

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: P182727

Luminaire Tested: **LDSQA4A28830D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182727
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: LDSQA4A28830D010TE 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 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2886.1 lumens
Efficiency: N/A
Efficacy: 64.9 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

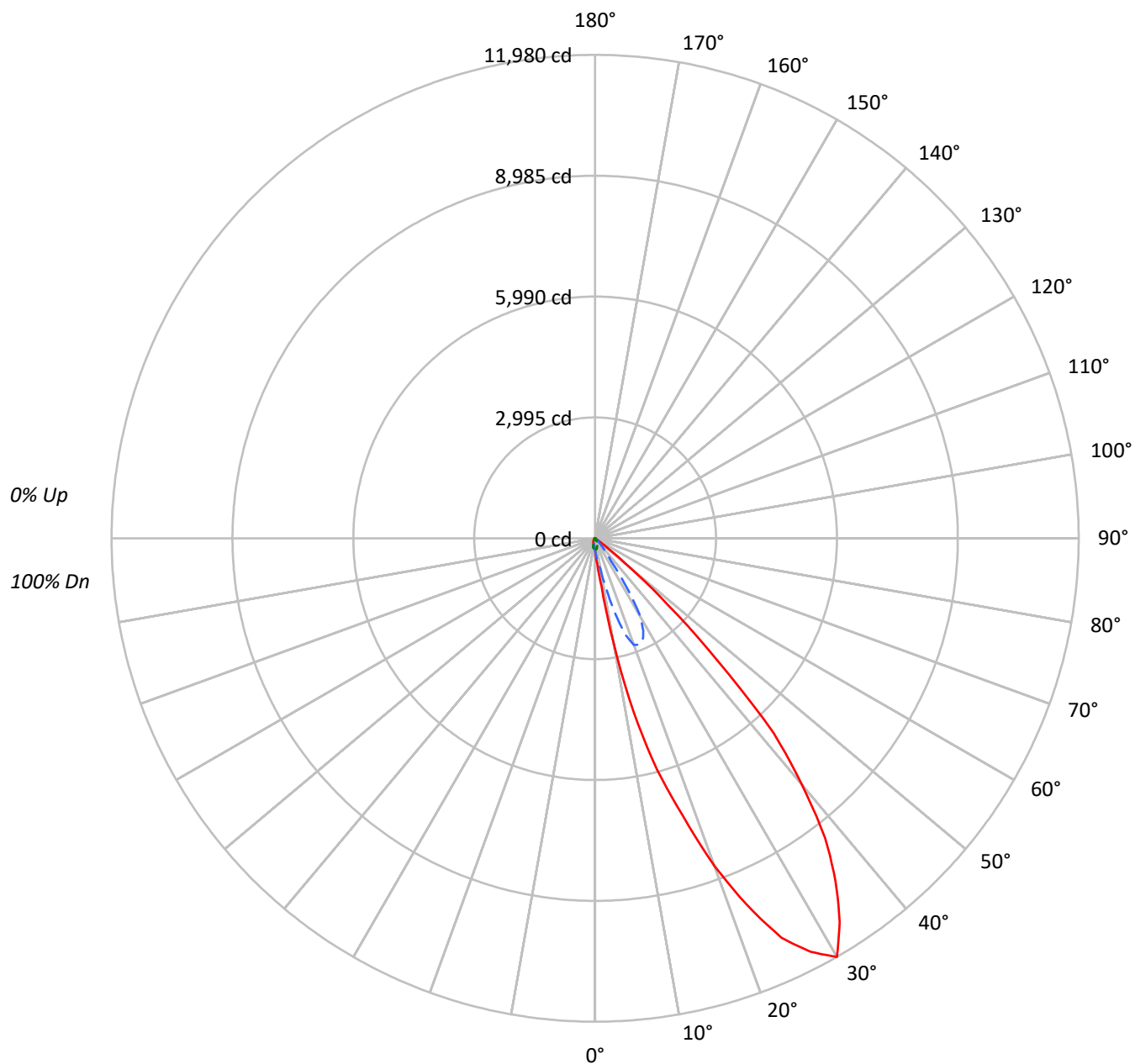
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	30	10	50	30	10
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°	29198	29198	29198
5°	64620	27618	19410
10°	258683	23983	16211
15°	596261	19076	14242
20°	890092	13536	12701
25°	1167444	9022	11309
30°	1340130	5694	9889
35°	1228765	3643	8550
40°	1007661	2377	7284
45°	584179	1658	5877
50°	165556	1206	4853
55°	15167	1132	4070
60°	2344	1298	3371
65°	619	1238	2453
70°	765	1530	1898
75°	1011	2021	2021
80°	0	3013	1506
85°	0	6002	1445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.8	1.5
10°-20°	383.8	13.3
20°-30°	935.1	32.4
30°-40°	1013.5	35.1
40°-50°	459.2	15.9
50°-60°	35.5	1.2
60°-70°	7.3	0.3
70°-80°	5.4	0.2
80°-90°	3.4	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°	1361.7	47.2
0°-40°	2375.2	82.3
0°-60°	2869.9	99.4
0°-90°	2886.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2886.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	301	301	301	301	301	
5°	664	490	284	214	200	120
15°	5945	1945	190	138	142	1728
25°	10922	2793	84	83	106	4978
35°	10390	710	31	48	72	6391
45°	4264	90	12	27	43	3366
55°	90	12	7	16	24	205
65°	3	4	5	11	11	4
75°	3	4	5	8	5	2
85°	0	4	5	4	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°	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4
2.5°	451.5	443.4	447.4	436.7	430.0	424.7	427.3	424.7	407.2	403.2	389.8
5°	664.5	652.4	652.4	629.6	605.5	590.8	590.8	573.4	535.8	518.4	490.3
7.5°	1190.9	1166.8	1146.7	1075.7	983.3	931.0	917.6	844.0	748.8	688.6	617.6
10°	2629.7	2529.2	2458.2	2273.3	2025.5	1871.5	1805.8	1551.3	1248.5	1020.8	814.5
12.5°	4422.1	4285.5	4160.9	3858.1	3501.8	3259.3	3129.4	2754.3	2166.2	1745.5	1306.1
15°	5945.2	5797.9	5650.5	5282.1	4905.7	4695.4	4456.9	3959.9	3182.9	2585.5	1945.1
17.5°	7195.1	7112.1	6960.7	6420.8	5946.6	5618.4	5370.5	4720.8	3921.1	3239.2	2514.5
20°	8633.9	8428.9	8158.3	7503.2	6854.8	6443.6	6095.3	5303.6	4379.2	3595.5	2815.9
22.5°	9844.9	9698.9	9310.4	8446.3	7492.5	7141.5	6715.5	5763.1	4673.9	3746.9	2850.7
25°	10921.9	10692.9	10205.2	9177.8	8201.2	7603.7	7081.2	6012.2	4782.5	3757.6	2793.1
27.5°	11552.9	11254.2	10680.8	9560.9	8446.3	7785.9	7207.2	6055.1	4714.1	3615.6	2582.8
30°	11980.2	11385.5	10751.8	9564.9	8368.6	7693.5	7093.3	5839.4	4430.1	3291.5	2229.1
32.5°	11275.6	10931.3	10325.8	9184.5	7945.3	7286.2	6690.1	5371.9	3986.7	2810.5	1551.3
35°	10390.1	10111.5	9585.0	8451.7	7310.3	6688.7	6056.4	4771.7	3409.3	1931.7	710.0
37.5°	9361.3	9142.9	8576.3	7540.7	6536.0	5927.8	5294.2	4067.1	2400.6	957.8	431.4
40°	7968.1	7783.2	7318.4	6486.5	5560.8	4982.1	4398.0	3042.3	1303.5	534.5	281.3
42.5°	6549.4	6394.0	5970.7	5251.3	4438.2	3961.3	3446.8	1854.0	648.4	336.2	156.7
45°	4264.0	4069.8	3842.0	3512.5	3110.6	2817.2	2210.4	894.9	384.5	187.5	89.8
47.5°	2444.8	2316.2	1942.5	1532.5	1244.5	1136.0	826.5	416.6	211.7	108.5	54.9
50°	1098.5	1015.4	852.0	693.9	502.4	392.5	333.6	209.0	104.5	58.9	37.5
52.5°	270.6	276.0	261.2	229.1	203.6	172.8	150.0	97.8	54.9	36.2	24.1
55°	89.8	91.1	83.1	79.0	72.3	67.0	61.6	44.2	33.5	32.2	12.1
57.5°	32.2	32.2	33.5	30.8	29.5	28.1	26.8	22.8	20.1	12.1	6.7
60°	12.1	12.1	12.1	13.4	13.4	13.4	14.7	13.4	9.4	6.7	5.4
62.5°	5.4	5.4	5.4	5.4	6.7	6.7	8.0	6.7	5.4	5.4	4.0
65°	2.7	2.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
67.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.0	4.0
70°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.0	4.0
72.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.0	4.0
75°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.0
77.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.7	2.7	2.7	4.0
80°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.7	2.7	2.7	4.0
82.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.7	2.7	2.7	4.0
85°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.7	2.7	4.0
87.5°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.7	2.7	2.7
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°	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4
2.5°	376.4	368.4	352.3	340.3	330.9	329.5	321.5	308.1	302.8	293.4	285.3
5°	463.5	443.4	418.0	393.8	376.4	367.1	338.9	313.5	298.7	284.0	270.6
7.5°	557.3	511.7	467.5	428.7	404.6	389.8	356.3	314.8	288.0	266.6	249.2
10°	675.2	581.4	505.0	444.8	412.6	392.5	352.3	302.8	269.3	243.8	226.4
12.5°	944.4	688.6	539.9	452.8	412.6	384.5	336.2	286.7	249.2	218.4	199.6
15°	1405.3	961.8	640.3	456.8	399.2	367.1	312.1	259.9	222.4	190.2	172.8
17.5°	1839.3	1265.9	799.8	484.9	391.2	341.6	280.0	229.1	190.2	159.4	144.7
20°	2064.4	1417.3	888.2	506.4	377.8	309.5	242.5	195.6	158.1	131.3	119.2
22.5°	2069.7	1403.9	845.3	456.8	328.2	265.2	207.6	160.8	128.6	105.8	96.5
25°	1942.5	1241.8	695.3	356.3	265.2	222.4	172.8	131.3	100.5	84.4	77.7
27.5°	1702.7	1004.7	513.1	257.2	207.6	176.8	135.3	100.5	76.4	65.6	61.6
30°	1316.8	621.6	284.0	190.2	156.7	132.6	97.8	67.0	57.6	50.9	48.2
32.5°	653.7	304.1	200.9	135.3	107.2	84.4	61.6	49.6	44.2	40.2	38.8
35°	355.0	218.4	125.9	81.7	64.3	53.6	41.5	34.8	32.2	30.8	30.8
37.5°	247.8	129.9	76.4	49.6	40.2	36.2	29.5	25.5	24.1	24.1	24.1
40°	136.6	77.7	46.9	32.2	26.8	24.1	20.1	18.8	18.8	18.8	20.1
42.5°	79.0	48.2	32.2	22.8	18.8	17.4	14.7	13.4	14.7	14.7	16.1
45°	50.9	36.2	21.4	16.1	13.4	12.1	10.7	10.7	12.1	12.1	13.4
47.5°	36.2	25.5	14.7	10.7	8.0	8.0	8.0	8.0	9.4	10.7	12.1
50°	21.4	13.4	8.0	6.7	5.4	5.4	5.4	6.7	8.0	8.0	9.4
52.5°	12.1	8.0	5.4	5.4	4.0	4.0	5.4	5.4	6.7	8.0	9.4
55°	6.7	5.4	4.0	4.0	4.0	4.0	4.0	5.4	5.4	6.7	8.0
57.5°	5.4	4.0	4.0	4.0	4.0	4.0	4.0	5.4	5.4	6.7	6.7
60°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.4	5.4	6.7	6.7
62.5°	4.0	4.0	4.0	4.0	4.0	4.0	5.4	5.4	5.4	5.4	6.7
65°	4.0	4.0	4.0	5.4	4.0	5.4	5.4	5.4	5.4	5.4	6.7
67.5°	4.0	4.0	4.0	5.4	5.4	5.4	5.4	5.4	5.4	5.4	6.7
70°	4.0	4.0	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	6.7
72.5°	4.0	4.0	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	6.7
75°	4.0	4.0	4.0	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
77.5°	4.0	4.0	4.0	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
80°	4.0	4.0	4.0	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
82.5°	4.0	4.0	4.0	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
85°	4.0	4.0	4.0	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
87.5°	4.0	4.0	4.0	4.0	5.4	5.4	5.4	5.4	5.4	5.4	5.4
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°	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4
2.5°	282.7	273.3	266.6	263.9	258.5	259.9	255.9	253.2	245.2	245.2	239.8
5°	261.2	249.2	241.1	237.1	231.8	230.4	226.4	222.4	214.3	213.0	209.0
7.5°	238.5	226.4	217.0	213.0	207.6	206.3	200.9	198.3	191.6	190.2	186.2
10°	214.3	200.9	192.9	188.9	183.5	183.5	179.5	176.8	171.5	171.5	168.8
12.5°	188.9	176.8	171.5	166.1	163.4	163.4	160.8	158.1	154.1	155.4	154.1
15°	162.1	152.7	147.4	144.7	143.3	143.3	142.0	140.7	138.0	140.7	138.0
17.5°	136.6	129.9	125.9	124.6	123.2	123.2	123.2	124.6	123.2	125.9	125.9
20°	112.5	107.2	104.5	104.5	103.2	105.8	105.8	108.5	108.5	112.5	113.9
22.5°	92.4	88.4	87.1	87.1	87.1	89.8	91.1	93.8	95.1	99.1	101.8
25°	73.7	72.3	72.3	72.3	73.7	76.4	79.0	81.7	83.1	88.4	89.8
27.5°	60.3	58.9	60.3	60.3	61.6	65.6	68.3	71.0	73.7	77.7	80.4
30°	48.2	48.2	49.6	50.9	52.2	54.9	58.9	61.6	64.3	68.3	71.0
32.5°	38.8	40.2	41.5	42.9	42.9	46.9	49.6	53.6	54.9	58.9	61.6
35°	32.2	33.5	34.8	36.2	36.2	40.2	42.9	45.5	48.2	50.9	53.6
37.5°	25.5	26.8	29.5	30.8	30.8	34.8	36.2	38.8	41.5	44.2	46.9
40°	21.4	22.8	25.5	25.5	26.8	29.5	30.8	33.5	36.2	38.8	41.5
42.5°	17.4	18.8	21.4	22.8	22.8	25.5	26.8	29.5	30.8	33.5	34.8
45°	16.1	16.1	18.8	18.8	20.1	21.4	24.1	25.5	26.8	29.5	30.8
47.5°	13.4	14.7	16.1	17.4	17.4	18.8	20.1	21.4	22.8	25.5	26.8
50°	10.7	12.1	14.7	14.7	14.7	17.4	18.8	20.1	20.1	21.4	22.8
52.5°	10.7	10.7	12.1	13.4	13.4	14.7	16.1	17.4	17.4	18.8	20.1
55°	9.4	9.4	10.7	12.1	12.1	13.4	14.7	14.7	16.1	16.1	17.4
57.5°	8.0	9.4	10.7	10.7	10.7	12.1	13.4	13.4	14.7	14.7	16.1
60°	8.0	9.4	9.4	10.7	10.7	12.1	12.1	12.1	13.4	13.4	13.4
62.5°	8.0	8.0	9.4	9.4	9.4	10.7	10.7	12.1	12.1	12.1	12.1
65°	8.0	8.0	9.4	9.4	9.4	10.7	10.7	10.7	10.7	10.7	10.7
67.5°	6.7	8.0	8.0	8.0	9.4	9.4	9.4	9.4	9.4	9.4	9.4
70°	6.7	6.7	8.0	8.0	8.0	9.4	9.4	9.4	9.4	9.4	9.4
72.5°	6.7	6.7	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
75°	6.7	6.7	6.7	6.7	6.7	8.0	8.0	8.0	8.0	6.7	6.7
77.5°	5.4	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	5.4
80°	5.4	5.4	6.7	5.4	6.7	6.7	6.7	6.7	5.4	5.4	5.4
82.5°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	4.0	4.0
85°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	4.0	4.0	4.0	2.7
87.5°	5.4	5.4	5.4	5.4	5.4	5.4	4.0	4.0	4.0	2.7	2.7
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: P182727

CATALOG NUMBER: LDSQA4A28830D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	301.4	301.4	301.4	301.4	301.4	301.4	301.4	301.4
2.5°	237.1	239.8	237.1	239.8	233.1	235.8	238.5	231.8
5°	206.3	203.6	205.0	207.6	202.3	203.6	205.0	199.6
7.5°	184.9	186.2	183.5	186.2	182.2	183.5	184.9	180.8
10°	167.5	168.8	167.5	168.8	164.8	167.5	168.8	164.8
12.5°	151.4	154.1	152.7	155.4	151.4	154.1	156.7	151.4
15°	139.3	142.0	140.7	143.3	140.7	143.3	146.0	142.0
17.5°	127.3	129.9	129.9	132.6	131.3	134.0	136.6	132.6
20°	115.2	119.2	119.2	121.9	121.9	123.2	127.3	123.2
22.5°	104.5	108.5	108.5	111.2	111.2	113.9	116.5	113.9
25°	92.4	97.8	99.1	101.8	101.8	104.5	108.5	105.8
27.5°	84.4	88.4	89.8	92.4	93.8	96.5	99.1	96.5
30°	73.7	79.0	80.4	83.1	84.4	88.4	89.8	88.4
32.5°	65.6	69.7	71.0	73.7	76.4	79.0	81.7	80.4
35°	57.6	61.6	63.0	65.6	67.0	71.0	73.7	72.3
37.5°	50.9	54.9	56.3	57.6	58.9	63.0	65.6	64.3
40°	44.2	46.9	48.2	50.9	52.2	54.9	57.6	57.6
42.5°	38.8	41.5	42.9	44.2	45.5	48.2	50.9	49.6
45°	33.5	36.2	37.5	38.8	40.2	41.5	44.2	42.9
47.5°	28.1	30.8	32.2	33.5	34.8	36.2	38.8	37.5
50°	24.1	26.8	26.8	28.1	29.5	30.8	33.5	32.2
52.5°	21.4	22.8	24.1	24.1	25.5	26.8	29.5	28.1
55°	18.8	20.1	20.1	21.4	21.4	22.8	24.1	24.1
57.5°	16.1	17.4	17.4	18.8	18.8	20.1	21.4	21.4
60°	14.7	14.7	16.1	16.1	16.1	17.4	17.4	17.4
62.5°	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4
65°	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7
67.5°	9.4	9.4	9.4	9.4	9.4	8.0	8.0	8.0
70°	8.0	8.0	8.0	8.0	8.0	6.7	6.7	6.7
72.5°	8.0	8.0	6.7	6.7	6.7	6.7	6.7	5.4
75°	6.7	6.7	6.7	6.7	5.4	5.4	5.4	5.4
77.5°	5.4	5.4	5.4	5.4	4.0	4.0	4.0	4.0
80°	5.4	4.0	4.0	4.0	4.0	4.0	4.0	2.7
82.5°	4.0	4.0	4.0	2.7	2.7	2.7	2.7	2.7
85°	2.7	2.7	2.7	2.7	1.3	1.3	1.3	1.3
87.5°	2.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)