4	29.5	27.5	24.2	19.0	15.7	13.1	7.2
57.5°	15.1	15.1	15.7	15.1	15.1	13.8	12.4	14.4	11.1	7.2	4.6
60°	7.2	7.2	7.9	7.9	7.9	7.2	7.2	7.9	6.6	4.6	3.3
62.5°	3.3	3.3	3.9	3.9	3.9	3.9	3.9	4.6	3.3	2.6	2.0
65°	2.0	1.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0	2.0
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0
77.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	1.3	2.0
80°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	1.3	1.3
82.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	1.3	1.3
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	1.3
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	1.3
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4
2.5°	146.1	144.1	140.2	138.2	135.6	133.6	132.3	129.7	127.1	125.1	123.8
5°	171.6	164.4	155.9	149.4	144.1	140.8	135.6	131.0	125.8	121.8	118.6
7.5°	209.0	191.3	172.3	159.2	152.0	145.4	136.3	128.4	121.2	115.9	111.4
10°	267.3	229.3	195.9	170.3	157.9	148.7	134.3	123.2	114.0	106.8	102.2
12.5°	364.2	286.3	227.3	184.1	165.1	151.3	131.0	115.9	104.8	97.6	91.7
15°	497.2	370.1	270.5	200.5	173.6	153.9	125.8	107.4	95.0	86.5	81.2
17.5°	622.3	457.9	319.7	220.1	182.1	155.3	118.6	96.3	83.2	75.3	70.1
20°	700.9	514.9	352.4	231.2	184.7	151.3	108.7	84.5	71.4	64.2	59.0
22.5°	719.3	521.4	349.8	220.8	173.6	139.5	95.0	72.7	60.3	53.7	49.1
25°	692.4	484.8	313.1	190.6	148.0	117.3	79.3	59.0	49.8	43.9	40.6
27.5°	624.9	412.7	247.6	143.5	110.7	86.5	60.3	45.9	40.0	35.4	33.4
30°	503.8	290.2	155.3	89.1	70.7	57.0	43.2	35.4	30.8	28.8	26.9
32.5°	305.3	149.4	81.9	53.1	44.5	38.6	31.4	26.2	23.6	22.3	21.6
35°	145.4	78.6	50.4	36.0	31.4	27.5	22.9	19.7	18.3	17.7	17.7
37.5°	82.5	51.1	34.1	24.2	21.6	19.0	17.0	15.1	14.4	14.4	14.4
40°	52.4	32.8	22.3	17.7	15.7	14.4	13.1	11.8	11.8	11.8	11.8
42.5°	34.1	23.6	17.0	13.1	11.8	11.1	9.8	9.2	9.2	9.2	9.8
45°	26.9	19.7	13.8	10.5	9.2	8.5	7.9	7.2	7.2	7.2	7.9
47.5°	22.9	13.8	9.2	7.2	5.9	5.9	5.2	5.2	5.2	5.9	6.6
50°	13.8	8.5	5.9	4.6	3.9	3.9	3.9	3.9	3.9	4.6	5.2
52.5°	7.9	5.2	3.9	3.3	2.6	2.6	2.6	2.6	3.3	3.9	3.9
55°	5.2	3.9	2.6	2.6	2.0	2.0	2.0	2.6	2.6	3.3	3.9
57.5°	3.3	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.6	3.3	3.3
60°	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	3.3
62.5°	2.0	2.0	2.6	2.0	2.0	2.0	2.0	2.0	2.6	2.6	3.3
65°	2.0	2.0	2.6	2.6	2.0	2.0	2.0	2.0	2.0	2.6	3.3
67.5°	2.0	2.0	2.6	2.6	2.6	2.6	2.0	2.0	2.0	2.6	2.6
70°	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.6	2.6
72.5°	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.6	2.6
75°	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.0	2.6
77.5°	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.0	2.6
80°	2.0	2.0	2.0	2.6	2.0	2.6	2.0	2.0	2.0	2.0	2.0
82.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
85°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
87.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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°	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4
2.5°	121.8	120.5	118.6	117.9	118.6	117.9	114.6	114.0	112.7	112.7	112.7
5°	115.3	113.3	110.7	109.4	109.4	108.1	104.8	104.2	102.2	102.2	101.5
7.5°	107.4	104.8	101.5	100.2	100.2	98.9	95.6	94.3	93.0	93.0	92.4
10°	98.3	95.0	91.7	91.1	90.4	88.4	86.5	85.8	83.9	84.5	83.9
12.5°	87.8	85.2	82.5	81.2	81.2	79.3	78.0	77.3	76.6	76.6	76.6
15°	78.0	74.7	72.1	71.4	71.4	70.7	69.4	69.4	68.1	69.4	69.4
17.5°	66.8	64.2	63.5	62.2	62.9	62.2	60.9	61.6	61.6	62.2	62.9
20°	56.3	54.4	53.7	53.1	53.7	53.7	53.1	53.7	54.4	56.3	57.6
22.5°	47.2	45.9	45.9	45.2	45.9	46.5	45.9	47.2	48.5	49.8	51.8
25°	39.3	38.6	38.6	38.6	39.3	40.0	40.6	41.9	42.6	44.5	45.9
27.5°	32.1	32.1	32.1	32.8	33.4	34.1	34.7	36.7	37.3	39.3	40.6
30°	26.9	26.2	26.9	27.5	28.2	29.5	30.1	31.4	32.1	34.1	35.4
32.5°	21.6	22.3	22.9	23.6	24.2	24.9	25.5	26.9	28.2	29.5	30.8
35°	18.3	18.3	19.0	19.7	20.3	21.6	22.3	22.9	24.2	25.5	26.2
37.5°	15.1	15.7	16.4	17.0	17.7	18.3	19.0	19.7	20.3	21.6	22.9
40°	12.4	13.1	13.8	14.4	14.4	15.7	15.7	17.0	17.7	19.0	20.3
42.5°	10.5	11.1	11.8	12.4	12.4	13.1	13.8	14.4	15.1	16.4	17.7
45°	8.5	9.2	9.8	10.5	10.5	11.1	11.8	12.4	13.1	14.4	15.1
47.5°	7.2	7.9	8.5	9.2	9.2	9.8	10.5	11.1	11.1	12.4	13.1
50°	5.9	6.6	7.2	7.9	7.9	8.5	9.2	9.8	9.8	10.5	11.1
52.5°	4.6	5.2	6.6	6.6	7.2	7.9	7.9	8.5	8.5	9.2	9.8
55°	4.6	5.2	5.9	5.9	6.6	7.2	7.2	7.9	7.9	7.9	8.5
57.5°	3.9	4.6	5.2	5.9	5.9	6.6	6.6	6.6	6.6	7.2	7.2
60°	3.9	4.6	4.6	5.2	5.2	5.9	5.9	5.9	5.9	6.6	6.6
62.5°	3.9	3.9	4.6	4.6	5.2	5.2	5.2	5.9	5.9	5.9	5.9
65°	3.3	3.9	4.6	4.6	4.6	5.2	5.2	5.2	5.2	5.2	5.2
67.5°	3.3	3.9	3.9	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
70°	3.3	3.3	3.9	3.9	3.9	4.6	4.6	4.6	3.9	4.6	3.9
72.5°	2.6	3.3	3.3	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
75°	2.6	3.3	3.3	3.3	3.3	3.9	3.9	3.3	3.3	3.3	3.3
77.5°	2.6	2.6	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.6
80°	2.6	2.6	2.6	2.6	3.3	3.3	2.6	2.6	2.6	2.6	2.6
82.5°	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.0
85°	2.0	2.0	2.6	2.6	2.6	2.6	2.0	2.0	2.0	2.0	1.3
87.5°	2.0	2.0	2.0	2.6	2.0	2.0	2.0	2.0	1.3	1.3	1.3
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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CATALOG NUMBER: LDSQA4A13935D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	128.4	128.4	128.4	128.4	128.4	128.4	128.4	128.4
2.5°	110.7	110.1	110.7	110.1	110.1	110.7	108.7	110.1
5°	100.2	98.9	99.6	98.9	98.3	98.9	97.6	98.9
7.5°	91.1	90.4	90.4	90.4	89.7	90.4	89.1	90.4
10°	83.2	82.5	82.5	82.5	82.5	83.2	81.9	83.2
12.5°	75.3	75.3	76.0	75.3	76.0	76.6	75.3	76.6
15°	68.8	69.4	70.1	70.1	70.7	71.4	70.7	72.1
17.5°	63.5	64.2	65.5	65.5	66.2	67.5	66.8	68.1
20°	58.3	59.0	60.3	60.3	60.9	62.2	61.6	62.9
22.5°	52.4	53.7	54.4	55.0	55.7	57.0	56.3	57.6
25°	46.5	48.5	49.1	49.8	50.4	51.8	51.8	53.1
27.5°	41.9	43.2	43.9	44.5	45.9	47.2	47.2	47.8
30°	36.7	38.0	39.3	40.0	40.6	41.9	41.9	43.2
32.5°	32.1	33.4	34.1	34.7	36.0	37.3	38.0	38.6
35°	27.5	29.5	30.1	31.4	32.1	34.1	34.1	34.7
37.5°	24.2	25.5	26.9	27.5	28.8	30.1	30.1	31.4
40°	21.6	22.9	23.6	24.2	25.5	26.9	26.9	27.5
42.5°	18.3	20.3	21.0	21.6	22.3	23.6	24.2	24.9
45°	16.4	17.0	17.7	18.3	19.0	20.3	20.3	21.0
47.5°	13.8	14.4	15.1	15.7	16.4	17.0	17.7	18.3
50°	11.8	12.4	13.1	13.1	13.8	15.1	15.1	15.7
52.5°	9.8	10.5	11.1	11.1	11.8	13.1	13.1	13.8
55°	8.5	9.2	9.8	9.8	10.5	11.1	11.1	11.8
57.5°	7.9	7.9	8.5	8.5	9.2	9.2	9.8	9.8
60°	6.6	7.2	7.2	7.2	7.9	7.9	7.9	7.9
62.5°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	6.6
65°	5.2	5.2	5.2	5.2	5.2	5.2	4.6	5.2
67.5°	4.6	4.6	4.6	4.6	3.9	3.9	3.9	3.9
70°	3.9	3.9	3.9	3.9	3.9	3.3	3.3	3.3
72.5°	3.3	3.3	3.3	3.3	3.3	2.6	2.6	2.6
75°	3.3	3.3	2.6	2.6	2.6	2.6	2.6	2.0
77.5°	2.6	2.6	2.6	2.6	2.0	2.0	2.0	2.0
80°	2.0	2.0	2.0	2.0	2.0	2.0	1.3	1.3
82.5°	2.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3
85°	1.3	1.3	1.3	1.3	0.7	0.7	0.7	0.7
87.5°	0.7	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)