

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: P209077

Luminaire Tested: **LDSQA6A55830D010TE LARH40FL 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209077
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26688)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA6A55830D010TE LARH40FL 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 40° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5177.2 lumens
Efficiency: N/A
Efficacy: 85.2 lumens/watt
Spacing Criteria (0/90/45): 2.63 / 0.54 / 1.37
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
CIE Type: Direct

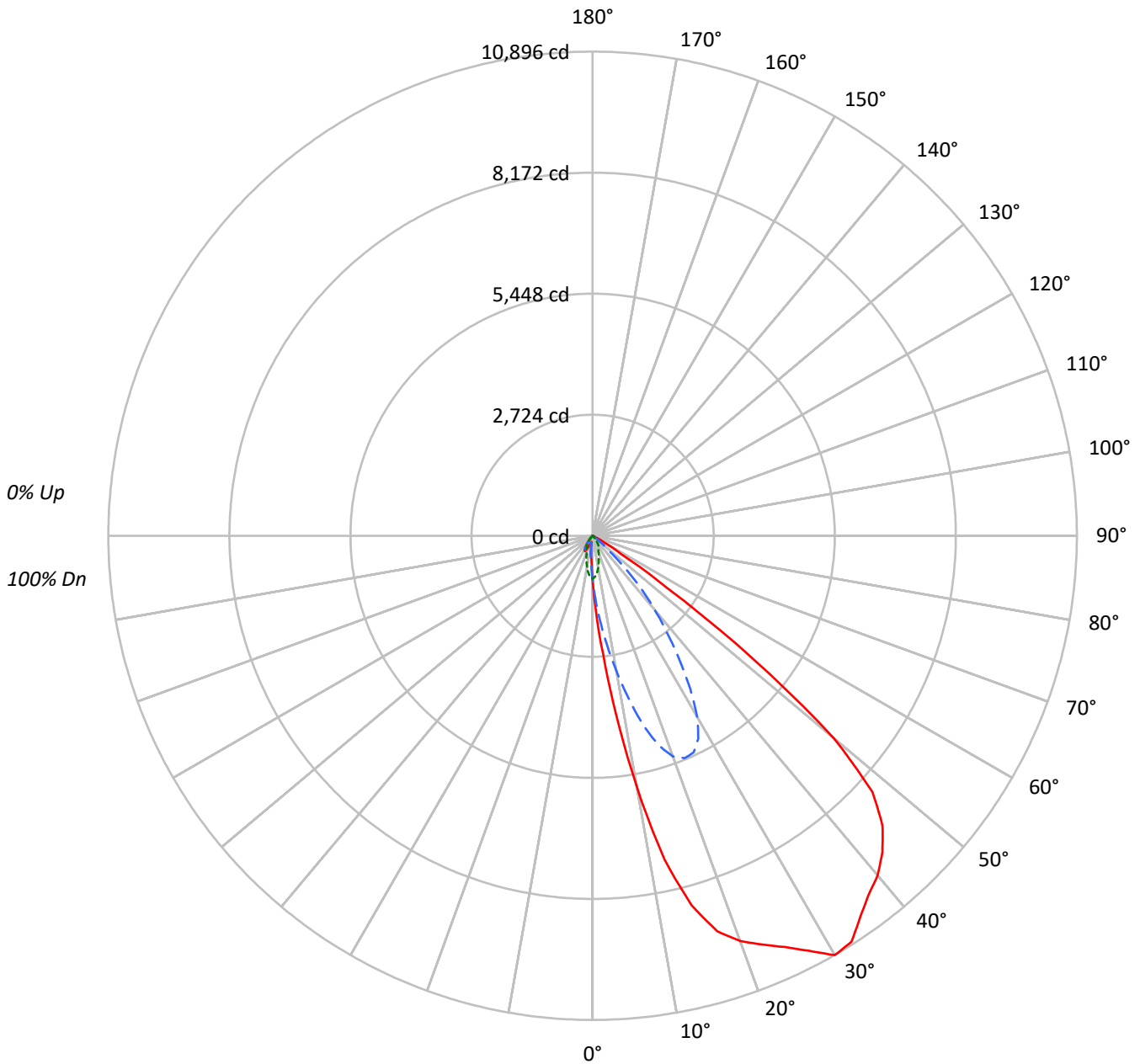
Input Watts (W): 60.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P209077

CATALOG NUMBER: LDSQA6A55830D010TE LARH40FL 6LSQA1H 30°

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									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	112	109	106	103	110	107	104	102	103	100	98	99	97	95	95	94	93	91																			
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	85	83	81																			
3	98	90	84	79	96	88	83	78	86	81	77	83	79	76	81	77	74	73																			
4	91	82	75	70	89	80	74	69	78	73	68	76	71	67	74	70	67	65																			
5	85	74	67	62	83	73	66	61	71	65	61	70	64	60	68	63	60	58																			
6	79	68	60	55	77	67	60	55	65	59	54	64	58	54	62	57	54	52																			
7	74	62	55	49	72	61	54	49	60	53	49	59	53	49	57	52	48	46																			
8	69	57	49	44	67	56	49	44	55	49	44	54	48	44	53	47	44	42																			
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	43	39	38																			
10	60	48	41	36	59	48	41	36	47	41	36	46	40	36	45	40	36	34																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	41777	41777	41777
5°	114667	38492	15706
10°	251276	31500	5985
15°	383822	23981	7020
20°	444695	17842	10909
25°	485100	14670	17606
30°	541710	13304	17977
35°	551157	9125	12326
40°	560843	4328	6239
45°	561752	1796	2728
50°	474907	777	837
55°	152923	540	135
60°	30371	620	0
65°	3097	734	0
70°	340	1020	0
75°	0	1347	0
80°	0	2232	223
85°	0	4446	445



TEST NUMBER: P209077

CATALOG NUMBER: LDSQA6A55830D010TE LARH40FL 6LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	131.7	2.5
10°-20°	681.2	13.2
20°-30°	1304.3	25.2
30°-40°	1536.7	29.7
40°-50°	1207.0	23.3
50°-60°	294.2	5.7
60°-70°	12.6	0.2
70°-80°	4.8	0.1
80°-90°	4.8	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°	2117.2	40.9
0°-40°	3653.9	70.6
0°-60°	5155.0	99.6
0°-90°	5177.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5177.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	970	970	970	970	970	
5°	2653	1920	891	466	363	351
15°	8611	4423	538	154	158	2404
25°	10211	5378	309	323	371	4759
35°	10486	3400	174	224	234	6575
45°	9226	1051	30	41	45	6932
55°	2037	38	7	4	2	2425
65°	30	4	7	4	0	81
75°	0	4	8	5	0	0
85°	0	5	9	5	1	0
90°	0	0	0	0	0	



TEST NUMBER: P209077

CATALOG NUMBER: LDSQA6A55830D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3
2.5°	1663.1	1659.5	1635.3	1657.7	1589.7	1587.0	1556.6	1543.1	1503.8	1466.2	1412.5
5°	2653.1	2594.9	2547.4	2549.2	2418.5	2394.4	2326.3	2257.4	2151.8	2053.3	1920.0
7.5°	4044.0	3975.1	3874.9	3832.8	3583.1	3509.7	3369.1	3185.6	2955.6	2726.5	2479.4
10°	5747.4	5758.1	5628.3	5508.4	5130.7	4982.1	4754.7	4393.1	3957.2	3526.7	3089.0
12.5°	7461.5	7454.3	7299.5	7117.8	6652.3	6442.9	6140.3	5689.2	5111.9	4444.1	3759.4
15°	8610.8	8661.8	8596.5	8451.5	8054.0	7814.2	7473.1	6860.9	6157.3	5346.4	4422.7
17.5°	9332.2	9380.6	9357.3	9243.6	8892.7	8636.7	8352.1	7850.9	7037.2	6017.7	4945.4
20°	9705.5	9781.6	9770.8	9647.3	9382.4	9170.2	8856.0	8391.5	7687.1	6484.1	5283.7
22.5°	9954.3	10012.5	10028.6	9889.0	9615.1	9413.7	9183.7	8712.8	8050.5	6768.7	5418.0
25°	10211.2	10314.2	10213.0	10041.2	9789.6	9596.3	9351.0	8899.9	8224.1	6885.1	5377.7
27.5°	10526.3	10575.5	10346.4	10189.7	9910.5	9701.0	9440.5	9008.2	8254.5	6792.0	5147.7
30°	10896.0	10691.9	10531.7	10221.1	9904.2	9700.1	9435.2	8940.2	8094.3	6483.2	4701.9
32.5°	10835.1	10648.0	10466.3	10137.8	9824.5	9622.2	9326.9	8713.7	7715.7	5966.7	4087.0
35°	10486.0	10526.3	10330.3	10058.2	9703.7	9495.1	9172.9	8391.5	7073.0	5254.2	3399.6
37.5°	10191.5	10280.1	10152.1	9900.6	9540.8	9258.8	8823.8	7874.1	6234.3	4350.2	2747.9
40°	9978.5	10007.1	9938.2	9656.3	9223.9	8816.7	8313.6	6945.0	5215.7	3414.8	2168.8
42.5°	9648.2	9724.3	9602.6	9294.6	8639.4	8178.5	7449.9	5871.8	4051.2	2608.3	1632.6
45°	9225.7	9298.2	9147.8	8635.9	7724.7	7048.9	6160.0	4578.4	2996.8	1922.7	1050.8
47.5°	8536.5	8581.3	8290.3	7582.3	6257.6	5621.2	4710.0	3191.9	1930.7	1075.0	511.1
50°	7090.0	7068.5	6468.8	5597.9	4185.5	3517.7	2803.4	1730.2	867.3	509.3	319.5
52.5°	4569.4	4520.2	3926.8	3134.6	2119.6	1617.4	1215.5	746.5	452.0	284.6	126.2
55°	2037.2	2018.4	1652.3	1283.6	867.3	746.5	570.2	366.1	240.8	99.4	38.5
57.5°	755.5	738.5	650.7	546.0	418.9	348.2	276.6	175.4	61.8	33.1	20.6
60°	352.7	351.8	309.7	255.1	177.2	134.3	77.9	41.2	26.0	17.9	11.6
62.5°	112.8	110.1	77.0	56.4	40.3	34.9	27.7	20.6	13.4	9.8	7.2
65°	30.4	30.4	27.7	23.3	18.8	16.1	13.4	9.8	6.3	5.4	4.5
67.5°	11.6	11.6	10.7	9.8	7.2	6.3	5.4	4.5	3.6	4.5	4.5
70°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.6	3.6	4.5
72.5°	0.0	0.0	0.9	0.9	1.8	1.8	2.7	2.7	3.6	4.5	4.5
75°	0.0	0.0	0.9	0.9	1.8	1.8	2.7	2.7	3.6	4.5	4.5
77.5°	0.0	0.0	0.9	0.9	1.8	1.8	2.7	2.7	3.6	4.5	4.5
80°	0.0	0.0	0.9	0.9	1.8	1.8	2.7	2.7	3.6	4.5	4.5
82.5°	0.0	0.0	0.9	1.8	1.8	1.8	2.7	3.6	3.6	4.5	5.4
85°	0.0	0.0	0.9	1.8	1.8	2.7	2.7	3.6	3.6	4.5	5.4
87.5°	0.0	0.0	0.9	1.8	1.8	2.7	2.7	3.6	3.6	4.5	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



TEST NUMBER: P209077

CATALOG NUMBER: LDSQA6A55830D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3
2.5°	1373.1	1314.0	1232.5	1185.1	1173.5	1148.4	1104.5	1039.2	985.5	933.6	903.1
5°	1807.2	1667.6	1510.9	1400.8	1356.1	1296.1	1189.6	1079.5	978.3	890.6	821.7
7.5°	2267.3	2037.2	1783.9	1579.8	1506.4	1411.6	1237.9	1074.1	935.4	813.6	721.4
10°	2724.7	2354.1	2010.4	1715.0	1595.1	1466.2	1237.0	1024.9	862.0	720.5	618.5
12.5°	3182.1	2649.5	2176.9	1796.5	1640.7	1477.8	1200.3	949.7	768.9	624.8	527.2
15°	3604.5	2884.9	2289.6	1824.2	1636.2	1443.8	1126.0	858.4	671.3	538.0	447.5
17.5°	3919.6	3008.4	2315.6	1782.1	1565.5	1352.5	1012.3	751.0	578.2	461.0	368.8
20°	4074.5	3028.1	2253.8	1662.2	1443.8	1222.7	887.9	648.0	498.6	389.4	311.5
22.5°	4074.5	2935.0	2119.6	1511.8	1291.6	1073.2	768.0	563.0	435.9	339.2	273.9
25°	3919.6	2749.7	1939.7	1338.2	1124.2	925.5	664.2	499.5	387.6	308.8	254.2
27.5°	3618.9	2493.7	1708.7	1144.8	959.5	793.9	581.8	441.3	350.9	278.4	279.3
30°	3205.3	2179.6	1443.8	940.7	790.4	652.5	489.6	369.7	281.1	267.6	275.7
32.5°	2727.3	1803.6	1143.9	729.5	612.2	513.8	372.4	261.4	223.8	225.6	234.5
35°	2236.8	1419.6	861.1	540.6	455.6	372.4	244.4	171.9	170.1	173.6	179.9
37.5°	1766.0	1062.5	623.0	395.6	306.1	229.1	131.6	118.2	118.2	121.7	125.3
40°	1322.9	753.7	428.7	234.5	148.6	104.7	83.2	77.0	76.1	77.0	81.5
42.5°	908.5	477.1	255.1	94.0	71.6	60.9	52.8	48.3	47.4	48.3	51.0
45°	510.2	293.6	99.4	50.1	43.0	38.5	33.1	30.4	29.5	29.5	31.3
47.5°	319.5	116.4	44.8	31.3	26.9	25.1	21.5	19.7	18.8	18.8	19.7
50°	122.6	45.6	27.7	20.6	17.9	16.1	14.3	12.5	11.6	11.6	12.5
52.5°	42.1	26.9	17.9	13.4	11.6	10.7	9.0	8.1	8.1	8.1	8.1
55°	23.3	16.1	10.7	8.1	7.2	7.2	7.2	7.2	7.2	7.2	7.2
57.5°	14.3	9.8	7.2	6.3	6.3	6.3	6.3	6.3	6.3	7.2	7.2
60°	8.1	6.3	5.4	5.4	5.4	5.4	6.3	6.3	6.3	7.2	7.2
62.5°	5.4	5.4	5.4	5.4	5.4	5.4	6.3	6.3	7.2	7.2	7.2
65°	4.5	4.5	4.5	5.4	5.4	5.4	6.3	6.3	7.2	7.2	7.2
67.5°	4.5	4.5	5.4	5.4	5.4	6.3	6.3	7.2	7.2	7.2	7.2
70°	4.5	5.4	5.4	6.3	6.3	6.3	7.2	7.2	7.2	8.1	8.1
72.5°	4.5	5.4	5.4	6.3	6.3	6.3	7.2	7.2	8.1	8.1	8.1
75°	5.4	5.4	5.4	6.3	6.3	6.3	7.2	8.1	8.1	8.1	8.1
77.5°	5.4	5.4	6.3	6.3	6.3	7.2	7.2	8.1	8.1	8.1	8.1
80°	5.4	5.4	6.3	6.3	7.2	7.2	8.1	8.1	8.1	9.0	9.0
82.5°	5.4	5.4	6.3	7.2	7.2	7.2	8.1	8.1	9.0	9.0	9.0
85°	5.4	6.3	6.3	7.2	7.2	7.2	8.1	8.1	9.0	9.0	9.0
87.5°	5.4	6.3	6.3	7.2	7.2	7.2	8.1	8.1	9.0	9.0	9.0
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: P209077

CATALOG NUMBER: LDSQA6A55830D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3
2.5°	862.9	825.3	787.7	759.9	746.5	733.1	703.5	665.1	648.9	625.7	612.2
5°	751.9	688.3	638.2	605.1	585.4	559.4	525.4	487.8	466.3	442.2	426.1
7.5°	637.3	563.0	514.7	484.2	464.6	432.3	389.4	344.6	318.7	291.8	273.0
10°	537.1	466.3	411.7	376.8	351.8	314.2	271.2	239.9	217.5	194.2	175.4
12.5°	448.4	372.4	314.2	284.6	267.6	231.8	196.0	161.1	147.7	143.2	143.2
15°	363.4	294.5	245.3	220.2	202.3	163.8	156.6	154.9	154.0	153.1	154.9
17.5°	296.3	238.1	186.2	173.6	171.9	171.0	171.9	171.9	172.8	175.4	179.9
20°	248.8	195.1	191.5	192.4	192.4	196.0	200.5	204.1	207.7	212.1	220.2
22.5°	221.1	220.2	226.5	227.4	231.8	237.2	245.3	250.6	259.6	264.1	275.7
25°	255.1	261.4	273.0	276.6	283.7	292.7	305.2	312.4	323.1	328.5	341.9
27.5°	289.1	299.0	313.3	317.8	324.0	338.3	347.3	353.6	358.9	362.5	370.6
30°	286.4	295.4	309.7	310.6	319.5	329.4	334.8	340.1	343.7	342.8	347.3
32.5°	242.6	250.6	264.1	264.1	273.9	282.0	284.6	289.1	289.1	289.1	290.9
35°	186.2	191.5	200.5	203.2	211.2	216.6	218.4	223.8	223.8	222.0	222.0
37.5°	128.9	136.1	142.3	144.1	149.5	153.1	157.5	158.4	156.6	157.5	157.5
40°	84.1	88.6	93.1	94.0	98.5	101.1	105.6	105.6	106.5	105.6	107.4
42.5°	51.9	55.5	58.2	60.0	61.8	63.6	66.2	67.1	68.0	67.1	68.9
45°	32.2	34.0	35.8	36.7	37.6	38.5	41.2	41.2	41.2	41.2	42.1
47.5°	19.7	20.6	21.5	21.5	22.4	23.3	24.2	24.2	24.2	24.2	25.1
50°	11.6	12.5	12.5	12.5	13.4	13.4	14.3	14.3	14.3	13.4	14.3
52.5°	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	7.2	8.1
55°	7.2	7.2	6.3	6.3	6.3	6.3	6.3	5.4	4.5	4.5	3.6
57.5°	6.3	6.3	6.3	6.3	6.3	5.4	5.4	4.5	4.5	3.6	2.7
60°	6.3	6.3	6.3	6.3	6.3	5.4	5.4	4.5	3.6	3.6	2.7
62.5°	7.2	6.3	6.3	6.3	6.3	5.4	5.4	4.5	3.6	3.6	2.7
65°	7.2	7.2	6.3	6.3	6.3	5.4	5.4	4.5	4.5	3.6	2.7
67.5°	7.2	7.2	7.2	6.3	7.2	6.3	5.4	5.4	4.5	3.6	3.6
70°	8.1	7.2	7.2	7.2	7.2	6.3	6.3	5.4	4.5	3.6	3.6
72.5°	8.1	8.1	7.2	7.2	7.2	6.3	6.3	5.4	4.5	4.5	3.6
75°	8.1	8.1	7.2	7.2	7.2	6.3	6.3	5.4	5.4	4.5	3.6
77.5°	8.1	8.1	8.1	7.2	7.2	7.2	6.3	6.3	5.4	4.5	3.6
80°	8.1	8.1	8.1	8.1	8.1	7.2	7.2	6.3	5.4	4.5	3.6
82.5°	9.0	8.1	8.1	8.1	8.1	7.2	7.2	6.3	5.4	4.5	4.5
85°	9.0	9.0	8.1	8.1	8.1	7.2	7.2	6.3	5.4	5.4	4.5
87.5°	9.0	8.1	8.1	8.1	8.1	7.2	7.2	6.3	5.4	4.5	4.5
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: P209077

CATALOG NUMBER: LDSQA6A55830D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	970.3	970.3	970.3	970.3	970.3	970.3	970.3	970.3
2.5°	598.8	591.7	591.7	579.1	577.3	567.5	575.5	570.2
5°	408.2	396.5	392.9	380.4	375.9	364.3	367.9	363.4
7.5°	256.9	245.3	241.7	232.7	227.4	218.4	219.3	216.6
10°	156.6	145.9	143.2	140.5	137.8	136.9	137.8	136.9
12.5°	142.3	141.4	139.6	140.5	138.7	139.6	140.5	139.6
15°	154.9	156.6	154.9	155.7	154.9	156.6	157.5	157.5
17.5°	181.7	185.3	183.5	186.2	185.3	189.8	189.8	189.8
20°	222.9	229.1	227.4	230.9	230.9	236.3	236.3	238.1
22.5°	280.2	288.2	287.3	295.4	293.6	299.9	299.9	301.6
25°	349.1	357.1	358.0	363.4	362.5	368.8	368.8	370.6
27.5°	377.7	382.2	381.3	384.0	384.9	388.5	391.2	389.4
30°	354.5	358.0	357.1	358.9	358.9	361.6	364.3	361.6
32.5°	298.1	300.8	300.8	304.3	301.6	302.5	307.0	304.3
35°	228.2	230.0	228.2	230.0	230.9	230.9	235.4	234.5
37.5°	162.9	163.8	163.8	166.5	163.8	163.8	168.3	169.2
40°	109.2	110.1	109.2	112.8	111.0	111.0	113.7	111.0
42.5°	69.8	70.7	69.8	72.5	70.7	72.5	73.4	74.3
45°	43.0	43.0	42.1	43.9	43.0	43.9	44.8	44.8
47.5°	25.1	25.1	24.2	26.0	25.1	25.1	25.1	26.0
50°	13.4	13.4	13.4	14.3	13.4	13.4	13.4	12.5
52.5°	7.2	7.2	6.3	7.2	6.3	6.3	6.3	6.3
55°	3.6	2.7	2.7	2.7	1.8	1.8	1.8	1.8
57.5°	2.7	1.8	1.8	0.9	0.9	0.9	0.0	0.0
60°	1.8	1.8	0.9	0.9	0.0	0.0	0.0	0.0
62.5°	1.8	1.8	0.9	0.9	0.0	0.0	0.0	0.0
65°	1.8	1.8	0.9	0.9	0.0	0.0	0.0	0.0
67.5°	2.7	1.8	1.8	0.9	0.9	0.0	0.0	0.0
70°	2.7	1.8	1.8	0.9	0.9	0.0	0.0	0.0
72.5°	2.7	1.8	1.8	1.8	0.9	0.9	0.0	0.0
75°	2.7	2.7	1.8	1.8	0.9	0.9	0.0	0.0
77.5°	3.6	2.7	1.8	1.8	0.9	0.9	0.0	0.0
80°	3.6	2.7	1.8	1.8	1.8	0.9	0.9	0.9
82.5°	3.6	2.7	2.7	1.8	1.8	0.9	0.9	0.9
85°	3.6	2.7	2.7	1.8	1.8	0.9	0.9	0.9
87.5°	3.6	2.7	2.7	1.8	1.8	0.9	0.9	0.9
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)