

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: P182667

Luminaire Tested: **LDSQA4A28930D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182667
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: LDSQA4A28930D010TE 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: 2010.4 lumens
Efficiency: N/A
Efficacy: 45.2 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

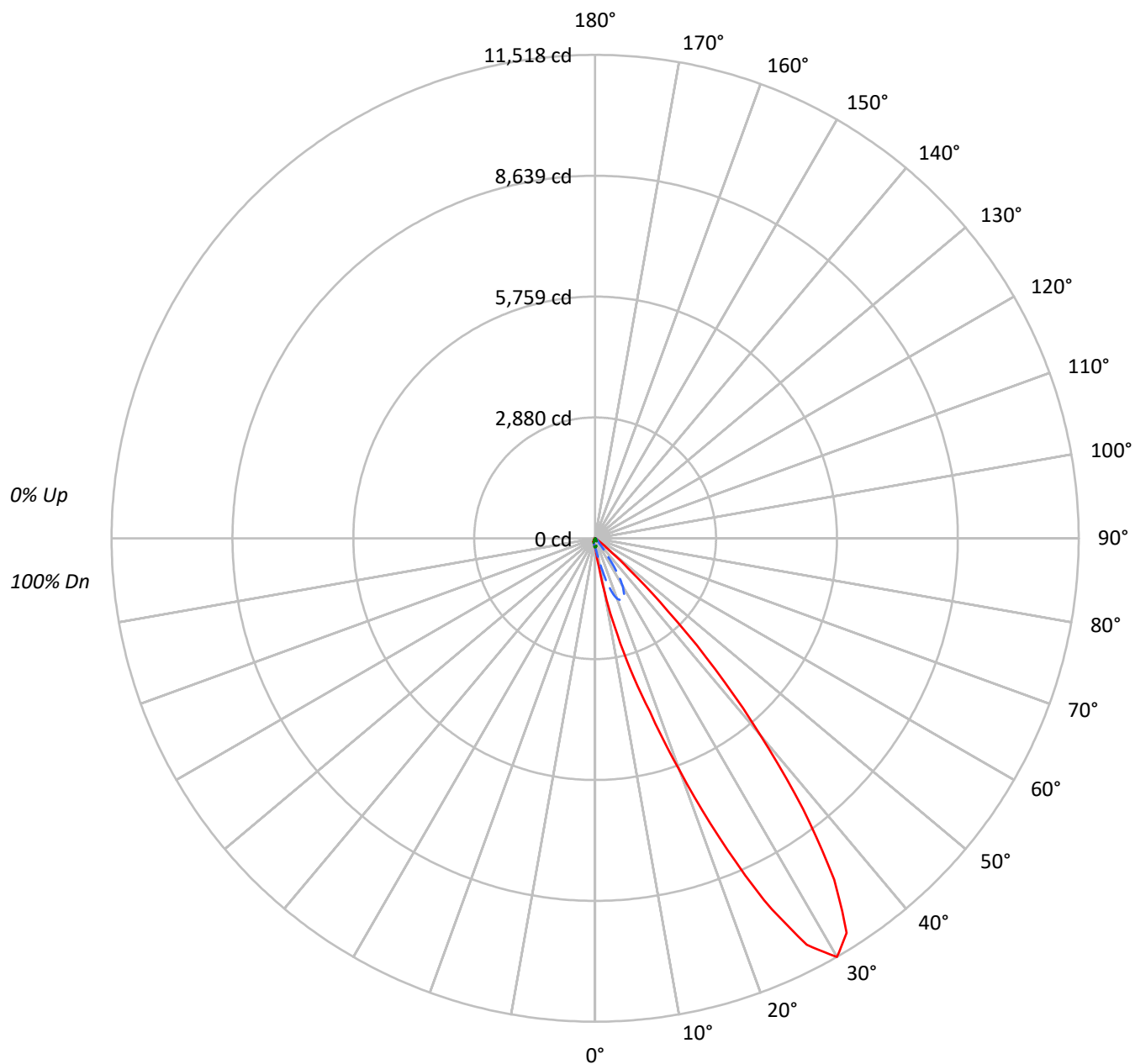
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	21022	21022	21022
5°	40269	20023	16259
10°	131678	17756	13831
15°	322472	14653	12216
20°	607587	11186	10959
25°	1017082	7931	9588
30°	1288439	5448	8177
35°	1174009	3536	6942
40°	773175	2517	5880
45°	334930	1671	4850
50°	59410	1176	4009
55°	9543	929	3361
60°	2364	853	2577
65°	756	1009	2040
70°	623	1246	1558
75°	823	1235	1235
80°	0	1841	1227
85°	0	3668	1223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	27.8	1.4
10°-20°	223.6	11.1
20°-30°	673.6	33.5
30°-40°	766.7	38.1
40°-50°	283.5	14.1
50°-60°	22.5	1.1
60°-70°	6.1	0.3
70°-80°	4.2	0.2
80°-90°	2.4	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°	925.1	46.0
0°-40°	1691.7	84.1
0°-60°	1997.7	99.4
0°-90°	2010.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2010.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	217	217	217	217	217	
5°	414	304	206	173	167	67
15°	3215	1086	146	115	122	1008
25°	9515	1588	74	72	90	4343
35°	9927	556	30	41	59	5902
45°	2445	65	12	22	35	2070
55°	56	12	6	13	20	92
65°	3	3	4	9	9	4
75°	2	3	3	6	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°	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0
2.5°	279.0	281.2	279.0	274.6	274.6	269.0	266.8	264.6	259.1	255.8	251.3
5°	414.1	407.4	401.9	388.6	384.2	372.0	363.2	351.0	334.4	320.0	304.5
7.5°	708.6	698.6	677.6	637.7	613.4	583.5	560.2	521.5	471.7	430.7	389.7
10°	1338.6	1295.4	1245.6	1155.9	1090.6	1020.8	965.5	861.4	736.3	633.3	533.7
12.5°	2156.8	2160.1	2067.1	1915.4	1794.8	1671.9	1576.6	1384.0	1162.6	968.8	777.3
15°	3215.3	3154.4	3058.1	2825.6	2584.2	2405.9	2254.2	1961.9	1648.6	1365.2	1086.2
17.5°	4330.2	4355.7	4130.9	3751.2	3369.2	3102.4	2873.2	2430.3	2058.3	1707.3	1366.3
20°	5893.6	5718.7	5397.6	4782.0	4188.5	3802.1	3462.2	2887.6	2368.3	1922.1	1539.0
22.5°	7696.1	7413.8	6760.5	5893.6	4995.7	4460.9	3987.0	3196.5	2565.4	2031.7	1597.7
25°	9515.2	9299.3	8258.6	6963.1	5676.6	4983.5	4370.1	3405.7	2659.5	2057.2	1587.7
27.5°	10919.2	10567.1	9381.3	7692.8	6082.9	5264.7	4548.4	3469.9	2639.6	1995.2	1493.6
30°	11518.1	11073.1	9758.8	7858.9	6086.2	5218.2	4459.8	3342.6	2497.8	1837.9	1316.5
32.5°	11148.3	10634.6	9309.3	7399.4	5669.9	4855.0	4117.7	3066.9	2263.1	1591.0	988.7
35°	9927.1	9415.6	8187.7	6492.6	5005.6	4293.7	3652.6	2707.1	1927.6	1179.2	555.8
37.5°	8129.0	7692.8	6814.8	5441.9	4218.4	3640.5	3106.8	2280.8	1436.0	676.5	279.0
40°	6113.9	5807.2	5280.2	4315.8	3414.6	2975.0	2545.4	1747.2	872.5	339.9	158.3
42.5°	4238.3	4039.0	3774.4	3193.1	2634.0	2331.8	1987.4	1167.0	448.4	187.1	98.5
45°	2444.7	2319.6	2246.5	1998.5	1780.4	1633.1	1328.6	628.9	227.0	111.8	65.3
47.5°	1079.5	996.5	961.0	857.0	797.2	757.3	601.2	267.9	121.8	72.0	54.3
50°	394.2	394.2	395.3	347.7	284.5	255.8	200.4	118.5	68.6	56.5	39.9
52.5°	139.5	137.3	142.8	135.1	118.5	106.3	88.6	59.8	42.1	35.4	22.1
55°	56.5	54.3	56.5	53.1	49.8	46.5	41.0	32.1	26.6	22.1	12.2
57.5°	25.5	25.5	26.6	25.5	25.5	23.3	21.0	24.4	18.8	12.2	7.8
60°	12.2	12.2	13.3	13.3	13.3	12.2	12.2	13.3	11.1	7.8	5.5
62.5°	5.5	5.5	6.6	6.6	6.6	6.6	6.6	7.8	5.5	4.4	3.3
65°	3.3	2.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
67.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3	3.3
70°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3
72.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3
75°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3
77.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.2	2.2	3.3
80°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2
82.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2
85°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.2	2.2
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.2	2.2
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0
2.5°	246.9	243.6	236.9	233.6	229.2	225.9	223.7	219.2	214.8	211.5	209.3
5°	290.1	277.9	263.5	252.4	243.6	238.0	229.2	221.4	212.6	205.9	200.4
7.5°	353.2	323.3	291.2	269.0	256.9	245.8	230.3	217.0	204.8	196.0	188.2
10°	451.7	387.5	331.1	287.9	266.8	251.3	227.0	208.2	192.7	180.5	172.7
12.5°	615.6	483.8	384.2	311.1	279.0	255.8	221.4	196.0	177.2	165.0	155.0
15°	840.4	625.6	457.3	338.8	293.4	260.2	212.6	181.6	160.5	146.1	137.3
17.5°	1051.8	773.9	540.3	372.0	307.8	262.4	200.4	162.8	140.6	127.3	118.5
20°	1184.7	870.3	595.7	390.8	312.2	255.8	183.8	142.8	120.7	108.5	99.6
22.5°	1215.7	881.3	591.2	373.1	293.4	235.8	160.5	122.9	101.9	90.8	83.0
25°	1170.3	819.3	529.2	322.2	250.2	198.2	134.0	99.6	84.1	74.2	68.6
27.5°	1056.3	697.5	418.5	242.5	187.1	146.1	101.9	77.5	67.5	59.8	56.5
30°	851.4	490.5	262.4	150.6	119.6	96.3	73.1	59.8	52.0	48.7	45.4
32.5°	516.0	252.4	138.4	89.7	75.3	65.3	53.1	44.3	39.9	37.6	36.5
35°	245.8	132.9	85.3	60.9	53.1	46.5	38.8	33.2	31.0	29.9	29.9
37.5°	139.5	86.4	57.6	41.0	36.5	32.1	28.8	25.5	24.4	24.4	24.4
40°	88.6	55.4	37.6	29.9	26.6	24.4	22.1	19.9	19.9	19.9	19.9
42.5°	57.6	39.9	28.8	22.1	19.9	18.8	16.6	15.5	15.5	15.5	16.6
45°	45.4	33.2	23.3	17.7	15.5	14.4	13.3	12.2	12.2	12.2	13.3
47.5°	38.8	23.3	15.5	12.2	10.0	10.0	8.9	8.9	8.9	10.0	11.1
50°	23.3	14.4	10.0	7.8	6.6	6.6	6.6	6.6	6.6	7.8	8.9
52.5°	13.3	8.9	6.6	5.5	4.4	4.4	4.4	4.4	5.5	6.6	6.6
55°	8.9	6.6	4.4	4.4	3.3	3.3	3.3	4.4	4.4	5.5	6.6
57.5°	5.5	4.4	3.3	3.3	3.3	3.3	3.3	3.3	4.4	5.5	5.5
60°	4.4	3.3	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	5.5
62.5°	3.3	3.3	4.4	3.3	3.3	3.3	3.3	3.3	4.4	4.4	5.5
65°	3.3	3.3	4.4	4.4	3.3	3.3	3.3	3.3	3.3	4.4	5.5
67.5°	3.3	3.3	4.4	4.4	4.4	4.4	3.3	3.3	3.3	4.4	4.4
70°	3.3	4.4	4.4	4.4	4.4	4.4	4.4	3.3	3.3	4.4	4.4
72.5°	3.3	4.4	4.4	4.4	4.4	4.4	4.4	3.3	3.3	4.4	4.4
75°	3.3	3.3	4.4	4.4	4.4	4.4	4.4	3.3	3.3	3.3	4.4
77.5°	3.3	3.3	4.4	4.4	4.4	4.4	4.4	3.3	3.3	3.3	4.4
80°	3.3	3.3	3.3	4.4	3.3	4.4	3.3	3.3	3.3	3.3	3.3
82.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
85°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
87.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
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°	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0
2.5°	205.9	203.7	200.4	199.3	200.4	199.3	193.8	192.7	190.4	190.4	190.4
5°	194.9	191.5	187.1	184.9	184.9	182.7	177.2	176.0	172.7	172.7	171.6
7.5°	181.6	177.2	171.6	169.4	169.4	167.2	161.7	159.4	157.2	157.2	156.1
10°	166.1	160.5	155.0	153.9	152.8	149.5	146.1	145.0	141.7	142.8	141.7
12.5°	148.4	143.9	139.5	137.3	137.3	134.0	131.8	130.6	129.5	129.5	129.5
15°	131.8	126.2	121.8	120.7	120.7	119.6	117.4	117.4	115.1	117.4	117.4
17.5°	112.9	108.5	107.4	105.2	106.3	105.2	103.0	104.1	104.1	105.2	106.3
20°	95.2	91.9	90.8	89.7	90.8	90.8	89.7	90.8	91.9	95.2	97.4
22.5°	79.7	77.5	77.5	76.4	77.5	78.6	77.5	79.7	81.9	84.1	87.5
25°	66.4	65.3	65.3	65.3	66.4	67.5	68.6	70.9	72.0	75.3	77.5
27.5°	54.3	54.3	54.3	55.4	56.5	57.6	58.7	62.0	63.1	66.4	68.6
30°	45.4	44.3	45.4	46.5	47.6	49.8	50.9	53.1	54.3	57.6	59.8
32.5°	36.5	37.6	38.8	39.9	41.0	42.1	43.2	45.4	47.6	49.8	52.0
35°	31.0	31.0	32.1	33.2	34.3	36.5	37.6	38.8	41.0	43.2	44.3
37.5°	25.5	26.6	27.7	28.8	29.9	31.0	32.1	33.2	34.3	36.5	38.8
40°	21.0	22.1	23.3	24.4	24.4	26.6	26.6	28.8	29.9	32.1	34.3
42.5°	17.7	18.8	19.9	21.0	21.0	22.1	23.3	24.4	25.5	27.7	29.9
45°	14.4	15.5	16.6	17.7	17.7	18.8	19.9	21.0	22.1	24.4	25.5
47.5°	12.2	13.3	14.4	15.5	15.5	16.6	17.7	18.8	18.8	21.0	22.1
50°	10.0	11.1	12.2	13.3	13.3	14.4	15.5	16.6	16.6	17.7	18.8
52.5°	7.8	8.9	11.1	11.1	12.2	13.3	13.3	14.4	14.4	15.5	16.6
55°	7.8	8.9	10.0	10.0	11.1	12.2	12.2	13.3	13.3	13.3	14.4
57.5°	6.6	7.8	8.9	10.0	10.0	11.1	11.1	11.1	11.1	12.2	12.2
60°	6.6	7.8	7.8	8.9	8.9	10.0	10.0	10.0	10.0	11.1	11.1
62.5°	6.6	6.6	7.8	7.8	8.9	8.9	8.9	10.0	10.0	10.0	10.0
65°	5.5	6.6	7.8	7.8	7.8	8.9	8.9	8.9	8.9	8.9	8.9
67.5°	5.5	6.6	6.6	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
70°	5.5	5.5	6.6	6.6	6.6	7.8	7.8	7.8	6.6	7.8	6.6
72.5°	4.4	5.5	5.5	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
75°	4.4	5.5	5.5	5.5	5.5	6.6	6.6	5.5	5.5	5.5	5.5
77.5°	4.4	4.4	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	4.4
80°	4.4	4.4	4.4	4.4	5.5	5.5	4.4	4.4	4.4	4.4	4.4
82.5°	3.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	3.3	3.3	3.3
85°	3.3	3.3	4.4	4.4	4.4	4.4	3.3	3.3	3.3	3.3	2.2
87.5°	3.3	3.3	3.3	4.4	3.3	3.3	3.3	3.3	2.2	2.2	2.2
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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CATALOG NUMBER: LDSQA4A28930D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	217.0	217.0	217.0	217.0	217.0	217.0	217.0	217.0
2.5°	187.1	186.0	187.1	186.0	186.0	187.1	183.8	186.0
5°	169.4	167.2	168.3	167.2	166.1	167.2	165.0	167.2
7.5°	153.9	152.8	152.8	152.8	151.7	152.8	150.6	152.8
10°	140.6	139.5	139.5	139.5	139.5	140.6	138.4	140.6
12.5°	127.3	127.3	128.4	127.3	128.4	129.5	127.3	129.5
15°	116.3	117.4	118.5	118.5	119.6	120.7	119.6	121.8
17.5°	107.4	108.5	110.7	110.7	111.8	114.0	112.9	115.1
20°	98.5	99.6	101.9	101.9	103.0	105.2	104.1	106.3
22.5°	88.6	90.8	91.9	93.0	94.1	96.3	95.2	97.4
25°	78.6	81.9	83.0	84.1	85.3	87.5	87.5	89.7
27.5°	70.9	73.1	74.2	75.3	77.5	79.7	79.7	80.8
30°	62.0	64.2	66.4	67.5	68.6	70.9	70.9	73.1
32.5°	54.3	56.5	57.6	58.7	60.9	63.1	64.2	65.3
35°	46.5	49.8	50.9	53.1	54.3	57.6	57.6	58.7
37.5°	41.0	43.2	45.4	46.5	48.7	50.9	50.9	53.1
40°	36.5	38.8	39.9	41.0	43.2	45.4	45.4	46.5
42.5°	31.0	34.3	35.4	36.5	37.6	39.9	41.0	42.1
45°	27.7	28.8	29.9	31.0	32.1	34.3	34.3	35.4
47.5°	23.3	24.4	25.5	26.6	27.7	28.8	29.9	31.0
50°	19.9	21.0	22.1	22.1	23.3	25.5	25.5	26.6
52.5°	16.6	17.7	18.8	18.8	19.9	22.1	22.1	23.3
55°	14.4	15.5	16.6	16.6	17.7	18.8	18.8	19.9
57.5°	13.3	13.3	14.4	14.4	15.5	15.5	16.6	16.6
60°	11.1	12.2	12.2	12.2	13.3	13.3	13.3	13.3
62.5°	10.0	10.0	10.0	10.0	10.0	10.0	10.0	11.1
65°	8.9	8.9	8.9	8.9	8.9	8.9	7.8	8.9
67.5°	7.8	7.8	7.8	7.8	6.6	6.6	6.6	6.6
70°	6.6	6.6	6.6	6.6	6.6	5.5	5.5	5.5
72.5°	5.5	5.5	5.5	5.5	5.5	4.4	4.4	4.4
75°	5.5	5.5	4.4	4.4	4.4	4.4	4.4	3.3
77.5°	4.4	4.4	4.4	4.4	3.3	3.3	3.3	3.3
80°	3.3	3.3	3.3	3.3	3.3	3.3	2.2	2.2
82.5°	3.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2
85°	2.2	2.2	2.2	2.2	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)