

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: P182666

Luminaire Tested: **LDSQA4A28927D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182666
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: LDSQA4A28927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1921.5 lumens
Efficiency: N/A
Efficacy: 43.2 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

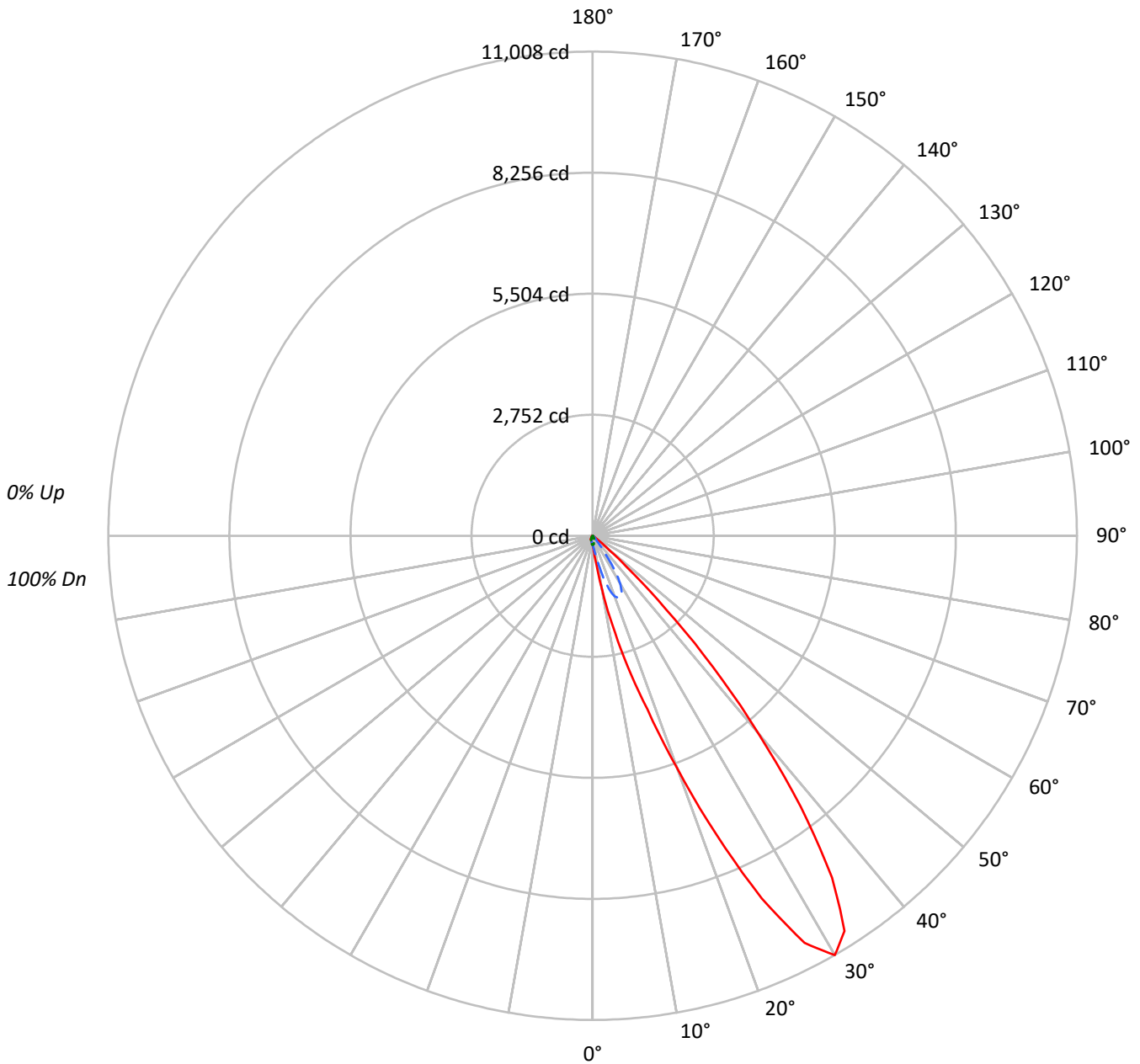
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	20092	20092	20092
5°	38490	19138	15540
10°	125854	16969	13221
15°	308200	14011	11674
20°	580700	10691	10474
25°	972081	7579	9160
30°	1231434	5213	7808
35°	1122068	3382	6635
40°	738967	2403	5615
45°	320106	1589	4644
50°	56773	1115	3828
55°	9120	895	3209
60°	2248	814	2461
65°	734	963	1948
70°	595	1190	1501
75°	786	1198	1198
80°	0	1785	1172
85°	0	3557	1223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	26.6	1.4
10°-20°	213.7	11.1
20°-30°	643.8	33.5
30°-40°	732.8	38.1
40°-50°	270.9	14.1
50°-60°	21.5	1.1
60°-70°	5.8	0.3
70°-80°	4.0	0.2
80°-90°	2.3	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°	884.1	46.0
0°-40°	1616.9	84.1
0°-60°	1909.3	99.4
0°-90°	1921.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1921.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	207	207	207	207	207	
5°	396	291	197	165	160	64
15°	3073	1038	140	110	116	964
25°	9094	1518	71	69	86	4151
35°	9488	531	29	39	56	5641
45°	2336	62	12	21	34	1978
55°	54	12	5	13	19	88
65°	3	3	4	8	8	4
75°	2	3	3	5	3	1
85°	0	2	3	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°	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4
2.5°	266.7	268.8	266.7	262.4	262.4	257.1	255.0	252.9	247.6	244.4	240.2
5°	395.8	389.4	384.1	371.4	367.2	355.6	347.1	335.5	319.6	305.8	291.0
7.5°	677.3	667.7	647.6	609.5	586.2	557.7	535.5	498.4	450.8	411.6	372.5
10°	1279.4	1238.1	1190.5	1104.8	1042.3	975.7	922.8	823.3	703.7	605.3	510.1
12.5°	2061.4	2064.6	1975.7	1830.7	1715.4	1597.9	1506.9	1322.8	1111.1	925.9	742.9
15°	3073.0	3014.8	2922.8	2700.5	2469.9	2299.5	2154.5	1875.1	1575.7	1304.8	1038.1
17.5°	4138.7	4163.0	3948.2	3585.2	3220.1	2965.1	2746.1	2322.8	1967.2	1631.8	1305.8
20°	5632.8	5465.6	5158.8	4570.4	4003.2	3633.9	3309.0	2759.8	2263.5	1837.1	1470.9
22.5°	7355.6	7085.8	6461.4	5632.8	4774.6	4263.5	3810.6	3055.0	2451.9	1941.8	1527.0
25°	9094.2	8887.9	7893.2	6655.1	5425.4	4763.0	4176.7	3255.0	2541.8	1966.2	1517.5
27.5°	10436.1	10099.5	8966.2	7352.4	5813.8	5031.8	4347.1	3316.4	2522.8	1906.9	1427.5
30°	11008.5	10583.1	9327.1	7511.2	5817.0	4987.3	4262.5	3194.7	2387.3	1756.6	1258.2
32.5°	10655.1	10164.1	8897.4	7072.0	5419.1	4640.2	3935.5	2931.2	2163.0	1520.6	945.0
35°	9487.9	8999.0	7825.5	6205.3	4784.2	4103.7	3491.0	2587.3	1842.3	1127.0	531.2
37.5°	7769.4	7352.4	6513.3	5201.1	4031.8	3479.4	2969.3	2179.9	1372.5	646.6	266.7
40°	5843.4	5550.3	5046.6	4124.9	3263.5	2843.4	2432.8	1669.9	833.9	324.9	151.3
42.5°	4050.8	3860.3	3607.4	3051.9	2517.5	2228.6	1899.5	1115.4	428.6	178.8	94.2
45°	2336.5	2216.9	2147.1	1910.1	1701.6	1560.9	1269.9	601.1	216.9	106.9	62.4
47.5°	1031.8	952.4	918.5	819.1	761.9	723.8	574.6	256.1	116.4	68.8	51.9
50°	376.7	376.7	377.8	332.3	272.0	244.4	191.5	113.2	65.6	54.0	38.1
52.5°	133.3	131.2	136.5	129.1	113.2	101.6	84.7	57.1	40.2	33.9	21.2
55°	54.0	51.9	54.0	50.8	47.6	44.4	39.2	30.7	25.4	21.2	11.6
57.5°	24.3	24.3	25.4	24.3	24.3	22.2	20.1	23.3	18.0	11.6	7.4
60°	11.6	11.6	12.7	12.7	12.7	11.6	11.6	12.7	10.6	7.4	5.3
62.5°	5.3	5.3	6.3	6.3	6.3	6.3	6.3	7.4	5.3	4.2	3.2
65°	3.2	2.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
67.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2	3.2
70°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2
72.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2
77.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1	3.2
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	0.0	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	1.1	2.1	2.1
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	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°	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4
2.5°	236.0	232.8	226.5	223.3	219.0	215.9	213.8	209.5	205.3	202.1	200.0
5°	277.3	265.6	251.9	241.3	232.8	227.5	219.0	211.6	203.2	196.8	191.5
7.5°	337.6	309.0	278.3	257.1	245.5	234.9	220.1	207.4	195.8	187.3	179.9
10°	431.7	370.4	316.4	275.1	255.0	240.2	216.9	198.9	184.1	172.5	165.1
12.5°	588.4	462.4	367.2	297.4	266.7	244.4	211.6	187.3	169.3	157.7	148.1
15°	803.2	597.9	437.0	323.8	280.4	248.7	203.2	173.5	153.4	139.7	131.2
17.5°	1005.3	739.7	516.4	355.6	294.2	250.8	191.5	155.6	134.4	121.7	113.2
20°	1132.3	831.8	569.3	373.5	298.4	244.4	175.7	136.5	115.3	103.7	95.2
22.5°	1161.9	842.3	565.1	356.6	280.4	225.4	153.4	117.5	97.4	86.8	79.4
25°	1118.5	783.1	505.8	307.9	239.2	189.4	128.0	95.2	80.4	70.9	65.6
27.5°	1009.5	666.7	400.0	231.7	178.8	139.7	97.4	74.1	64.6	57.1	54.0
30°	813.8	468.8	250.8	143.9	114.3	92.1	69.8	57.1	49.7	46.6	43.4
32.5°	493.1	241.3	132.3	85.7	72.0	62.4	50.8	42.3	38.1	36.0	34.9
35°	234.9	127.0	81.5	58.2	50.8	44.4	37.0	31.7	29.6	28.6	28.6
37.5°	133.3	82.5	55.0	39.2	34.9	30.7	27.5	24.3	23.3	23.3	23.3
40°	84.7	52.9	36.0	28.6	25.4	23.3	21.2	19.0	19.0	19.0	19.0
42.5°	55.0	38.1	27.5	21.2	19.0	18.0	15.9	14.8	14.8	14.8	15.9
45°	43.4	31.7	22.2	16.9	14.8	13.8	12.7	11.6	11.6	11.6	12.7
47.5°	37.0	22.2	14.8	11.6	9.5	9.5	8.5	8.5	8.5	9.5	10.6
50°	22.2	13.8	9.5	7.4	6.3	6.3	6.3	6.3	6.3	7.4	8.5
52.5°	12.7	8.5	6.3	5.3	4.2	4.2	4.2	4.2	5.3	6.3	6.3
55°	8.5	6.3	4.2	4.2	3.2	3.2	3.2	4.2	4.2	5.3	6.3
57.5°	5.3	4.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	5.3	5.3
60°	4.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	5.3
62.5°	3.2	3.2	4.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	5.3
65°	3.2	3.2	4.2	4.2	3.2	3.2	3.2	3.2	3.2	4.2	5.3
67.5°	3.2	3.2	4.2	4.2	4.2	4.2	3.2	3.2	3.2	4.2	4.2
70°	3.2	4.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2	4.2	4.2
72.5°	3.2	4.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2	4.2	4.2
75°	3.2	3.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2	3.2	4.2
77.5°	3.2	3.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2	3.2	4.2
80°	3.2	3.2	3.2	4.2	3.2	4.2	3.2	3.2	3.2	3.2	3.2
82.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
85°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
87.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
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°	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4
2.5°	196.8	194.7	191.5	190.5	191.5	190.5	185.2	184.1	182.0	182.0	182.0
5°	186.2	183.1	178.8	176.7	176.7	174.6	169.3	168.3	165.1	165.1	164.0
7.5°	173.5	169.3	164.0	161.9	161.9	159.8	154.5	152.4	150.3	150.3	149.2
10°	158.7	153.4	148.1	147.1	146.0	142.9	139.7	138.6	135.5	136.5	135.5
12.5°	141.8	137.6	133.3	131.2	131.2	128.0	125.9	124.9	123.8	123.8	123.8
15°	125.9	120.6	116.4	115.3	115.3	114.3	112.2	112.2	110.1	112.2	112.2
17.5°	107.9	103.7	102.6	100.5	101.6	100.5	98.4	99.5	99.5	100.5	101.6
20°	91.0	87.8	86.8	85.7	86.8	86.8	85.7	86.8	87.8	91.0	93.1
22.5°	76.2	74.1	74.1	73.0	74.1	75.1	74.1	76.2	78.3	80.4	83.6
25°	63.5	62.4	62.4	62.4	63.5	64.6	65.6	67.7	68.8	72.0	74.1
27.5°	51.9	51.9	51.9	52.9	54.0	55.0	56.1	59.3	60.3	63.5	65.6
30°	43.4	42.3	43.4	44.4	45.5	47.6	48.7	50.8	51.9	55.0	57.1
32.5°	34.9	36.0	37.0	38.1	39.2	40.2	41.3	43.4	45.5	47.6	49.7
35°	29.6	29.6	30.7	31.7	32.8	34.9	36.0	37.0	39.2	41.3	42.3
37.5°	24.3	25.4	26.5	27.5	28.6	29.6	30.7	31.7	32.8	34.9	37.0
40°	20.1	21.2	22.2	23.3	23.3	25.4	25.4	27.5	28.6	30.7	32.8
42.5°	16.9	18.0	19.0	20.1	20.1	21.2	22.2	23.3	24.3	26.5	28.6
45°	13.8	14.8	15.9	16.9	16.9	18.0	19.0	20.1	21.2	23.3	24.3
47.5°	11.6	12.7	13.8	14.8	14.8	15.9	16.9	18.0	18.0	20.1	21.2
50°	9.5	10.6	11.6	12.7	12.7	13.8	14.8	15.9	15.9	16.9	18.0
52.5°	7.4	8.5	10.6	10.6	11.6	12.7	12.7	13.8	13.8	14.8	15.9
55°	7.4	8.5	9.5	9.5	10.6	11.6	11.6	12.7	12.7	12.7	13.8
57.5°	6.3	7.4	8.5	9.5	9.5	10.6	10.6	10.6	10.6	11.6	11.6
60°	6.3	7.4	7.4	8.5	8.5	9.5	9.5	9.5	9.5	10.6	10.6
62.5°	6.3	6.3	7.4	7.4	8.5	8.5	8.5	9.5	9.5	9.5	9.5
65°	5.3	6.3	7.4	7.4	7.4	8.5	8.5	8.5	8.5	8.5	8.5
67.5°	5.3	6.3	6.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
70°	5.3	5.3	6.3	6.3	6.3	7.4	7.4	7.4	6.3	7.4	6.3
72.5°	4.2	5.3	5.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
75°	4.2	5.3	5.3	5.3	5.3	6.3	6.3	5.3	5.3	5.3	5.3
77.5°	4.2	4.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.2
80°	4.2	4.2	4.2	4.2	5.3	5.3	4.2	4.2	4.2	4.2	4.2
82.5°	3.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2	3.2
85°	3.2	3.2	4.2	4.2	4.2	4.2	3.2	3.2	3.2	3.2	2.1
87.5°	3.2	3.2	3.2	4.2	3.2	3.2	3.2	3.2	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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CATALOG NUMBER: LDSQA4A28927D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	207.4	207.4	207.4	207.4	207.4	207.4	207.4	207.4
2.5°	178.8	177.8	178.8	177.8	177.8	178.8	175.7	177.8
5°	161.9	159.8	160.8	159.8	158.7	159.8	157.7	159.8
7.5°	147.1	146.0	146.0	146.0	145.0	146.0	143.9	146.0
10°	134.4	133.3	133.3	133.3	133.3	134.4	132.3	134.4
12.5°	121.7	121.7	122.8	121.7	122.8	123.8	121.7	123.8
15°	111.1	112.2	113.2	113.2	114.3	115.3	114.3	116.4
17.5°	102.6	103.7	105.8	105.8	106.9	109.0	107.9	110.1
20°	94.2	95.2	97.4	97.4	98.4	100.5	99.5	101.6
22.5°	84.7	86.8	87.8	88.9	89.9	92.1	91.0	93.1
25°	75.1	78.3	79.4	80.4	81.5	83.6	83.6	85.7
27.5°	67.7	69.8	70.9	72.0	74.1	76.2	76.2	77.2
30°	59.3	61.4	63.5	64.6	65.6	67.7	67.7	69.8
32.5°	51.9	54.0	55.0	56.1	58.2	60.3	61.4	62.4
35°	44.4	47.6	48.7	50.8	51.9	55.0	55.0	56.1
37.5°	39.2	41.3	43.4	44.4	46.6	48.7	48.7	50.8
40°	34.9	37.0	38.1	39.2	41.3	43.4	43.4	44.4
42.5°	29.6	32.8	33.9	34.9	36.0	38.1	39.2	40.2
45°	26.5	27.5	28.6	29.6	30.7	32.8	32.8	33.9
47.5°	22.2	23.3	24.3	25.4	26.5	27.5	28.6	29.6
50°	19.0	20.1	21.2	21.2	22.2	24.3	24.3	25.4
52.5°	15.9	16.9	18.0	18.0	19.0	21.2	21.2	22.2
55°	13.8	14.8	15.9	15.9	16.9	18.0	18.0	19.0
57.5°	12.7	12.7	13.8	13.8	14.8	14.8	15.9	15.9
60°	10.6	11.6	11.6	11.6	12.7	12.7	12.7	12.7
62.5°	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.6
65°	8.5	8.5	8.5	8.5	8.5	8.5	7.4	8.5
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	6.3	5.3	5.3	5.3
72.5°	5.3	5.3	5.3	5.3	5.3	4.2	4.2	4.2
75°	5.3	5.3	4.2	4.2	4.2	4.2	4.2	3.2
77.5°	4.2	4.2	4.2	4.2	3.2	3.2	3.2	3.2
80°	3.2	3.2	3.2	3.2	3.2	3.2	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°	1.1	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)