

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: P182654

Luminaire Tested: **LDSQA4A13827D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182654
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: LDSQA4A13827D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1403.0 lumens
Efficiency: N/A
Efficacy: 63.0 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

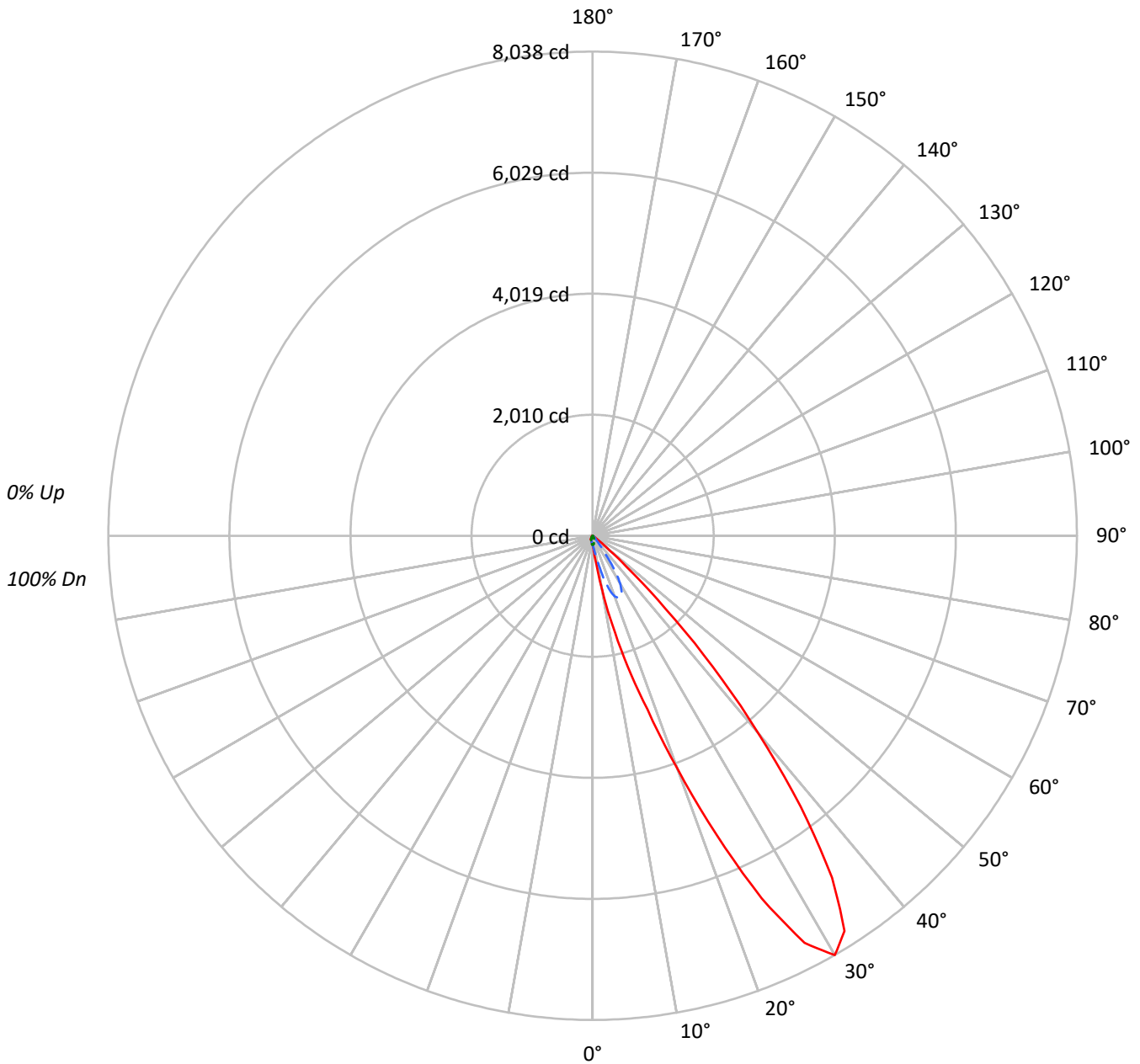
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	14667	14667	14667
5°	28104	13974	11349
10°	91897	12385	9650
15°	225037	10230	8525
20°	424010	7804	7649
25°	709794	5537	6691
30°	899159	3803	5705
35°	819303	2472	4849
40°	539575	1758	4110
45°	233740	1165	3384
50°	41461	814	2788
55°	6655	659	2348
60°	1647	601	1802
65°	527	711	1421
70°	425	878	1105
75°	561	861	861
80°	0	1283	837
85°	0	2556	889



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	19.4	1.4
10°-20°	156.1	11.1
20°-30°	470.1	33.5
30°-40°	535.0	38.1
40°-50°	197.8	14.1
50°-60°	15.7	1.1
60°-70°	4.2	0.3
70°-80°	2.9	0.2
80°-90°	1.7	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°	645.6	46.0
0°-40°	1180.6	84.1
0°-60°	1394.1	99.4
0°-90°	1403.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1403.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	151	151	151	151	151	
5°	289	212	144	120	117	47
15°	2244	758	102	80	85	704
25°	6640	1108	52	50	63	3031
35°	6928	388	21	29	41	4119
45°	1706	46	8	16	25	1444
55°	39	8	4	9	14	65
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°	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4
2.5°	194.7	196.3	194.7	191.6	191.6	187.8	186.2	184.7	180.8	178.5	175.4
5°	289.0	284.3	280.5	271.2	268.1	259.6	253.4	244.9	233.3	223.3	212.5
7.5°	494.5	487.6	472.9	445.1	428.1	407.2	391.0	363.9	329.2	300.6	272.0
10°	934.2	904.0	869.3	806.7	761.1	712.4	673.8	601.1	513.8	442.0	372.4
12.5°	1505.2	1507.5	1442.6	1336.7	1252.5	1166.7	1100.3	965.8	811.3	676.1	542.4
15°	2243.8	2201.3	2134.1	1971.9	1803.4	1679.0	1573.2	1369.2	1150.5	952.7	758.0
17.5°	3021.9	3039.7	2882.8	2617.8	2351.2	2165.0	2005.1	1696.0	1436.4	1191.5	953.5
20°	4112.9	3990.9	3766.8	3337.2	2923.0	2653.4	2416.2	2015.1	1652.8	1341.4	1074.0
22.5°	5370.9	5173.8	4717.9	4112.9	3486.3	3113.1	2782.4	2230.7	1790.3	1417.9	1115.0
25°	6640.4	6489.7	5763.4	4859.3	3961.5	3477.8	3049.7	2376.7	1856.0	1435.6	1108.0
27.5°	7620.1	7374.4	6546.9	5368.5	4245.1	3674.1	3174.1	2421.6	1842.1	1392.4	1042.3
30°	8038.1	7727.5	6810.4	5484.4	4247.4	3641.6	3112.3	2332.7	1743.2	1282.6	918.7
32.5°	7780.1	7421.5	6496.6	5163.8	3956.9	3388.2	2873.6	2140.3	1579.3	1110.3	690.0
35°	6927.8	6570.8	5713.9	4531.0	3493.3	2996.4	2549.1	1889.2	1345.2	822.9	387.9
37.5°	5673.0	5368.5	4755.8	3797.7	2943.9	2540.6	2168.1	1591.7	1002.2	472.1	194.7
40°	4266.7	4052.7	3684.9	3011.9	2382.9	2076.2	1776.4	1219.3	608.9	237.2	110.5
42.5°	2957.8	2818.7	2634.0	2228.4	1838.2	1627.3	1387.0	814.4	312.9	130.6	68.8
45°	1706.1	1618.8	1567.8	1394.7	1242.5	1139.7	927.2	438.9	158.4	78.0	45.6
47.5°	753.4	695.4	670.7	598.0	556.3	528.5	419.6	187.0	85.0	50.2	37.9
50°	275.1	275.1	275.8	242.6	198.6	178.5	139.9	82.7	47.9	39.4	27.8
52.5°	97.4	95.8	99.7	94.3	82.7	74.2	61.8	41.7	29.4	24.7	15.5
55°	39.4	37.9	39.4	37.1	34.8	32.5	28.6	22.4	18.5	15.5	8.5
57.5°	17.8	17.8	18.5	17.8	17.8	16.2	14.7	17.0	13.1	8.5	5.4
60°	8.5	8.5	9.3	9.3	9.3	8.5	8.5	9.3	7.7	5.4	3.9
62.5°	3.9	3.9	4.6	4.6	4.6	4.6	4.6	5.4	3.9	3.1	2.3
65°	2.3	1.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
67.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3	2.3
70°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3
72.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3
75°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.5	1.5	2.3
80°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5
82.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.5	1.5
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.5	1.5
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°	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4
2.5°	172.3	170.0	165.4	163.0	159.9	157.6	156.1	153.0	149.9	147.6	146.0
5°	202.4	193.9	183.9	176.2	170.0	166.1	159.9	154.5	148.4	143.7	139.9
7.5°	246.5	225.6	203.2	187.8	179.3	171.5	160.7	151.4	142.9	136.8	131.4
10°	315.3	270.4	231.0	200.9	186.2	175.4	158.4	145.3	134.4	125.9	120.5
12.5°	429.6	337.7	268.1	217.1	194.7	178.5	154.5	136.8	123.6	115.1	108.2
15°	586.5	436.6	319.1	236.4	204.8	181.6	148.4	126.7	112.0	102.0	95.8
17.5°	734.0	540.1	377.1	259.6	214.8	183.1	139.9	113.6	98.1	88.9	82.7
20°	826.8	607.3	415.7	272.8	217.9	178.5	128.3	99.7	84.2	75.7	69.5
22.5°	848.4	615.0	412.6	260.4	204.8	164.6	112.0	85.8	71.1	63.4	58.0
25°	816.7	571.8	369.3	224.8	174.6	138.3	93.5	69.5	58.7	51.8	47.9
27.5°	737.1	486.8	292.1	169.2	130.6	102.0	71.1	54.1	47.1	41.7	39.4
30°	594.2	342.3	183.1	105.1	83.4	67.2	51.0	41.7	36.3	34.0	31.7
32.5°	360.1	176.2	96.6	62.6	52.5	45.6	37.1	30.9	27.8	26.3	25.5
35°	171.5	92.7	59.5	42.5	37.1	32.5	27.0	23.2	21.6	20.9	20.9
37.5°	97.4	60.3	40.2	28.6	25.5	22.4	20.1	17.8	17.0	17.0	17.0
40°	61.8	38.6	26.3	20.9	18.5	17.0	15.5	13.9	13.9	13.9	13.9
42.5°	40.2	27.8	20.1	15.5	13.9	13.1	11.6	10.8	10.8	10.8	11.6
45°	31.7	23.2	16.2	12.4	10.8	10.0	9.3	8.5	8.5	8.5	9.3
47.5°	27.0	16.2	10.8	8.5	7.0	7.0	6.2	6.2	6.2	7.0	7.7
50°	16.2	10.0	7.0	5.4	4.6	4.6	4.6	4.6	4.6	5.4	6.2
52.5°	9.3	6.2	4.6	3.9	3.1	3.1	3.1	3.1	3.9	4.6	4.6
55°	6.2	4.6	3.1	3.1	2.3	2.3	2.3	3.1	3.1	3.9	4.6
57.5°	3.9	3.1	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.9	3.9
60°	3.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.9
62.5°	2.3	2.3	3.1	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.9
65°	2.3	2.3	3.1	3.1	2.3	2.3	2.3	2.3	2.3	3.1	3.9
67.5°	2.3	2.3	3.1	3.1	3.1	3.1	2.3	2.3	2.3	3.1	3.1
70°	2.3	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	3.1	3.1
72.5°	2.3	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	3.1	3.1
75°	2.3	2.3	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3	3.1
77.5°	2.3	2.3	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3	3.1
80°	2.3	2.3	2.3	3.1	2.3	3.1	2.3	2.3	2.3	2.3	2.3
82.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
85°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4
2.5°	143.7	142.2	139.9	139.1	139.9	139.1	135.2	134.4	132.9	132.9	132.9
5°	136.0	133.7	130.6	129.0	129.0	127.5	123.6	122.9	120.5	120.5	119.8
7.5°	126.7	123.6	119.8	118.2	118.2	116.7	112.8	111.3	109.7	109.7	108.9
10°	115.9	112.0	108.2	107.4	106.6	104.3	102.0	101.2	98.9	99.7	98.9
12.5°	103.5	100.4	97.4	95.8	95.8	93.5	91.9	91.2	90.4	90.4	90.4
15°	91.9	88.1	85.0	84.2	84.2	83.4	81.9	81.9	80.4	81.9	81.9
17.5°	78.8	75.7	74.9	73.4	74.2	73.4	71.9	72.6	72.6	73.4	74.2
20°	66.4	64.1	63.4	62.6	63.4	63.4	62.6	63.4	64.1	66.4	68.0
22.5°	55.6	54.1	54.1	53.3	54.1	54.9	54.1	55.6	57.2	58.7	61.0
25°	46.4	45.6	45.6	45.6	46.4	47.1	47.9	49.5	50.2	52.5	54.1
27.5°	37.9	37.9	37.9	38.6	39.4	40.2	41.0	43.3	44.0	46.4	47.9
30°	31.7	30.9	31.7	32.5	33.2	34.8	35.5	37.1	37.9	40.2	41.7
32.5°	25.5	26.3	27.0	27.8	28.6	29.4	30.1	31.7	33.2	34.8	36.3
35°	21.6	21.6	22.4	23.2	24.0	25.5	26.3	27.0	28.6	30.1	30.9
37.5°	17.8	18.5	19.3	20.1	20.9	21.6	22.4	23.2	24.0	25.5	27.0
40°	14.7	15.5	16.2	17.0	17.0	18.5	18.5	20.1	20.9	22.4	24.0
42.5°	12.4	13.1	13.9	14.7	14.7	15.5	16.2	17.0	17.8	19.3	20.9
45°	10.0	10.8	11.6	12.4	12.4	13.1	13.9	14.7	15.5	17.0	17.8
47.5°	8.5	9.3	10.0	10.8	10.8	11.6	12.4	13.1	13.1	14.7	15.5
50°	7.0	7.7	8.5	9.3	9.3	10.0	10.8	11.6	11.6	12.4	13.1
52.5°	5.4	6.2	7.7	7.7	8.5	9.3	9.3	10.0	10.0	10.8	11.6
55°	5.4	6.2	7.0	7.0	7.7	8.5	8.5	9.3	9.3	9.3	10.0
57.5°	4.6	5.4	6.2	7.0	7.0	7.7	7.7	7.7	7.7	8.5	8.5
60°	4.6	5.4	5.4	6.2	6.2	7.0	7.0	7.0	7.0	7.7	7.7
62.5°	4.6	4.6	5.4	5.4	6.2	6.2	6.2	7.0	7.0	7.0	7.0
65°	3.9	4.6	5.4	5.4	5.4	6.2	6.2	6.2	6.2	6.2	6.2
67.5°	3.9	4.6	4.6	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
70°	3.9	3.9	4.6	4.6	4.6	5.4	5.4	5.4	4.6	5.4	4.6
72.5°	3.1	3.9	3.9	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
75°	3.1	3.9	3.9	3.9	3.9	4.6	4.6	3.9	3.9	3.9	3.9
77.5°	3.1	3.1	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.1
80°	3.1	3.1	3.1	3.1	3.9	3.9	3.1	3.1	3.1	3.1	3.1
82.5°	2.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3
85°	2.3	2.3	3.1	3.1	3.1	3.1	2.3	2.3	2.3	2.3	1.5
87.5°	2.3	2.3	2.3	3.1	2.3	2.3	2.3	2.3	1.5	1.5	1.5
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: LDSQA4A13827D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4
2.5°	130.6	129.8	130.6	129.8	129.8	130.6	128.3	129.8
5°	118.2	116.7	117.4	116.7	115.9	116.7	115.1	116.7
7.5°	107.4	106.6	106.6	106.6	105.9	106.6	105.1	106.6
10°	98.1	97.4	97.4	97.4	97.4	98.1	96.6	98.1
12.5°	88.9	88.9	89.6	88.9	89.6	90.4	88.9	90.4
15°	81.1	81.9	82.7	82.7	83.4	84.2	83.4	85.0
17.5°	74.9	75.7	77.3	77.3	78.0	79.6	78.8	80.4
20°	68.8	69.5	71.1	71.1	71.9	73.4	72.6	74.2
22.5°	61.8	63.4	64.1	64.9	65.7	67.2	66.4	68.0
25°	54.9	57.2	58.0	58.7	59.5	61.0	61.0	62.6
27.5°	49.5	51.0	51.8	52.5	54.1	55.6	55.6	56.4
30°	43.3	44.8	46.4	47.1	47.9	49.5	49.5	51.0
32.5°	37.9	39.4	40.2	41.0	42.5	44.0	44.8	45.6
35°	32.5	34.8	35.5	37.1	37.9	40.2	40.2	41.0
37.5°	28.6	30.1	31.7	32.5	34.0	35.5	35.5	37.1
40°	25.5	27.0	27.8	28.6	30.1	31.7	31.7	32.5
42.5°	21.6	24.0	24.7	25.5	26.3	27.8	28.6	29.4
45°	19.3	20.1	20.9	21.6	22.4	24.0	24.0	24.7
47.5°	16.2	17.0	17.8	18.5	19.3	20.1	20.9	21.6
50°	13.9	14.7	15.5	15.5	16.2	17.8	17.8	18.5
52.5°	11.6	12.4	13.1	13.1	13.9	15.5	15.5	16.2
55°	10.0	10.8	11.6	11.6	12.4	13.1	13.1	13.9
57.5°	9.3	9.3	10.0	10.0	10.8	10.8	11.6	11.6
60°	7.7	8.5	8.5	8.5	9.3	9.3	9.3	9.3
62.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.7
65°	6.2	6.2	6.2	6.2	6.2	6.2	5.4	6.2
67.5°	5.4	5.4	5.4	5.4	4.6	4.6	4.6	4.6
70°	4.6	4.6	4.6	4.6	4.6	3.9	3.9	3.9
72.5°	3.9	3.9	3.9	3.9	3.9	3.1	3.1	3.1
75°	3.9	3.9	3.1	3.1	3.1	3.1	3.1	2.3
77.5°	3.1	3.1	3.1	3.1	2.3	2.3	2.3	2.3
80°	2.3	2.3	2.3	2.3	2.3	2.3	1.5	1.5
82.5°	2.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
85°	1.5	1.5	1.5	1.5	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)