

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: P182643

Luminaire Tested: **LDSQA4A18930D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182643
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: LDSQA4A18930D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1467.8 lumens
Efficiency: N/A
Efficacy: 50.4 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

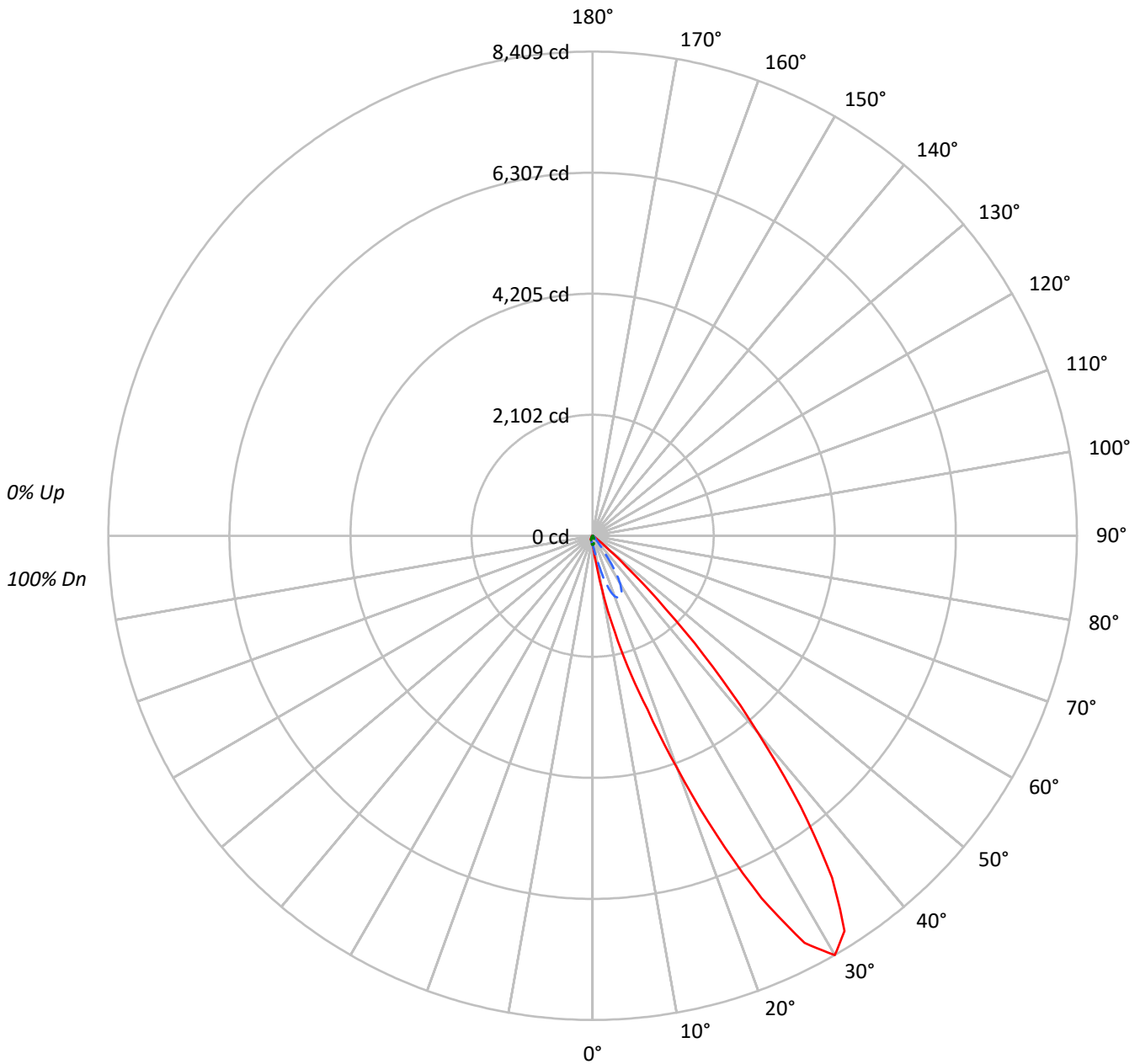
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	15345	15345	15345
5°	29397	14626	11874
10°	96137	12965	10103
15°	235437	10701	8916
20°	443597	8165	8000
25°	742577	5793	7001
30°	940693	3982	5973
35°	857147	2578	5062
40°	564501	1846	4300
45°	244536	1219	3548
50°	43375	859	2924
55°	6959	676	2466
60°	1724	620	1879
65°	550	734	1490
70°	453	906	1133
75°	599	898	898
80°	0	1339	893
85°	0	2668	889



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	20.3	1.4
10°-20°	163.3	11.1
20°-30°	491.8	33.5
30°-40°	559.8	38.1
40°-50°	207.0	14.1
50°-60°	16.4	1.1
60°-70°	4.4	0.3
70°-80°	3.1	0.2
80°-90°	1.8	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	46.0
0°-40°	1235.1	84.2
0°-60°	1458.5	99.4
0°-90°	1467.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1467.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	158	158	158	158	158	
5°	302	222	150	126	122	49
15°	2348	793	107	84	89	736
25°	6947	1159	54	52	66	3171
35°	7248	406	22	30	43	4309
45°	1785	48	9	16	26	1511
55°	41	9	4	10	15	68
65°	2	2	3	6	6	3
75°	2	2	2	4	2	1
85°	0	2	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°	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4
2.5°	203.7	205.3	203.7	200.5	200.5	196.4	194.8	193.2	189.2	186.7	183.5
5°	302.3	297.5	293.4	283.7	280.5	271.6	265.1	256.3	244.1	233.6	222.3
7.5°	517.4	510.1	494.7	465.6	447.8	426.0	409.0	380.7	344.4	314.5	284.5
10°	977.3	945.8	909.4	843.9	796.2	745.3	704.9	628.9	537.6	462.4	389.6
12.5°	1574.7	1577.1	1509.2	1398.5	1310.4	1220.6	1151.1	1010.5	848.8	707.3	567.5
15°	2347.5	2303.0	2232.7	2063.0	1886.7	1756.6	1645.8	1432.4	1203.7	996.7	793.0
17.5°	3161.5	3180.1	3016.0	2738.7	2459.9	2265.0	2097.7	1774.4	1502.8	1246.5	997.5
20°	4302.9	4175.2	3940.8	3491.3	3058.1	2775.9	2527.8	2108.2	1729.1	1403.3	1123.6
22.5°	5619.0	5412.8	4935.9	4302.9	3647.4	3256.9	2910.9	2333.8	1873.0	1483.4	1166.5
25°	6947.1	6789.5	6029.6	5083.8	4144.5	3638.5	3190.6	2486.5	1941.7	1501.9	1159.2
27.5°	7972.1	7715.1	6849.3	5616.5	4441.2	3843.8	3320.8	2533.4	1927.1	1456.7	1090.5
30°	8409.4	8084.5	7124.9	5737.8	4443.6	3809.8	3256.1	2440.5	1823.7	1341.9	961.1
32.5°	8139.4	7764.4	6796.7	5402.3	4139.6	3544.7	3006.3	2239.2	1652.3	1161.6	721.9
35°	7247.8	6874.4	5977.9	4740.3	3654.6	3134.8	2666.8	1976.5	1407.4	860.9	405.8
37.5°	5935.0	5616.5	4975.5	3973.1	3079.9	2657.9	2268.3	1665.2	1048.5	493.9	203.7
40°	4463.8	4239.9	3855.1	3151.0	2493.0	2172.1	1858.4	1275.6	637.0	248.2	115.6
42.5°	3094.4	2948.9	2755.7	2331.3	1923.1	1702.4	1451.0	852.0	327.4	136.6	71.9
45°	1784.9	1693.5	1640.2	1459.1	1299.9	1192.3	970.0	459.2	165.7	81.6	47.7
47.5°	788.2	727.5	701.7	625.7	582.0	552.9	438.9	195.6	88.9	52.5	39.6
50°	287.8	287.8	288.6	253.8	207.8	186.7	146.3	86.5	50.1	41.2	29.1
52.5°	101.9	100.2	104.3	98.6	86.5	77.6	64.7	43.7	30.7	25.9	16.2
55°	41.2	39.6	41.2	38.8	36.4	34.0	29.9	23.4	19.4	16.2	8.9
57.5°	18.6	18.6	19.4	18.6	18.6	17.0	15.4	17.8	13.7	8.9	5.7
60°	8.9	8.9	9.7	9.7	9.7	8.9	8.9	9.7	8.1	5.7	4.0
62.5°	4.0	4.0	4.9	4.9	4.9	4.9	4.9	5.7	4.0	3.2	2.4
65°	2.4	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	2.4
80°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6
82.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6
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°	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4
2.5°	180.3	177.8	173.0	170.6	167.3	164.9	163.3	160.1	156.8	154.4	152.8
5°	211.8	202.9	192.4	184.3	177.8	173.8	167.3	161.7	155.2	150.4	146.3
7.5°	257.9	236.0	212.6	196.4	187.5	179.5	168.1	158.4	149.5	143.1	137.4
10°	329.8	282.9	241.7	210.2	194.8	183.5	165.7	152.0	140.7	131.8	126.1
12.5°	449.5	353.3	280.5	227.2	203.7	186.7	161.7	143.1	129.3	120.4	113.2
15°	613.6	456.7	333.9	247.4	214.2	190.0	155.2	132.6	117.2	106.7	100.2
17.5°	767.9	565.0	394.5	271.6	224.7	191.6	146.3	118.8	102.7	93.0	86.5
20°	865.0	635.4	434.9	285.4	228.0	186.7	134.2	104.3	88.1	79.2	72.8
22.5°	887.6	643.5	431.7	272.4	214.2	172.2	117.2	89.7	74.4	66.3	60.6
25°	854.4	598.2	386.4	235.2	182.7	144.7	97.8	72.8	61.4	54.2	50.1
27.5°	771.2	509.3	305.6	177.0	136.6	106.7	74.4	56.6	49.3	43.7	41.2
30°	621.6	358.1	191.6	109.9	87.3	70.3	53.4	43.7	38.0	35.6	33.1
32.5°	376.7	184.3	101.0	65.5	55.0	47.7	38.8	32.3	29.1	27.5	26.7
35°	179.5	97.0	62.2	44.5	38.8	34.0	28.3	24.3	22.6	21.8	21.8
37.5°	101.9	63.1	42.0	29.9	26.7	23.4	21.0	18.6	17.8	17.8	17.8
40°	64.7	40.4	27.5	21.8	19.4	17.8	16.2	14.6	14.6	14.6	14.6
42.5°	42.0	29.1	21.0	16.2	14.6	13.7	12.1	11.3	11.3	11.3	12.1
45°	33.1	24.3	17.0	12.9	11.3	10.5	9.7	8.9	8.9	8.9	9.7
47.5°	28.3	17.0	11.3	8.9	7.3	7.3	6.5	6.5	6.5	7.3	8.1
50°	17.0	10.5	7.3	5.7	4.9	4.9	4.9	4.9	4.9	5.7	6.5
52.5°	9.7	6.5	4.9	4.0	3.2	3.2	3.2	3.2	4.0	4.9	4.9
55°	6.5	4.9	3.2	3.2	2.4	2.4	2.4	3.2	3.2	4.0	4.9
57.5°	4.0	3.2	2.4	2.4	2.4	2.4	2.4	2.4	3.2	4.0	4.0
60°	3.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0
62.5°	2.4	2.4	3.2	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0
65°	2.4	2.4	3.2	3.2	2.4	2.4	2.4	2.4	2.4	3.2	4.0
67.5°	2.4	2.4	3.2	3.2	3.2	3.2	2.4	2.4	2.4	3.2	3.2
70°	2.4	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4	3.2	3.2
72.5°	2.4	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4	3.2	3.2
75°	2.4	2.4	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4	3.2
77.5°	2.4	2.4	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4	3.2
80°	2.4	2.4	2.4	3.2	2.4	3.2	2.4	2.4	2.4	2.4	2.4
82.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
85°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4
2.5°	150.4	148.7	146.3	145.5	146.3	145.5	141.5	140.7	139.0	139.0	139.0
5°	142.3	139.8	136.6	135.0	135.0	133.4	129.3	128.5	126.1	126.1	125.3
7.5°	132.6	129.3	125.3	123.7	123.7	122.1	118.0	116.4	114.8	114.8	114.0
10°	121.3	117.2	113.2	112.4	111.6	109.1	106.7	105.9	103.5	104.3	103.5
12.5°	108.3	105.1	101.9	100.2	100.2	97.8	96.2	95.4	94.6	94.6	94.6
15°	96.2	92.2	88.9	88.1	88.1	87.3	85.7	85.7	84.1	85.7	85.7
17.5°	82.5	79.2	78.4	76.8	77.6	76.8	75.2	76.0	76.0	76.8	77.6
20°	69.5	67.1	66.3	65.5	66.3	66.3	65.5	66.3	67.1	69.5	71.1
22.5°	58.2	56.6	56.6	55.8	56.6	57.4	56.6	58.2	59.8	61.4	63.9
25°	48.5	47.7	47.7	47.7	48.5	49.3	50.1	51.7	52.5	55.0	56.6
27.5°	39.6	39.6	39.6	40.4	41.2	42.0	42.8	45.3	46.1	48.5	50.1
30°	33.1	32.3	33.1	34.0	34.8	36.4	37.2	38.8	39.6	42.0	43.7
32.5°	26.7	27.5	28.3	29.1	29.9	30.7	31.5	33.1	34.8	36.4	38.0
35°	22.6	22.6	23.4	24.3	25.1	26.7	27.5	28.3	29.9	31.5	32.3
37.5°	18.6	19.4	20.2	21.0	21.8	22.6	23.4	24.3	25.1	26.7	28.3
40°	15.4	16.2	17.0	17.8	17.8	19.4	19.4	21.0	21.8	23.4	25.1
42.5°	12.9	13.7	14.6	15.4	15.4	16.2	17.0	17.8	18.6	20.2	21.8
45°	10.5	11.3	12.1	12.9	12.9	13.7	14.6	15.4	16.2	17.8	18.6
47.5°	8.9	9.7	10.5	11.3	11.3	12.1	12.9	13.7	13.7	15.4	16.2
50°	7.3	8.1	8.9	9.7	9.7	10.5	11.3	12.1	12.1	12.9	13.7
52.5°	5.7	6.5	8.1	8.1	8.9	9.7	9.7	10.5	10.5	11.3	12.1
55°	5.7	6.5	7.3	7.3	8.1	8.9	8.9	9.7	9.7	9.7	10.5
57.5°	4.9	5.7	6.5	7.3	7.3	8.1	8.1	8.1	8.1	8.9	8.9
60°	4.9	5.7	5.7	6.5	6.5	7.3	7.3	7.3	7.3	8.1	8.1
62.5°	4.9	4.9	5.7	5.7	6.5	6.5	6.5	7.3	7.3	7.3	7.3
65°	4.0	4.9	5.7	5.7	5.7	6.5	6.5	6.5	6.5	6.5	6.5
67.5°	4.0	4.9	4.9	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
70°	4.0	4.0	4.9	4.9	4.9	5.7	5.7	5.7	4.9	5.7	4.9
72.5°	3.2	4.0	4.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
75°	3.2	4.0	4.0	4.0	4.0	4.9	4.9	4.0	4.0	4.0	4.0
77.5°	3.2	3.2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.2
80°	3.2	3.2	3.2	3.2	4.0	4.0	3.2	3.2	3.2	3.2	3.2
82.5°	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4
85°	2.4	2.4	3.2	3.2	3.2	3.2	2.4	2.4	2.4	2.4	1.6
87.5°	2.4	2.4	2.4	3.2	2.4	2.4	2.4	2.4	1.6	1.6	1.6
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: LDSQA4A18930D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	158.4	158.4	158.4	158.4	158.4	158.4	158.4	158.4
2.5°	136.6	135.8	136.6	135.8	135.8	136.6	134.2	135.8
5°	123.7	122.1	122.9	122.1	121.3	122.1	120.4	122.1
7.5°	112.4	111.6	111.6	111.6	110.7	111.6	109.9	111.6
10°	102.7	101.9	101.9	101.9	101.9	102.7	101.0	102.7
12.5°	93.0	93.0	93.8	93.0	93.8	94.6	93.0	94.6
15°	84.9	85.7	86.5	86.5	87.3	88.1	87.3	88.9
17.5°	78.4	79.2	80.8	80.8	81.6	83.3	82.5	84.1
20°	71.9	72.8	74.4	74.4	75.2	76.8	76.0	77.6
22.5°	64.7	66.3	67.1	67.9	68.7	70.3	69.5	71.1
25°	57.4	59.8	60.6	61.4	62.2	63.9	63.9	65.5
27.5°	51.7	53.4	54.2	55.0	56.6	58.2	58.2	59.0
30°	45.3	46.9	48.5	49.3	50.1	51.7	51.7	53.4
32.5°	39.6	41.2	42.0	42.8	44.5	46.1	46.9	47.7
35°	34.0	36.4	37.2	38.8	39.6	42.0	42.0	42.8
37.5°	29.9	31.5	33.1	34.0	35.6	37.2	37.2	38.8
40°	26.7	28.3	29.1	29.9	31.5	33.1	33.1	34.0
42.5°	22.6	25.1	25.9	26.7	27.5	29.1	29.9	30.7
45°	20.2	21.0	21.8	22.6	23.4	25.1	25.1	25.9
47.5°	17.0	17.8	18.6	19.4	20.2	21.0	21.8	22.6
50°	14.6	15.4	16.2	16.2	17.0	18.6	18.6	19.4
52.5°	12.1	12.9	13.7	13.7	14.6	16.2	16.2	17.0
55°	10.5	11.3	12.1	12.1	12.9	13.7	13.7	14.6
57.5°	9.7	9.7	10.5	10.5	11.3	11.3	12.1	12.1
60°	8.1	8.9	8.9	8.9	9.7	9.7	9.7	9.7
62.5°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	8.1
65°	6.5	6.5	6.5	6.5	6.5	6.5	5.7	6.5
67.5°	5.7	5.7	5.7	5.7	4.9	4.9	4.9	4.9
70°	4.9	4.9	4.9	4.9	4.9	4.0	4.0	4.0
72.5°	4.0	4.0	4.0	4.0	4.0	3.2	3.2	3.2
75°	4.0	4.0	3.2	3.2	3.2	3.2	3.2	2.4
77.5°	3.2	3.2	3.2	3.2	2.4	2.4	2.4	2.4
80°	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
82.5°	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6
85°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
87.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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)