

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: P182708

Luminaire Tested: **LDSQA4A18935D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182708
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: LDSQA4A18935D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1750.3 lumens
Efficiency: N/A
Efficacy: 60.1 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

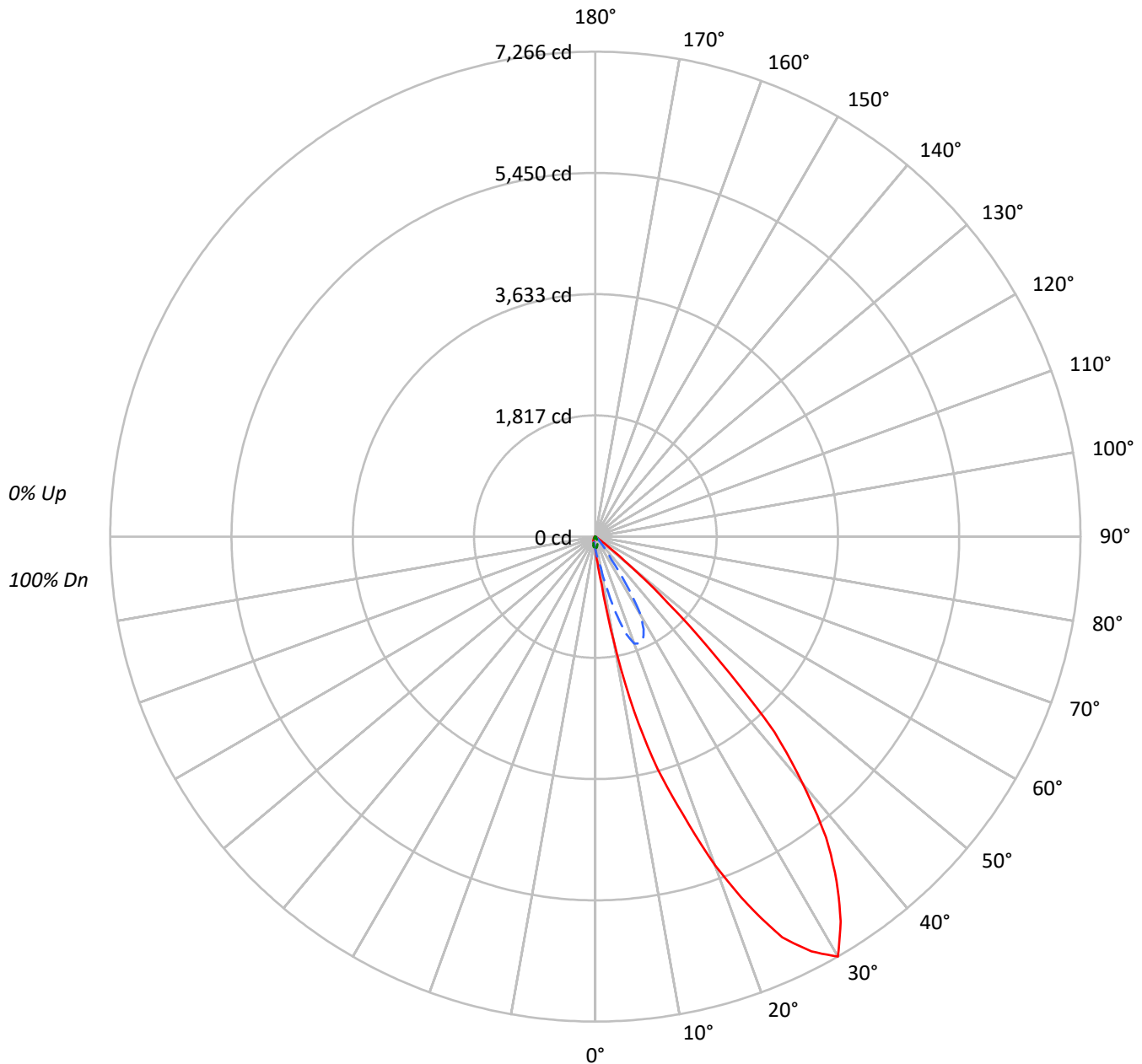
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																				
0	119	119	119	119	116	116	116	116		111	111	111		106	106	106		102	102	102
1	113	109	106	104	110	107	105	102		103	101	99		99	98	96		96	95	93
2	106	100	95	91	103	98	94	90		95	91	88		92	89	86		89	87	85
3	99	91	86	81	97	90	85	80		87	83	79		85	81	78		82	79	76
4	93	84	77	72	91	82	76	72		80	75	71		78	73	70		76	72	69
5	87	77	70	64	85	76	69	64		74	68	64		72	67	63		70	66	62
6	81	70	63	58	79	69	63	58		68	62	57		66	61	57		65	60	56
7	76	64	57	52	74	64	57	52		62	56	52		61	56	51		60	55	51
8	71	59	52	47	69	59	52	47		57	51	47		56	51	47		55	50	46
9	66	55	48	43	65	54	47	43		53	47	43		52	46	42		51	46	42
10	62	50	44	39	61	50	43	39		49	43	39		48	43	39		47	42	38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	17709	17709	17709
5°	39190	16746	11776
10°	156890	14549	9827
15°	361636	11574	8635
20°	539835	8206	7701
25°	708051	5473	6862
30°	812790	3457	5996
35°	745247	2212	5192
40°	611140	1442	4414
45°	354302	1000	3562
50°	100404	738	2939
55°	9188	692	2466
60°	1414	794	2054
65°	367	734	1490
70°	453	906	1161
75°	599	1198	1198
80°	0	1785	893
85°	0	3557	889



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	26.0	1.5
10°-20°	232.8	13.3
20°-30°	567.1	32.4
30°-40°	614.7	35.1
40°-50°	278.5	15.9
50°-60°	21.5	1.2
60°-70°	4.4	0.3
70°-80°	3.3	0.2
80°-90°	2.0	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°	825.9	47.2
0°-40°	1440.5	82.3
0°-60°	1740.6	99.4
0°-90°	1750.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1750.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	183	183	183	183	183	
5°	403	297	172	130	121	73
15°	3606	1180	115	84	86	1048
25°	6624	1694	51	50	64	3019
35°	6302	431	19	29	44	3876
45°	2586	54	7	16	26	2042
55°	54	7	4	10	15	124
65°	2	2	3	6	6	3
75°	2	2	3	5	3	1
85°	0	2	3	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°	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8
2.5°	273.8	268.9	271.4	264.9	260.8	257.6	259.2	257.6	247.0	244.6	236.4
5°	403.0	395.7	395.7	381.9	367.2	358.3	358.3	347.7	325.0	314.4	297.4
7.5°	722.3	707.7	695.5	652.4	596.4	564.7	556.5	511.9	454.2	417.6	374.6
10°	1594.9	1534.0	1490.9	1378.8	1228.5	1135.0	1095.2	940.9	757.2	619.1	494.0
12.5°	2682.0	2599.1	2523.6	2339.9	2123.8	1976.8	1898.0	1670.5	1313.8	1058.7	792.2
15°	3605.8	3516.4	3427.0	3203.6	2975.3	2847.7	2703.1	2401.7	1930.5	1568.1	1179.7
17.5°	4363.8	4313.5	4221.6	3894.2	3606.6	3407.5	3257.2	2863.2	2378.1	1964.6	1525.0
20°	5236.4	5112.1	4948.0	4550.7	4157.5	3908.0	3696.8	3216.6	2656.0	2180.7	1707.8
22.5°	5970.9	5882.3	5646.7	5122.7	4544.2	4331.3	4073.0	3495.3	2834.7	2272.5	1729.0
25°	6624.1	6485.2	6189.5	5566.3	4974.0	4611.6	4294.8	3646.4	2900.6	2279.0	1694.0
27.5°	7006.8	6825.6	6477.9	5798.7	5122.7	4722.1	4371.1	3672.4	2859.1	2192.9	1566.5
30°	7266.0	6905.3	6521.0	5801.1	5075.6	4666.1	4302.1	3541.6	2686.9	1996.3	1352.0
32.5°	6838.6	6629.8	6262.6	5570.4	4818.8	4419.1	4057.5	3258.0	2417.9	1704.6	940.9
35°	6301.6	6132.6	5813.3	5125.9	4433.7	4056.7	3673.2	2894.1	2067.8	1171.6	430.6
37.5°	5677.6	5545.2	5201.5	4573.4	3964.1	3595.2	3210.9	2466.7	1456.0	580.9	261.6
40°	4832.6	4720.5	4438.6	3934.0	3372.6	3021.6	2667.4	1845.1	790.5	324.2	170.6
42.5°	3972.2	3878.0	3621.2	3184.9	2691.7	2402.5	2090.5	1124.5	393.2	203.9	95.1
45°	2586.1	2468.3	2330.2	2130.3	1886.6	1708.6	1340.6	542.7	233.2	113.7	54.4
47.5°	1482.8	1404.8	1178.1	929.5	754.8	689.0	501.3	252.7	128.4	65.8	33.3
50°	666.2	615.9	516.7	420.9	304.7	238.1	202.3	126.7	63.4	35.7	22.7
52.5°	164.1	167.4	158.4	138.9	123.5	104.8	91.0	59.3	33.3	21.9	14.6
55°	54.4	55.2	50.4	47.9	43.9	40.6	37.4	26.8	20.3	19.5	7.3
57.5°	19.5	19.5	20.3	18.7	17.9	17.1	16.2	13.8	12.2	7.3	4.1
60°	7.3	7.3	7.3	8.1	8.1	8.1	8.9	8.1	5.7	4.1	3.2
62.5°	3.2	3.2	3.2	3.2	4.1	4.1	4.9	4.1	3.2	3.2	2.4
65°	1.6	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	2.4	2.4
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	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	1.6	1.6	1.6	2.4
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	2.4
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	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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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8
2.5°	228.3	223.4	213.7	206.4	200.7	199.9	195.0	186.9	183.6	177.9	173.1
5°	281.1	268.9	253.5	238.9	228.3	222.6	205.6	190.1	181.2	172.2	164.1
7.5°	338.0	310.4	283.6	260.0	245.4	236.4	216.1	190.9	174.7	161.7	151.1
10°	409.5	352.6	306.3	269.7	250.2	238.1	213.7	183.6	163.3	147.9	137.3
12.5°	572.8	417.6	327.4	274.6	250.2	233.2	203.9	173.9	151.1	132.4	121.1
15°	852.3	583.4	388.4	277.1	242.1	222.6	189.3	157.6	134.9	115.4	104.8
17.5°	1115.5	767.8	485.1	294.1	237.2	207.2	169.8	138.9	115.4	96.7	87.7
20°	1252.0	859.6	538.7	307.1	229.1	187.7	147.1	118.6	95.9	79.6	72.3
22.5°	1255.3	851.5	512.7	277.1	199.1	160.9	125.9	97.5	78.0	64.2	58.5
25°	1178.1	753.2	421.7	216.1	160.9	134.9	104.8	79.6	60.9	51.2	47.1
27.5°	1032.7	609.4	311.2	156.0	125.9	107.2	82.1	60.9	46.3	39.8	37.4
30°	798.7	377.0	172.2	115.4	95.1	80.4	59.3	40.6	34.9	30.9	29.2
32.5°	396.5	184.4	121.9	82.1	65.0	51.2	37.4	30.1	26.8	24.4	23.6
35°	215.3	132.4	76.4	49.6	39.0	32.5	25.2	21.1	19.5	18.7	18.7
37.5°	150.3	78.8	46.3	30.1	24.4	21.9	17.9	15.4	14.6	14.6	14.6
40°	82.9	47.1	28.4	19.5	16.2	14.6	12.2	11.4	11.4	11.4	12.2
42.5°	47.9	29.2	19.5	13.8	11.4	10.6	8.9	8.1	8.9	8.9	9.7
45°	30.9	21.9	13.0	9.7	8.1	7.3	6.5	6.5	7.3	7.3	8.1
47.5°	21.9	15.4	8.9	6.5	4.9	4.9	4.9	4.9	5.7	6.5	7.3
50°	13.0	8.1	4.9	4.1	3.2	3.2	3.2	4.1	4.9	4.9	5.7
52.5°	7.3	4.9	3.2	3.2	2.4	2.4	3.2	3.2	4.1	4.9	5.7
55°	4.1	3.2	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.1	4.9
57.5°	3.2	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.1	4.1
60°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.1	4.1
62.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	4.1
65°	2.4	2.4	2.4	3.2	2.4	3.2	3.2	3.2	3.2	3.2	4.1
67.5°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.1
70°	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.1
72.5°	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.1
75°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
77.5°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
80°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
82.5°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
85°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
87.5°	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8
2.5°	171.4	165.7	161.7	160.1	156.8	157.6	155.2	153.6	148.7	148.7	145.4
5°	158.4	151.1	146.2	143.8	140.6	139.7	137.3	134.9	130.0	129.2	126.7
7.5°	144.6	137.3	131.6	129.2	125.9	125.1	121.9	120.2	116.2	115.4	112.9
10°	130.0	121.9	117.0	114.6	111.3	111.3	108.9	107.2	104.0	104.0	102.4
12.5°	114.6	107.2	104.0	100.7	99.1	99.1	97.5	95.9	93.4	94.2	93.4
15°	98.3	92.6	89.4	87.7	86.9	86.9	86.1	85.3	83.7	85.3	83.7
17.5°	82.9	78.8	76.4	75.6	74.7	74.7	74.7	75.6	74.7	76.4	76.4
20°	68.2	65.0	63.4	63.4	62.6	64.2	64.2	65.8	65.8	68.2	69.1
22.5°	56.1	53.6	52.8	52.8	52.8	54.4	55.2	56.9	57.7	60.1	61.7
25°	44.7	43.9	43.9	43.9	44.7	46.3	47.9	49.6	50.4	53.6	54.4
27.5°	36.6	35.7	36.6	36.6	37.4	39.8	41.4	43.1	44.7	47.1	48.7
30°	29.2	29.2	30.1	30.9	31.7	33.3	35.7	37.4	39.0	41.4	43.1
32.5°	23.6	24.4	25.2	26.0	26.0	28.4	30.1	32.5	33.3	35.7	37.4
35°	19.5	20.3	21.1	21.9	21.9	24.4	26.0	27.6	29.2	30.9	32.5
37.5°	15.4	16.2	17.9	18.7	18.7	21.1	21.9	23.6	25.2	26.8	28.4
40°	13.0	13.8	15.4	15.4	16.2	17.9	18.7	20.3	21.9	23.6	25.2
42.5°	10.6	11.4	13.0	13.8	13.8	15.4	16.2	17.9	18.7	20.3	21.1
45°	9.7	9.7	11.4	11.4	12.2	13.0	14.6	15.4	16.2	17.9	18.7
47.5°	8.1	8.9	9.7	10.6	10.6	11.4	12.2	13.0	13.8	15.4	16.2
50°	6.5	7.3	8.9	8.9	8.9	10.6	11.4	12.2	12.2	13.0	13.8
52.5°	6.5	6.5	7.3	8.1	8.1	8.9	9.7	10.6	10.6	11.4	12.2
55°	5.7	5.7	6.5	7.3	7.3	8.1	8.9	8.9	9.7	9.7	10.6
57.5°	4.9	5.7	6.5	6.5	6.5	7.3	8.1	8.1	8.9	8.9	9.7
60°	4.9	5.7	5.7	6.5	6.5	7.3	7.3	7.3	8.1	8.1	8.1
62.5°	4.9	4.9	5.7	5.7	5.7	6.5	6.5	7.3	7.3	7.3	7.3
65°	4.9	4.9	5.7	5.7	5.7	6.5	6.5	6.5	6.5	6.5	6.5
67.5°	4.1	4.9	4.9	4.9	5.7	5.7	5.7	5.7	5.7	5.7	5.7
70°	4.1	4.1	4.9	4.9	4.9	5.7	5.7	5.7	5.7	5.7	5.7
72.5°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
75°	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.9	4.9	4.1	4.1
77.5°	3.2	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	3.2
80°	3.2	3.2	4.1	3.2	4.1	4.1	4.1	4.1	3.2	3.2	3.2
82.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4
85°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4	1.6
87.5°	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4	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



TEST NUMBER: P182708

CATALOG NUMBER: LDSQA4A18935D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	182.8	182.8	182.8	182.8	182.8	182.8	182.8	182.8
2.5°	143.8	145.4	143.8	145.4	141.4	143.0	144.6	140.6
5°	125.1	123.5	124.3	125.9	122.7	123.5	124.3	121.1
7.5°	112.1	112.9	111.3	112.9	110.5	111.3	112.1	109.7
10°	101.6	102.4	101.6	102.4	99.9	101.6	102.4	99.9
12.5°	91.8	93.4	92.6	94.2	91.8	93.4	95.1	91.8
15°	84.5	86.1	85.3	86.9	85.3	86.9	88.6	86.1
17.5°	77.2	78.8	78.8	80.4	79.6	81.2	82.9	80.4
20°	69.9	72.3	72.3	73.9	73.9	74.7	77.2	74.7
22.5°	63.4	65.8	65.8	67.4	67.4	69.1	70.7	69.1
25°	56.1	59.3	60.1	61.7	61.7	63.4	65.8	64.2
27.5°	51.2	53.6	54.4	56.1	56.9	58.5	60.1	58.5
30°	44.7	47.9	48.7	50.4	51.2	53.6	54.4	53.6
32.5°	39.8	42.2	43.1	44.7	46.3	47.9	49.6	48.7
35°	34.9	37.4	38.2	39.8	40.6	43.1	44.7	43.9
37.5°	30.9	33.3	34.1	34.9	35.7	38.2	39.8	39.0
40°	26.8	28.4	29.2	30.9	31.7	33.3	34.9	34.9
42.5°	23.6	25.2	26.0	26.8	27.6	29.2	30.9	30.1
45°	20.3	21.9	22.7	23.6	24.4	25.2	26.8	26.0
47.5°	17.1	18.7	19.5	20.3	21.1	21.9	23.6	22.7
50°	14.6	16.2	16.2	17.1	17.9	18.7	20.3	19.5
52.5°	13.0	13.8	14.6	14.6	15.4	16.2	17.9	17.1
55°	11.4	12.2	12.2	13.0	13.0	13.8	14.6	14.6
57.5°	9.7	10.6	10.6	11.4	11.4	12.2	13.0	13.0
60°	8.9	8.9	9.7	9.7	9.7	10.6	10.6	10.6
62.5°	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
65°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
67.5°	5.7	5.7	5.7	5.7	5.7	4.9	4.9	4.9
70°	4.9	4.9	4.9	4.9	4.9	4.1	4.1	4.1
72.5°	4.9	4.9	4.1	4.1	4.1	4.1	4.1	3.2
75°	4.1	4.1	4.1	4.1	3.2	3.2	3.2	3.2
77.5°	3.2	3.2	3.2	3.2	2.4	2.4	2.4	2.4
80°	3.2	2.4	2.4	2.4	2.4	2.4	2.4	1.6
82.5°	2.4	2.4	2.4	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°	1.6	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)