

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: P182731

Luminaire Tested: **LDSQA4A28930D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182731
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26800)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A28930D010TE LAR25NF 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2374.6 lumens
Efficiency: N/A
Efficacy: 53.4 lumens/watt
Spacing Criteria (0/90/45): 2.38 / 0.59 / 1.18
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

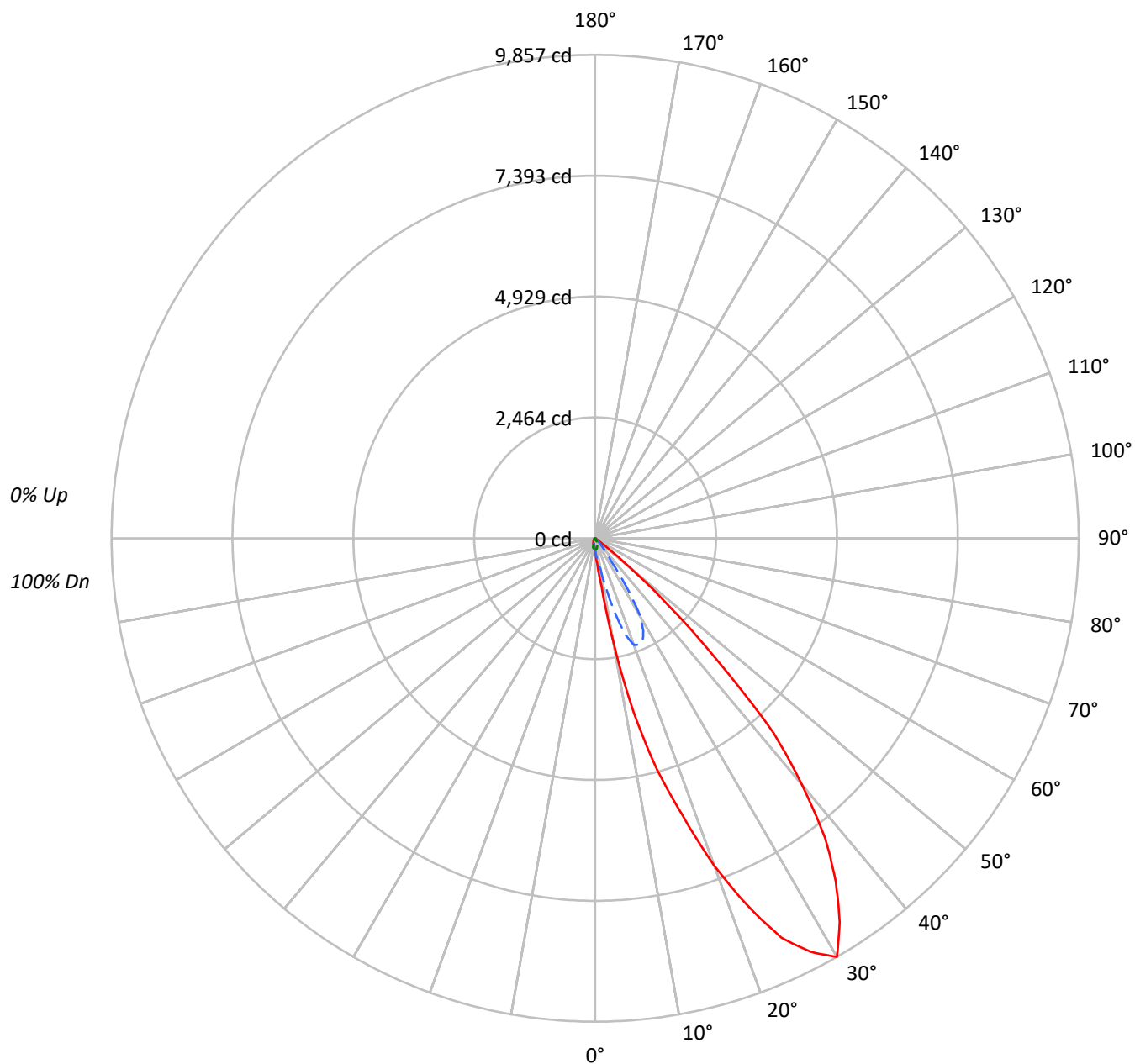
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	113	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	86	81	97	90	85	80	87	83	79		85	81	78		82
4	93	84	77	72	91	82	76	72	80	75	71		78	73	70		76
5	87	77	70	64	85	76	69	64	74	68	64		72	67	63		70
6	81	70	63	58	79	69	63	58	68	62	57		66	61	57		65
7	76	64	57	52	74	64	57	52	62	56	52		61	56	51		60
8	71	59	52	47	69	59	52	47	57	51	47		56	51	47		55
9	66	55	48	43	65	54	47	43	53	47	43		52	46	42		51
10	62	50	44	39	61	50	43	39	49	43	39		48	43	39		47

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	24025	24025	24025
5°	53164	22726	15968
10°	212843	19733	13339
15°	490612	15696	11714
20°	732370	11134	10454
25°	960590	7418	9310
30°	1102670	4687	8132
35°	1011043	3004	7037
40°	829109	1948	5994
45°	480673	1356	4836
50°	136213	995	3994
55°	12481	929	3344
60°	1918	1066	2771
65°	504	1009	2017
70°	623	1246	1558
75°	823	1647	1647
80°	0	2455	1227
85°	0	4891	1223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.2	1.5
10°-20°	315.8	13.3
20°-30°	769.4	32.4
30°-40°	833.9	35.1
40°-50°	377.8	15.9
50°-60°	29.2	1.2
60°-70°	6.0	0.3
70°-80°	4.4	0.2
80°-90°	2.8	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°	1120.4	47.2
0°-40°	1954.3	82.3
0°-60°	2361.4	99.4
0°-90°	2374.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2374.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	248	248	248	248	248	
5°	547	403	234	176	164	98
15°	4892	1600	156	114	117	1422
25°	8987	2298	69	68	87	4096
35°	8549	584	25	40	60	5259
45°	3508	74	10	22	35	2770
55°	74	10	6	13	20	169
65°	2	3	4	9	9	4
75°	2	3	4	7	4	1
85°	0	3	4	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°	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0
2.5°	371.5	364.8	368.2	359.3	353.8	349.4	351.6	349.4	335.1	331.8	320.8
5°	546.7	536.8	536.8	518.1	498.2	486.1	486.1	471.8	440.9	426.6	403.4
7.5°	979.9	960.1	943.5	885.1	809.1	766.1	755.0	694.4	616.2	566.6	508.1
10°	2163.7	2081.0	2022.6	1870.5	1666.6	1539.8	1485.8	1276.4	1027.3	839.9	670.2
12.5°	3638.5	3526.1	3423.6	3174.5	2881.3	2681.8	2574.9	2266.2	1782.3	1436.2	1074.7
15°	4891.8	4770.5	4649.3	4346.2	4036.4	3863.4	3667.2	3258.3	2618.9	2127.3	1600.5
17.5°	5920.2	5851.9	5727.3	5283.1	4892.9	4622.8	4418.9	3884.3	3226.3	2665.2	2068.9
20°	7104.0	6935.4	6712.7	6173.7	5640.2	5301.8	5015.2	4363.8	3603.3	2958.4	2316.9
22.5°	8100.4	7980.3	7660.6	6949.7	6164.9	5876.1	5525.6	4741.9	3845.8	3083.0	2345.6
25°	8986.7	8798.2	8396.9	7551.5	6748.0	6256.4	5826.5	4946.9	3935.0	3091.8	2298.2
27.5°	9505.8	9260.0	8788.2	7866.8	6949.7	6406.3	5930.1	4982.2	3878.8	2975.0	2125.1
30°	9857.4	9368.0	8846.7	7870.1	6885.8	6330.2	5836.4	4804.7	3645.1	2708.2	1834.1
32.5°	9277.6	8994.4	8496.2	7557.0	6537.5	5995.1	5504.6	4420.0	3280.3	2312.5	1276.4
35°	8549.1	8319.8	7886.6	6954.1	6015.0	5503.5	4983.3	3926.2	2805.2	1589.4	584.2
37.5°	7702.5	7522.9	7056.6	6204.6	5377.9	4877.5	4356.1	3346.4	1975.2	788.1	354.9
40°	6556.2	6404.1	6021.6	5337.1	4575.4	4099.3	3618.7	2503.2	1072.5	439.8	231.5
42.5°	5388.9	5261.0	4912.7	4320.8	3651.8	3259.4	2836.1	1525.5	533.5	276.7	129.0
45°	3508.5	3348.6	3161.3	2890.1	2559.4	2318.0	1818.7	736.3	316.3	154.3	73.9
47.5°	2011.6	1905.8	1598.3	1261.0	1024.0	934.7	680.1	342.8	174.2	89.3	45.2
50°	903.8	835.5	701.0	571.0	413.3	323.0	274.5	172.0	86.0	48.5	30.9
52.5°	222.7	227.1	214.9	188.5	167.5	142.2	123.5	80.5	45.2	29.8	19.8
55°	73.9	75.0	68.3	65.0	59.5	55.1	50.7	36.4	27.6	26.5	9.9
57.5°	26.5	26.5	27.6	25.4	24.2	23.1	22.0	18.7	16.5	9.9	5.5
60°	9.9	9.9	9.9	11.0	11.0	11.0	12.1	11.0	7.7	5.5	4.4
62.5°	4.4	4.4	4.4	4.4	5.5	5.5	6.6	5.5	4.4	4.4	3.3
65°	2.2	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	3.3	3.3
72.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3	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	2.2	2.2	2.2	3.3
80°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2	3.3
82.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2	3.3
85°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	3.3
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	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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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0
2.5°	309.7	303.1	289.9	280.0	272.3	271.2	264.5	253.5	249.1	241.4	234.8
5°	381.4	364.8	343.9	324.1	309.7	302.0	278.9	257.9	245.8	233.7	222.7
7.5°	458.5	421.1	384.7	352.7	332.9	320.8	293.2	259.0	237.0	219.3	205.0
10°	555.5	478.4	415.5	365.9	339.5	323.0	289.9	249.1	221.6	200.6	186.3
12.5°	777.1	566.6	444.2	372.6	339.5	316.3	276.7	235.9	205.0	179.7	164.2
15°	1156.3	791.4	526.9	375.9	328.5	302.0	256.8	213.8	183.0	156.5	142.2
17.5°	1513.4	1041.6	658.0	399.0	321.9	281.1	230.4	188.5	156.5	131.2	119.0
20°	1698.6	1166.2	730.8	416.7	310.8	254.6	199.5	160.9	130.1	108.0	98.1
22.5°	1703.0	1155.2	695.5	375.9	270.1	218.2	170.8	132.3	105.8	87.1	79.4
25°	1598.3	1021.8	572.1	293.2	218.2	183.0	142.2	108.0	82.7	69.4	63.9
27.5°	1401.0	826.7	422.2	211.6	170.8	145.5	111.3	82.7	62.8	54.0	50.7
30°	1083.5	511.4	233.7	156.5	129.0	109.1	80.5	55.1	47.4	41.9	39.7
32.5°	537.9	250.2	165.3	111.3	88.2	69.4	50.7	40.8	36.4	33.1	32.0
35°	292.1	179.7	103.6	67.2	52.9	44.1	34.2	28.7	26.5	25.4	25.4
37.5°	203.9	106.9	62.8	40.8	33.1	29.8	24.2	20.9	19.8	19.8	19.8
40°	112.4	63.9	38.6	26.5	22.0	19.8	16.5	15.4	15.4	15.4	16.5
42.5°	65.0	39.7	26.5	18.7	15.4	14.3	12.1	11.0	12.1	12.1	13.2
45°	41.9	29.8	17.6	13.2	11.0	9.9	8.8	8.8	9.9	9.9	11.0
47.5°	29.8	20.9	12.1	8.8	6.6	6.6	6.6	6.6	7.7	8.8	9.9
50°	17.6	11.0	6.6	5.5	4.4	4.4	4.4	5.5	6.6	6.6	7.7
52.5°	9.9	6.6	4.4	4.4	3.3	3.3	4.4	4.4	5.5	6.6	7.7
55°	5.5	4.4	3.3	3.3	3.3	3.3	3.3	4.4	4.4	5.5	6.6
57.5°	4.4	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	5.5	5.5
60°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	5.5	5.5
62.5°	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	4.4	4.4	5.5
65°	3.3	3.3	3.3	4.4	3.3	4.4	4.4	4.4	4.4	4.4	5.5
67.5°	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.5
70°	3.3	3.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.5
72.5°	3.3	3.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.5
75°	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
77.5°	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
80°	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
82.5°	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
85°	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
87.5°	3.3	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4
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°	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0
2.5°	232.6	224.9	219.3	217.1	212.7	213.8	210.5	208.3	201.7	201.7	197.3
5°	214.9	205.0	198.4	195.1	190.7	189.6	186.3	183.0	176.4	175.3	172.0
7.5°	196.2	186.3	178.6	175.3	170.8	169.7	165.3	163.1	157.6	156.5	153.2
10°	176.4	165.3	158.7	155.4	151.0	151.0	147.7	145.5	141.1	141.1	138.9
12.5°	155.4	145.5	141.1	136.7	134.5	134.5	132.3	130.1	126.8	127.9	126.8
15°	133.4	125.7	121.2	119.0	117.9	117.9	116.8	115.7	113.5	115.7	113.5
17.5°	112.4	106.9	103.6	102.5	101.4	101.4	101.4	102.5	101.4	103.6	103.6
20°	92.6	88.2	86.0	86.0	84.9	87.1	87.1	89.3	89.3	92.6	93.7
22.5°	76.1	72.7	71.6	71.6	71.6	73.9	75.0	77.2	78.3	81.6	83.8
25°	60.6	59.5	59.5	59.5	60.6	62.8	65.0	67.2	68.3	72.7	73.9
27.5°	49.6	48.5	49.6	49.6	50.7	54.0	56.2	58.4	60.6	63.9	66.1
30°	39.7	39.7	40.8	41.9	43.0	45.2	48.5	50.7	52.9	56.2	58.4
32.5°	32.0	33.1	34.2	35.3	35.3	38.6	40.8	44.1	45.2	48.5	50.7
35°	26.5	27.6	28.7	29.8	29.8	33.1	35.3	37.5	39.7	41.9	44.1
37.5°	20.9	22.0	24.2	25.4	25.4	28.7	29.8	32.0	34.2	36.4	38.6
40°	17.6	18.7	20.9	20.9	22.0	24.2	25.4	27.6	29.8	32.0	34.2
42.5°	14.3	15.4	17.6	18.7	18.7	20.9	22.0	24.2	25.4	27.6	28.7
45°	13.2	13.2	15.4	15.4	16.5	17.6	19.8	20.9	22.0	24.2	25.4
47.5°	11.0	12.1	13.2	14.3	14.3	15.4	16.5	17.6	18.7	20.9	22.0
50°	8.8	9.9	12.1	12.1	12.1	14.3	15.4	16.5	16.5	17.6	18.7
52.5°	8.8	8.8	9.9	11.0	11.0	12.1	13.2	14.3	14.3	15.4	16.5
55°	7.7	7.7	8.8	9.9	9.9	11.0	12.1	12.1	13.2	13.2	14.3
57.5°	6.6	7.7	8.8	8.8	8.8	9.9	11.0	11.0	12.1	12.1	13.2
60°	6.6	7.7	7.7	8.8	8.8	9.9	9.9	9.9	11.0	11.0	11.0
62.5°	6.6	6.6	7.7	7.7	7.7	8.8	8.8	9.9	9.9	9.9	9.9
65°	6.6	6.6	7.7	7.7	7.7	8.8	8.8	8.8	8.8	8.8	8.8
67.5°	5.5	6.6	6.6	6.6	7.7	7.7	7.7	7.7	7.7	7.7	7.7
70°	5.5	5.5	6.6	6.6	6.6	7.7	7.7	7.7	7.7	7.7	7.7
72.5°	5.5	5.5	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
75°	5.5	5.5	5.5	5.5	5.5	6.6	6.6	6.6	6.6	5.5	5.5
77.5°	4.4	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	4.4
80°	4.4	4.4	5.5	4.4	5.5	5.5	5.5	5.5	4.4	4.4	4.4
82.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	3.3	3.3
85°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	3.3	3.3	3.3	2.2
87.5°	4.4	4.4	4.4	4.4	4.4	4.4	3.3	3.3	3.3	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



TEST NUMBER: P182731

CATALOG NUMBER: LDSQA4A28930D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	248.0	248.0	248.0	248.0	248.0	248.0	248.0	248.0
2.5°	195.1	197.3	195.1	197.3	191.8	194.0	196.2	190.7
5°	169.7	167.5	168.6	170.8	166.4	167.5	168.6	164.2
7.5°	152.1	153.2	151.0	153.2	149.9	151.0	152.1	148.8
10°	137.8	138.9	137.8	138.9	135.6	137.8	138.9	135.6
12.5°	124.6	126.8	125.7	127.9	124.6	126.8	129.0	124.6
15°	114.6	116.8	115.7	117.9	115.7	117.9	120.1	116.8
17.5°	104.7	106.9	106.9	109.1	108.0	110.2	112.4	109.1
20°	94.8	98.1	98.1	100.3	100.3	101.4	104.7	101.4
22.5°	86.0	89.3	89.3	91.5	91.5	93.7	95.9	93.7
25°	76.1	80.5	81.6	83.8	83.8	86.0	89.3	87.1
27.5°	69.4	72.7	73.9	76.1	77.2	79.4	81.6	79.4
30°	60.6	65.0	66.1	68.3	69.4	72.7	73.9	72.7
32.5°	54.0	57.3	58.4	60.6	62.8	65.0	67.2	66.1
35°	47.4	50.7	51.8	54.0	55.1	58.4	60.6	59.5
37.5°	41.9	45.2	46.3	47.4	48.5	51.8	54.0	52.9
40°	36.4	38.6	39.7	41.9	43.0	45.2	47.4	47.4
42.5°	32.0	34.2	35.3	36.4	37.5	39.7	41.9	40.8
45°	27.6	29.8	30.9	32.0	33.1	34.2	36.4	35.3
47.5°	23.1	25.4	26.5	27.6	28.7	29.8	32.0	30.9
50°	19.8	22.0	22.0	23.1	24.2	25.4	27.6	26.5
52.5°	17.6	18.7	19.8	19.8	20.9	22.0	24.2	23.1
55°	15.4	16.5	16.5	17.6	17.6	18.7	19.8	19.8
57.5°	13.2	14.3	14.3	15.4	15.4	16.5	17.6	17.6
60°	12.1	12.1	13.2	13.2	13.2	14.3	14.3	14.3
62.5°	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
65°	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
67.5°	7.7	7.7	7.7	7.7	7.7	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°	6.6	6.6	5.5	5.5	5.5	5.5	5.5	4.4
75°	5.5	5.5	5.5	5.5	4.4	4.4	4.4	4.4
77.5°	4.4	4.4	4.4	4.4	3.3	3.3	3.3	3.3
80°	4.4	3.3	3.3	3.3	3.3	3.3	3.3	2.2
82.5°	3.3	3.3	3.3	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°	2.2	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)