

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: P182640

Luminaire Tested: **LDSQA4A18835D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182640
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: LDSQA4A18835D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1816.0 lumens
Efficiency: N/A
Efficacy: 62.4 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

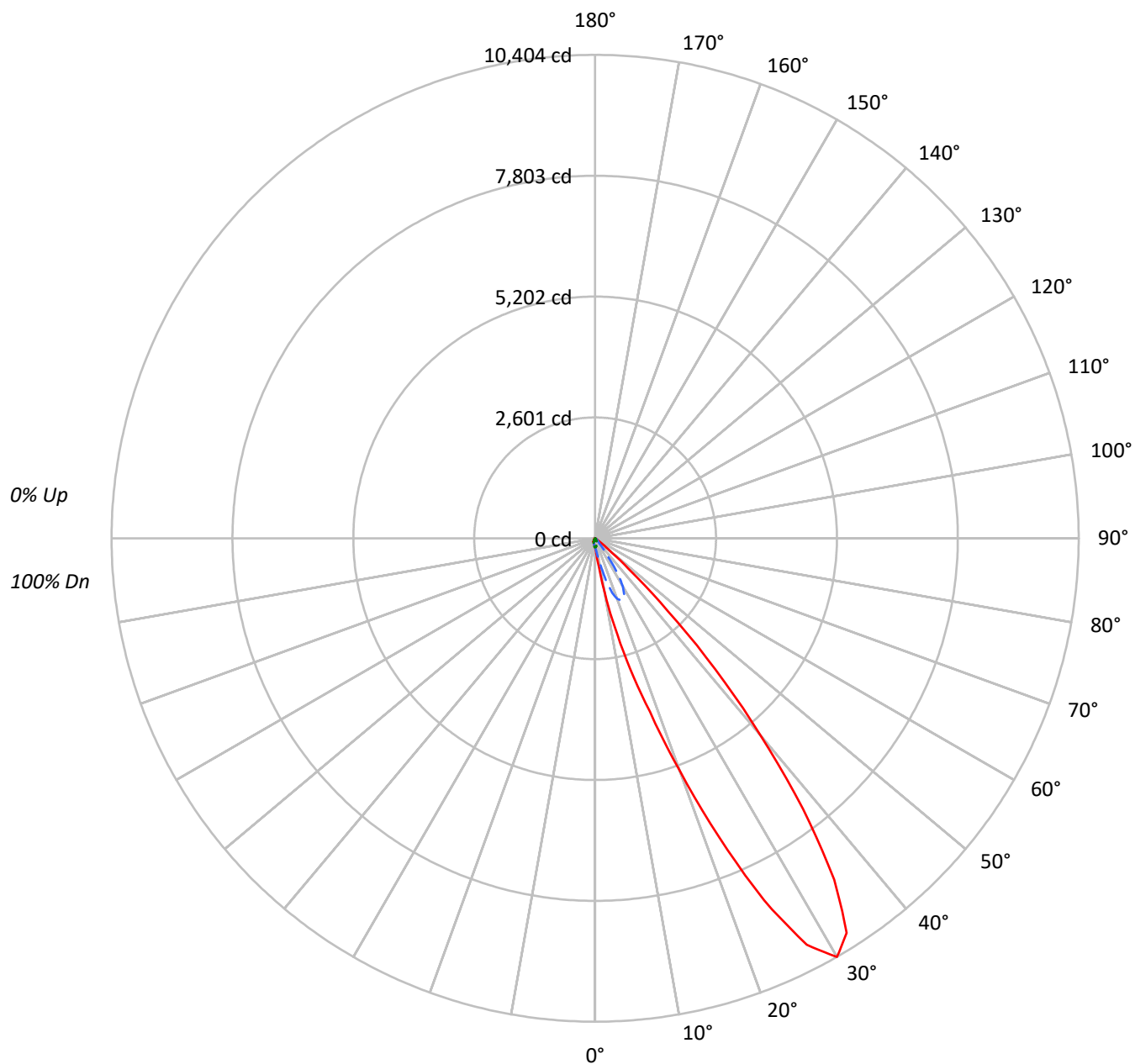
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	18988	18988	18988
5°	36370	18088	14684
10°	118939	16034	12493
15°	291280	13239	11032
20°	548824	10103	9897
25°	918721	7162	8658
30°	1163836	4922	7383
35°	1060465	3193	6268
40°	698398	2276	5311
45°	302543	1507	4384
50°	53653	1055	3617
55°	8614	844	3040
60°	2131	775	2325
65°	688	917	1834
70°	566	1133	1416
75°	749	1123	1123
80°	0	1674	1116
85°	0	3335	1112



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	25.1	1.4
10°-20°	202.0	11.1
20°-30°	608.5	33.5
30°-40°	692.5	38.1
40°-50°	256.1	14.1
50°-60°	20.3	1.1
60°-70°	5.5	0.3
70°-80°	3.8	0.2
80°-90°	2.2	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°	835.6	46.0
0°-40°	1528.1	84.1
0°-60°	1804.5	99.4
0°-90°	1816.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1816.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	196	196	196	196	196	
5°	374	275	186	156	151	61
15°	2904	981	132	104	110	911
25°	8595	1434	67	65	81	3923
35°	8967	502	27	37	53	5331
45°	2208	59	11	20	32	1870
55°	51	11	5	12	18	84
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°	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0
2.5°	252.0	254.0	252.0	248.0	248.0	243.0	241.0	239.0	234.0	231.0	227.0
5°	374.0	368.0	363.0	351.0	347.0	336.0	328.0	317.0	302.0	289.0	275.0
7.5°	640.1	631.1	612.1	576.1	554.1	527.1	506.1	471.1	426.0	389.0	352.0
10°	1209.1	1170.1	1125.1	1044.1	985.1	922.1	872.1	778.1	665.1	572.1	482.1
12.5°	1948.2	1951.2	1867.2	1730.2	1621.2	1510.2	1424.2	1250.1	1050.1	875.1	702.1
15°	2904.3	2849.3	2762.3	2552.3	2334.3	2173.3	2036.2	1772.2	1489.2	1233.1	981.1
17.5°	3911.5	3934.5	3731.4	3388.4	3043.4	2802.3	2595.3	2195.3	1859.2	1542.2	1234.1
20°	5323.6	5165.6	4875.6	4319.5	3783.4	3434.4	3127.4	2608.3	2139.3	1736.2	1390.2
22.5°	6951.8	6696.8	6106.7	5323.6	4512.5	4029.5	3601.4	2887.3	2317.3	1835.2	1443.2
25°	8595.0	8400.0	7459.9	6289.7	5127.6	4501.5	3947.5	3076.4	2402.3	1858.2	1434.2
27.5°	9863.2	9545.1	8474.0	6948.8	5494.6	4755.6	4108.5	3134.4	2384.3	1802.2	1349.2
30°	10404.2	10002.2	8815.0	7098.8	5497.6	4713.6	4028.5	3019.4	2256.3	1660.2	1189.1
32.5°	10070.2	9606.1	8409.0	6683.8	5121.6	4385.5	3719.4	2770.3	2044.2	1437.2	893.1
35°	8967.0	8505.0	7395.9	5864.7	4521.5	3878.5	3299.4	2445.3	1741.2	1065.1	502.1
37.5°	7342.9	6948.8	6155.7	4915.6	3810.4	3288.4	2806.3	2060.2	1297.2	611.1	252.0
40°	5522.6	5245.6	4769.6	3898.5	3084.4	2687.3	2299.3	1578.2	788.1	307.0	143.0
42.5°	3828.4	3648.4	3409.4	2884.3	2379.3	2106.2	1795.2	1054.1	405.0	169.0	89.0
45°	2208.3	2095.2	2029.2	1805.2	1608.2	1475.2	1200.1	568.1	205.0	101.0	59.0
47.5°	975.1	900.1	868.1	774.1	720.1	684.1	543.1	242.0	110.0	65.0	49.0
50°	356.0	356.0	357.0	314.0	257.0	231.0	181.0	107.0	62.0	51.0	36.0
52.5°	126.0	124.0	129.0	122.0	107.0	96.0	80.0	54.0	38.0	32.0	20.0
55°	51.0	49.0	51.0	48.0	45.0	42.0	37.0	29.0	24.0	20.0	11.0
57.5°	23.0	23.0	24.0	23.0	23.0	21.0	19.0	22.0	17.0	11.0	7.0
60°	11.0	11.0	12.0	12.0	12.0	11.0	11.0	12.0	10.0	7.0	5.0
62.5°	5.0	5.0	6.0	6.0	6.0	6.0	6.0	7.0	5.0	4.0	3.0
65°	3.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
67.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0
72.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0
77.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	3.0
80°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
82.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0
87.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0
2.5°	223.0	220.0	214.0	211.0	207.0	204.0	202.0	198.0	194.0	191.0	189.0
5°	262.0	251.0	238.0	228.0	220.0	215.0	207.0	200.0	192.0	186.0	181.0
7.5°	319.0	292.0	263.0	243.0	232.0	222.0	208.0	196.0	185.0	177.0	170.0
10°	408.0	350.0	299.0	260.0	241.0	227.0	205.0	188.0	174.0	163.0	156.0
12.5°	556.1	437.1	347.0	281.0	252.0	231.0	200.0	177.0	160.0	149.0	140.0
15°	759.1	565.1	413.0	306.0	265.0	235.0	192.0	164.0	145.0	132.0	124.0
17.5°	950.1	699.1	488.1	336.0	278.0	237.0	181.0	147.0	127.0	115.0	107.0
20°	1070.1	786.1	538.1	353.0	282.0	231.0	166.0	129.0	109.0	98.0	90.0
22.5°	1098.1	796.1	534.1	337.0	265.0	213.0	145.0	111.0	92.0	82.0	75.0
25°	1057.1	740.1	478.1	291.0	226.0	179.0	121.0	90.0	76.0	67.0	62.0
27.5°	954.1	630.1	378.0	219.0	169.0	132.0	92.0	70.0	61.0	54.0	51.0
30°	769.1	443.1	237.0	136.0	108.0	87.0	66.0	54.0	47.0	44.0	41.0
32.5°	466.1	228.0	125.0	81.0	68.0	59.0	48.0	40.0	36.0	34.0	33.0
35°	222.0	120.0	77.0	55.0	48.0	42.0	35.0	30.0	28.0	27.0	27.0
37.5°	126.0	78.0	52.0	37.0	33.0	29.0	26.0	23.0	22.0	22.0	22.0
40°	80.0	50.0	34.0	27.0	24.0	22.0	20.0	18.0	18.0	18.0	18.0
42.5°	52.0	36.0	26.0	20.0	18.0	17.0	15.0	14.0	14.0	14.0	15.0
45°	41.0	30.0	21.0	16.0	14.0	13.0	12.0	11.0	11.0	11.0	12.0
47.5°	35.0	21.0	14.0	11.0	9.0	9.0	8.0	8.0	8.0	9.0	10.0
50°	21.0	13.0	9.0	7.0	6.0	6.0	6.0	6.0	6.0	7.0	8.0
52.5°	12.0	8.0	6.0	5.0	4.0	4.0	4.0	4.0	5.0	6.0	6.0
55°	8.0	6.0	4.0	4.0	3.0	3.0	3.0	4.0	4.0	5.0	6.0
57.5°	5.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	5.0	5.0
60°	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	5.0
62.5°	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	5.0
65°	3.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	4.0	5.0
67.5°	3.0	3.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	4.0	4.0
70°	3.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0
72.5°	3.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0
75°	3.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	4.0
77.5°	3.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	4.0
80°	3.0	3.0	3.0	4.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0
82.5°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
85°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
87.5°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
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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CATALOG NUMBER: LDSQA4A18835D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0
2.5°	186.0	184.0	181.0	180.0	181.0	180.0	175.0	174.0	172.0	172.0	172.0
5°	176.0	173.0	169.0	167.0	167.0	165.0	160.0	159.0	156.0	156.0	155.0
7.5°	164.0	160.0	155.0	153.0	153.0	151.0	146.0	144.0	142.0	142.0	141.0
10°	150.0	145.0	140.0	139.0	138.0	135.0	132.0	131.0	128.0	129.0	128.0
12.5°	134.0	130.0	126.0	124.0	124.0	121.0	119.0	118.0	117.0	117.0	117.0
15°	119.0	114.0	110.0	109.0	109.0	108.0	106.0	106.0	104.0	106.0	106.0
17.5°	102.0	98.0	97.0	95.0	96.0	95.0	93.0	94.0	94.0	95.0	96.0
20°	86.0	83.0	82.0	81.0	82.0	82.0	81.0	82.0	83.0	86.0	88.0
22.5°	72.0	70.0	70.0	69.0	70.0	71.0	70.0	72.0	74.0	76.0	79.0
25°	60.0	59.0	59.0	59.0	60.0	61.0	62.0	64.0	65.0	68.0	70.0
27.5°	49.0	49.0	49.0	50.0	51.0	52.0	53.0	56.0	57.0	60.0	62.0
30°	41.0	40.0	41.0	42.0	43.0	45.0	46.0	48.0	49.0	52.0	54.0
32.5°	33.0	34.0	35.0	36.0	37.0	38.0	39.0	41.0	43.0	45.0	47.0
35°	28.0	28.0	29.0	30.0	31.0	33.0	34.0	35.0	37.0	39.0	40.0
37.5°	23.0	24.0	25.0	26.0	27.0	28.0	29.0	30.0	31.0	33.0	35.0
40°	19.0	20.0	21.0	22.0	22.0	24.0	24.0	26.0	27.0	29.0	31.0
42.5°	16.0	17.0	18.0	19.0	19.0	20.0	21.0	22.0	23.0	25.0	27.0
45°	13.0	14.0	15.0	16.0	16.0	17.0	18.0	19.0	20.0	22.0	23.0
47.5°	11.0	12.0	13.0	14.0	14.0	15.0	16.0	17.0	17.0	19.0	20.0
50°	9.0	10.0	11.0	12.0	12.0	13.0	14.0	15.0	15.0	16.0	17.0
52.5°	7.0	8.0	10.0	10.0	11.0	12.0	12.0	13.0	13.0	14.0	15.0
55°	7.0	8.0	9.0	9.0	10.0	11.0	11.0	12.0	12.0	12.0	13.0
57.5°	6.0	7.0	8.0	9.0	9.0	10.0	10.0	10.0	10.0	11.0	11.0
60°	6.0	7.0	7.0	8.0	8.0	9.0	9.0	9.0	9.0	10.0	10.0
62.5°	6.0	6.0	7.0	7.0	8.0	8.0	8.0	9.0	9.0	9.0	9.0
65°	5.0	6.0	7.0	7.0	7.0	8.0	8.0	8.0	8.0	8.0	8.0
67.5°	5.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
70°	5.0	5.0	6.0	6.0	6.0	7.0	7.0	7.0	6.0	7.0	6.0
72.5°	4.0	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
75°	4.0	5.0	5.0	5.0	5.0	6.0	6.0	5.0	5.0	5.0	5.0
77.5°	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0
80°	4.0	4.0	4.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0
82.5°	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0
85°	3.0	3.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	2.0
87.5°	3.0	3.0	3.0	4.0	3.0	3.0	3.0	3.0	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



TEST NUMBER: P182640

CATALOG NUMBER: LDSQA4A18835D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	196.0	196.0	196.0	196.0	196.0	196.0	196.0	196.0
2.5°	169.0	168.0	169.0	168.0	168.0	169.0	166.0	168.0
5°	153.0	151.0	152.0	151.0	150.0	151.0	149.0	151.0
7.5°	139.0	138.0	138.0	138.0	137.0	138.0	136.0	138.0
10°	127.0	126.0	126.0	126.0	126.0	127.0	125.0	127.0
12.5°	115.0	115.0	116.0	115.0	116.0	117.0	115.0	117.0
15°	105.0	106.0	107.0	107.0	108.0	109.0	108.0	110.0
17.5°	97.0	98.0	100.0	100.0	101.0	103.0	102.0	104.0
20°	89.0	90.0	92.0	92.0	93.0	95.0	94.0	96.0
22.5°	80.0	82.0	83.0	84.0	85.0	87.0	86.0	88.0
25°	71.0	74.0	75.0	76.0	77.0	79.0	79.0	81.0
27.5°	64.0	66.0	67.0	68.0	70.0	72.0	72.0	73.0
30°	56.0	58.0	60.0	61.0	62.0	64.0	64.0	66.0
32.5°	49.0	51.0	52.0	53.0	55.0	57.0	58.0	59.0
35°	42.0	45.0	46.0	48.0	49.0	52.0	52.0	53.0
37.5°	37.0	39.0	41.0	42.0	44.0	46.0	46.0	48.0
40°	33.0	35.0	36.0	37.0	39.0	41.0	41.0	42.0
42.5°	28.0	31.0	32.0	33.0	34.0	36.0	37.0	38.0
45°	25.0	26.0	27.0	28.0	29.0	31.0	31.0	32.0
47.5°	21.0	22.0	23.0	24.0	25.0	26.0	27.0	28.0
50°	18.0	19.0	20.0	20.0	21.0	23.0	23.0	24.0
52.5°	15.0	16.0	17.0	17.0	18.0	20.0	20.0	21.0
55°	13.0	14.0	15.0	15.0	16.0	17.0	17.0	18.0
57.5°	12.0	12.0	13.0	13.0	14.0	14.0	15.0	15.0
60°	10.0	11.0	11.0	11.0	12.0	12.0	12.0	12.0
62.5°	9.0	9.0	9.0	9.0	9.0	9.0	9.0	10.0
65°	8.0	8.0	8.0	8.0	8.0	8.0	7.0	8.0
67.5°	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
70°	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0
72.5°	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0
75°	5.0	5.0	4.0	4.0	4.0	4.0	4.0	3.0
77.5°	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0
80°	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
82.5°	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
85°	2.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)