

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: P182730

Luminaire Tested: **LDSQA4A28927D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182730
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: LDSQA4A28927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2269.6 lumens
Efficiency: N/A
Efficacy: 51.0 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

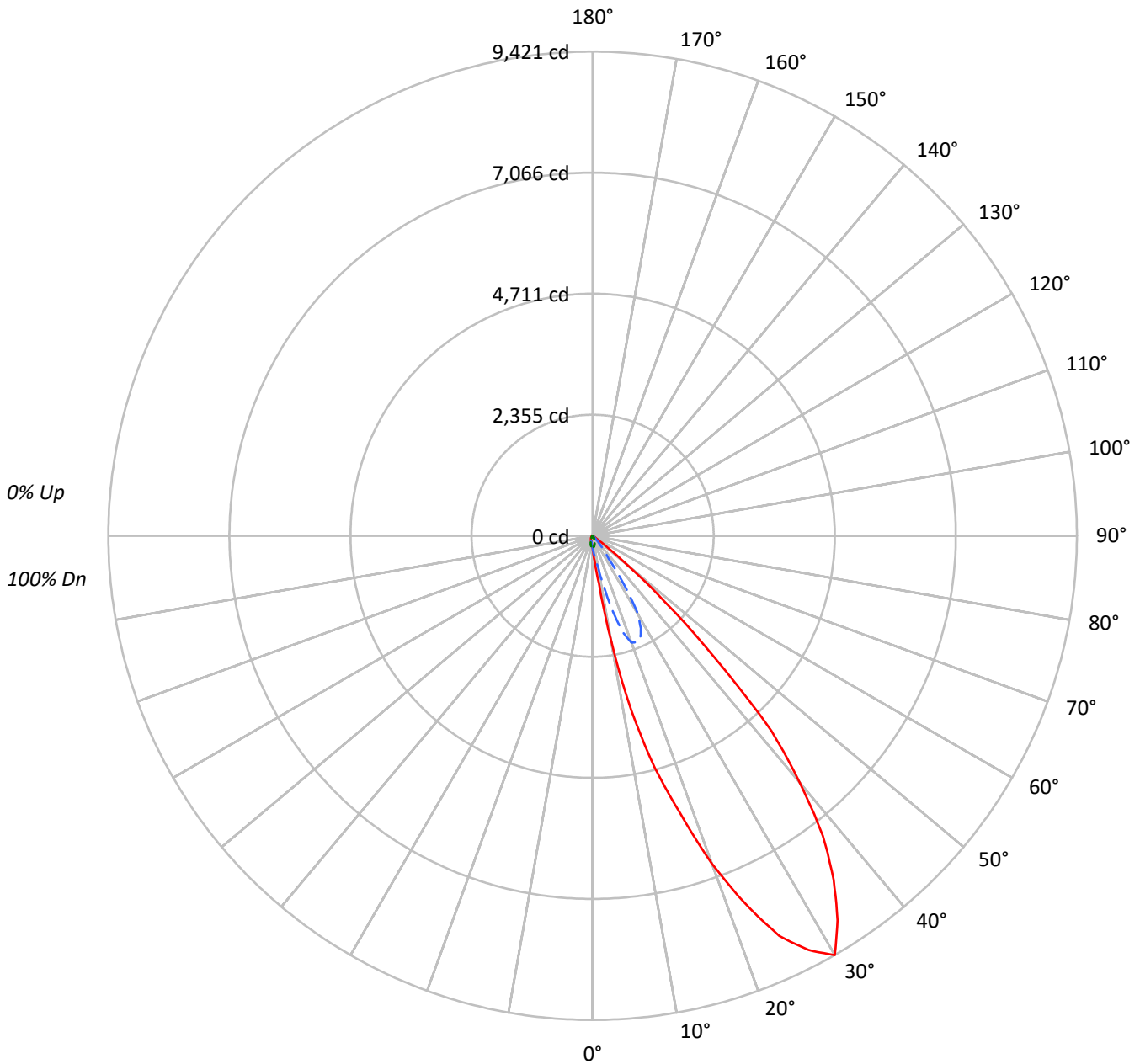
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91								
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83								
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75								
4	93	84	77	72	91	82	76	72	80	75	71	78	73	70	76	72	69	67								
5	87	77	70	64	85	76	69	64	74	68	64	72	67	63	70	66	62	61								
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55								
7	76	64	57	52	74	64	57	52	62	56	52	61	56	51	60	55	51	49								
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45								
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41								
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	38	37								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	22959	22959	22959
5°	50811	21715	15268
10°	203429	18858	12749
15°	468909	15004	11203
20°	699968	10639	9990
25°	918091	7098	8893
30°	1053886	4474	7774
35°	966304	2862	6729
40°	792423	1859	5729
45°	459397	1302	4617
50°	130200	949	3813
55°	11924	895	3209
60°	1841	1027	2654
65°	481	963	1926
70°	595	1190	1501
75°	786	1572	1572
80°	0	2343	1172
85°	0	4668	1223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	33.7	1.5
10°-20°	301.8	13.3
20°-30°	735.4	32.4
30°-40°	797.0	35.1
40°-50°	361.1	15.9
50°-60°	27.9	1.2
60°-70°	5.8	0.3
70°-80°	4.2	0.2
80°-90°	2.7	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°	1070.9	47.2
0°-40°	1867.8	82.3
0°-60°	2256.9	99.4
0°-90°	2269.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2269.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	237	237	237	237	237	
5°	522	386	223	169	157	94
15°	4675	1530	150	108	112	1359
25°	8589	2196	66	65	83	3915
35°	8171	558	24	38	57	5026
45°	3353	71	10	21	34	2647
55°	71	10	5	13	19	161
65°	2	3	4	8	8	3
75°	2	3	4	6	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°	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0
2.5°	355.0	348.7	351.9	343.4	338.2	334.0	336.1	334.0	320.3	317.1	306.6
5°	522.5	513.0	513.0	495.1	476.2	464.6	464.6	450.9	421.4	407.7	385.6
7.5°	936.5	917.6	901.8	845.9	773.3	732.2	721.6	663.7	588.9	541.5	485.7
10°	2068.0	1989.0	1933.1	1787.8	1592.9	1471.7	1420.1	1219.9	981.8	802.8	640.5
12.5°	3477.6	3370.1	3272.1	3034.0	2753.8	2563.1	2460.9	2166.0	1703.5	1372.7	1027.1
15°	4675.4	4559.5	4443.6	4153.9	3857.9	3692.5	3504.9	3114.1	2503.1	2033.2	1529.7
17.5°	5658.3	5592.9	5473.9	5049.3	4676.4	4418.3	4223.4	3712.5	3083.5	2547.3	1977.4
20°	6789.7	6628.5	6415.7	5900.6	5390.7	5067.3	4793.4	4170.7	3443.8	2827.6	2214.4
22.5°	7742.1	7627.2	7321.7	6642.2	5892.1	5616.1	5281.1	4532.1	3675.6	2946.6	2241.8
25°	8589.1	8408.9	8025.4	7217.4	6449.4	5979.6	5568.7	4728.0	3760.9	2955.0	2196.5
27.5°	9085.2	8850.3	8399.4	7518.7	6642.2	6122.8	5667.7	4761.7	3707.2	2843.4	2031.1
30°	9421.3	8953.6	8455.3	7521.9	6581.1	6050.2	5578.2	4592.1	3483.9	2588.4	1753.0
32.5°	8867.2	8596.4	8120.3	7222.7	6248.2	5729.9	5261.1	4224.5	3135.2	2210.2	1219.9
35°	8170.8	7951.7	7537.7	6646.4	5748.9	5260.0	4762.8	3752.5	2681.1	1519.1	558.3
37.5°	7361.7	7190.0	6744.4	5930.1	5139.9	4661.7	4163.4	3198.4	1887.8	753.2	339.2
40°	6266.1	6120.7	5755.2	5101.0	4373.0	3917.9	3458.6	2392.5	1025.0	420.3	221.2
42.5°	5150.5	5028.3	4695.4	4129.7	3490.2	3115.2	2710.6	1458.0	509.9	264.4	123.3
45°	3353.2	3200.5	3021.4	2762.2	2446.2	2215.5	1738.2	703.7	302.3	147.5	70.6
47.5°	1922.6	1821.5	1527.6	1205.2	978.7	893.4	650.0	327.6	166.5	85.3	43.2
50°	863.9	798.5	670.0	545.7	395.1	308.7	262.3	164.3	82.2	46.4	29.5
52.5°	212.8	217.0	205.4	180.1	160.1	135.9	118.0	76.9	43.2	28.4	19.0
55°	70.6	71.6	65.3	62.2	56.9	52.7	48.5	34.8	26.3	25.3	9.5
57.5°	25.3	25.3	26.3	24.2	23.2	22.1	21.1	17.9	15.8	9.5	5.3
60°	9.5	9.5	9.5	10.5	10.5	10.5	11.6	10.5	7.4	5.3	4.2
62.5°	4.2	4.2	4.2	4.2	5.3	5.3	6.3	5.3	4.2	4.2	3.2
65°	2.1	2.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
67.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2	3.2
70°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2	3.2
72.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2	3.2
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2
77.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.1	2.1	2.1	3.2
80°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.1	2.1	2.1	3.2
82.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.1	2.1	2.1	3.2
85°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.1	2.1	3.2
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.1	2.1	2.1
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°	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0
2.5°	296.0	289.7	277.1	267.6	260.2	259.2	252.8	242.3	238.1	230.7	224.4
5°	364.5	348.7	328.7	309.7	296.0	288.7	266.5	246.5	234.9	223.3	212.8
7.5°	438.2	402.4	367.7	337.1	318.2	306.6	280.2	247.6	226.5	209.6	195.9
10°	531.0	457.2	397.2	349.8	324.5	308.7	277.1	238.1	211.8	191.7	178.0
12.5°	742.7	541.5	424.6	356.1	324.5	302.3	264.4	225.4	195.9	171.7	157.0
15°	1105.1	756.4	503.6	359.2	313.9	288.7	245.5	204.4	174.9	149.6	135.9
17.5°	1446.4	995.5	628.9	381.4	307.6	268.6	220.2	180.1	149.6	125.4	113.8
20°	1623.4	1114.6	698.5	398.2	297.1	243.4	190.7	153.8	124.3	103.2	93.8
22.5°	1627.6	1104.1	664.7	359.2	258.1	208.6	163.3	126.4	101.1	83.2	75.9
25°	1527.6	976.6	546.8	280.2	208.6	174.9	135.9	103.2	79.0	66.4	61.1
27.5°	1339.0	790.1	403.5	202.3	163.3	139.1	106.4	79.0	60.0	51.6	48.5
30°	1035.6	488.8	223.3	149.6	123.3	104.3	76.9	52.7	45.3	40.0	37.9
32.5°	514.1	239.1	158.0	106.4	84.3	66.4	48.5	39.0	34.8	31.6	30.6
35°	279.2	171.7	99.0	64.3	50.6	42.1	32.7	27.4	25.3	24.2	24.2
37.5°	194.9	102.2	60.0	39.0	31.6	28.4	23.2	20.0	19.0	19.0	19.0
40°	107.5	61.1	36.9	25.3	21.1	19.0	15.8	14.7	14.7	14.7	15.8
42.5°	62.2	37.9	25.3	17.9	14.7	13.7	11.6	10.5	11.6	11.6	12.6
45°	40.0	28.4	16.9	12.6	10.5	9.5	8.4	8.4	9.5	9.5	10.5
47.5°	28.4	20.0	11.6	8.4	6.3	6.3	6.3	6.3	7.4	8.4	9.5
50°	16.9	10.5	6.3	5.3	4.2	4.2	4.2	5.3	6.3	6.3	7.4
52.5°	9.5	6.3	4.2	4.2	3.2	3.2	4.2	4.2	5.3	6.3	7.4
55°	5.3	4.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	5.3	6.3
57.5°	4.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	5.3	5.3
60°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	5.3	5.3
62.5°	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2	4.2	5.3
65°	3.2	3.2	3.2	4.2	3.2	4.2	4.2	4.2	4.2	4.2	5.3
67.5°	3.2	3.2	3.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	5.3
70°	3.2	3.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	5.3
72.5°	3.2	3.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	5.3
75°	3.2	3.2	3.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
77.5°	3.2	3.2	3.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
80°	3.2	3.2	3.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
82.5°	3.2	3.2	3.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
85°	3.2	3.2	3.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
87.5°	3.2	3.2	3.2	3.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
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°	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0
2.5°	222.3	214.9	209.6	207.5	203.3	204.4	201.2	199.1	192.8	192.8	188.6
5°	205.4	195.9	189.6	186.5	182.3	181.2	178.0	174.9	168.6	167.5	164.3
7.5°	187.5	178.0	170.7	167.5	163.3	162.2	158.0	155.9	150.6	149.6	146.4
10°	168.6	158.0	151.7	148.5	144.3	144.3	141.2	139.1	134.8	134.8	132.7
12.5°	148.5	139.1	134.8	130.6	128.5	128.5	126.4	124.3	121.2	122.2	121.2
15°	127.5	120.1	115.9	113.8	112.7	112.7	111.7	110.6	108.5	110.6	108.5
17.5°	107.5	102.2	99.0	98.0	96.9	96.9	96.9	98.0	96.9	99.0	99.0
20°	88.5	84.3	82.2	82.2	81.1	83.2	83.2	85.3	85.3	88.5	89.5
22.5°	72.7	69.5	68.5	68.5	68.5	70.6	71.6	73.7	74.8	78.0	80.1
25°	57.9	56.9	56.9	56.9	57.9	60.0	62.2	64.3	65.3	69.5	70.6
27.5°	47.4	46.4	47.4	47.4	48.5	51.6	53.7	55.8	57.9	61.1	63.2
30°	37.9	37.9	39.0	40.0	41.1	43.2	46.4	48.5	50.6	53.7	55.8
32.5°	30.6	31.6	32.7	33.7	33.7	36.9	39.0	42.1	43.2	46.4	48.5
35°	25.3	26.3	27.4	28.4	28.4	31.6	33.7	35.8	37.9	40.0	42.1
37.5°	20.0	21.1	23.2	24.2	24.2	27.4	28.4	30.6	32.7	34.8	36.9
40°	16.9	17.9	20.0	20.0	21.1	23.2	24.2	26.3	28.4	30.6	32.7
42.5°	13.7	14.7	16.9	17.9	17.9	20.0	21.1	23.2	24.2	26.3	27.4
45°	12.6	12.6	14.7	14.7	15.8	16.9	19.0	20.0	21.1	23.2	24.2
47.5°	10.5	11.6	12.6	13.7	13.7	14.7	15.8	16.9	17.9	20.0	21.1
50°	8.4	9.5	11.6	11.6	11.6	13.7	14.7	15.8	15.8	16.9	17.9
52.5°	8.4	8.4	9.5	10.5	10.5	11.6	12.6	13.7	13.7	14.7	15.8
55°	7.4	7.4	8.4	9.5	9.5	10.5	11.6	11.6	12.6	12.6	13.7
57.5°	6.3	7.4	8.4	8.4	8.4	9.5	10.5	10.5	11.6	11.6	12.6
60°	6.3	7.4	7.4	8.4	8.4	9.5	9.5	9.5	10.5	10.5	10.5
62.5°	6.3	6.3	7.4	7.4	7.4	8.4	8.4	9.5	9.5	9.5	9.5
65°	6.3	6.3	7.4	7.4	7.4	8.4	8.4	8.4	8.4	8.4	8.4
67.5°	5.3	6.3	6.3	6.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4
70°	5.3	5.3	6.3	6.3	6.3	7.4	7.4	7.4	7.4	7.4	7.4
72.5°	5.3	5.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
75°	5.3	5.3	5.3	5.3	5.3	6.3	6.3	6.3	6.3	5.3	5.3
77.5°	4.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.2
80°	4.2	4.2	5.3	4.2	5.3	5.3	5.3	5.3	4.2	4.2	4.2
82.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2
85°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2	3.2	2.1
87.5°	4.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2	3.2	2.1	2.1
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: P182730

CATALOG NUMBER: LDSQA4A28927D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	237.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0
2.5°	186.5	188.6	186.5	188.6	183.3	185.4	187.5	182.3
5°	162.2	160.1	161.2	163.3	159.1	160.1	161.2	157.0
7.5°	145.4	146.4	144.3	146.4	143.3	144.3	145.4	142.2
10°	131.7	132.7	131.7	132.7	129.6	131.7	132.7	129.6
12.5°	119.0	121.2	120.1	122.2	119.0	121.2	123.3	119.0
15°	109.6	111.7	110.6	112.7	110.6	112.7	114.8	111.7
17.5°	100.1	102.2	102.2	104.3	103.2	105.3	107.5	104.3
20°	90.6	93.8	93.8	95.9	95.9	96.9	100.1	96.9
22.5°	82.2	85.3	85.3	87.4	87.4	89.5	91.7	89.5
25°	72.7	76.9	78.0	80.1	80.1	82.2	85.3	83.2
27.5°	66.4	69.5	70.6	72.7	73.7	75.9	78.0	75.9
30°	57.9	62.2	63.2	65.3	66.4	69.5	70.6	69.5
32.5°	51.6	54.8	55.8	57.9	60.0	62.2	64.3	63.2
35°	45.3	48.5	49.5	51.6	52.7	55.8	57.9	56.9
37.5°	40.0	43.2	44.2	45.3	46.4	49.5	51.6	50.6
40°	34.8	36.9	37.9	40.0	41.1	43.2	45.3	45.3
42.5°	30.6	32.7	33.7	34.8	35.8	37.9	40.0	39.0
45°	26.3	28.4	29.5	30.6	31.6	32.7	34.8	33.7
47.5°	22.1	24.2	25.3	26.3	27.4	28.4	30.6	29.5
50°	19.0	21.1	21.1	22.1	23.2	24.2	26.3	25.3
52.5°	16.9	17.9	19.0	19.0	20.0	21.1	23.2	22.1
55°	14.7	15.8	15.8	16.9	16.9	17.9	19.0	19.0
57.5°	12.6	13.7	13.7	14.7	14.7	15.8	16.9	16.9
60°	11.6	11.6	12.6	12.6	12.6	13.7	13.7	13.7
62.5°	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
65°	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
67.5°	7.4	7.4	7.4	7.4	7.4	6.3	6.3	6.3
70°	6.3	6.3	6.3	6.3	6.3	5.3	5.3	5.3
72.5°	6.3	6.3	5.3	5.3	5.3	5.3	5.3	4.2
75°	5.3	5.3	5.3	5.3	4.2	4.2	4.2	4.2
77.5°	4.2	4.2	4.2	4.2	3.2	3.2	3.2	3.2
80°	4.2	3.2	3.2	3.2	3.2	3.2	3.2	2.1
82.5°	3.2	3.2	3.2	2.1	2.1	2.1	2.1	2.1
85°	2.1	2.1	2.1	2.1	1.1	1.1	1.1	1.1
87.5°	2.1	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)