

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: P209068

Luminaire Tested: **LDSQA6A45827D010TE LARH40FL 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209068
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: LDSQA6A45827D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4630.7 lumens
Efficiency: N/A
Efficacy: 85.1 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

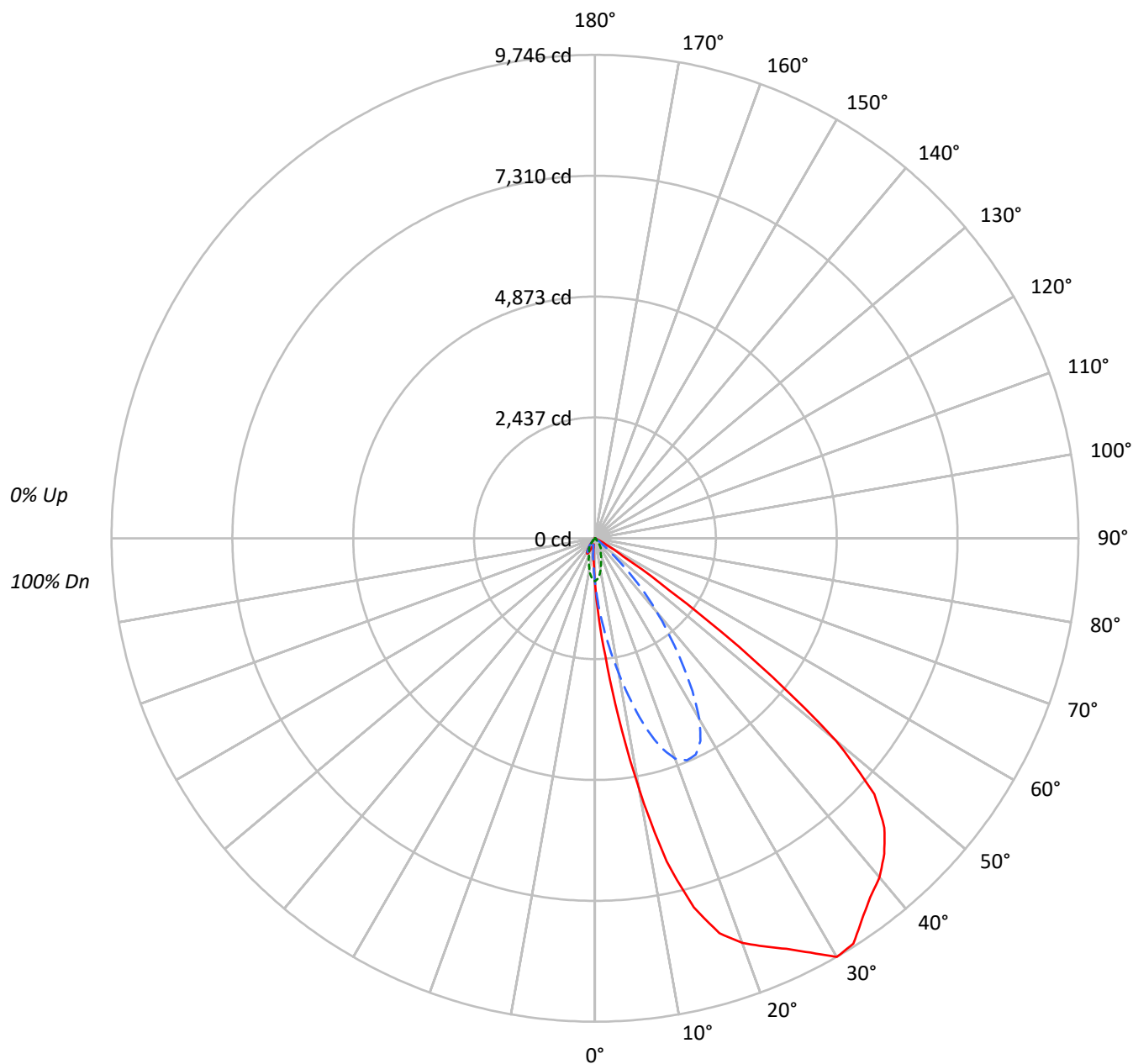
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P209068

CATALOG NUMBER: LDSQA6A45827D010TE LARH40FL 6LSQA1H 30°

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
RCR																					
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102
1	112	109	106	103		110	107	104	102		103	100	98		99	97	95		95	94	93
2	105	99	94	90		103	97	93	89		94	90	87		91	88	85		88	85	83
3	98	90	84	79		96	88	83	78		86	81	77		83	79	76		81	77	74
4	91	82	75	70		89	80	74	69		78	73	68		76	71	67		74	70	67
5	85	74	67	62		83	73	66	61		71	65	61		70	64	60		68	63	60
6	79	68	60	55		77	67	60	55		65	59	54		64	58	54		62	57	54
7	74	62	55	49		72	61	54	49		60	53	49		59	53	49		57	52	48
8	69	57	49	44		67	56	49	44		55	49	44		54	48	44		53	47	44
9	64	52	45	40		63	52	45	40		51	44	40		50	44	40		49	43	39
10	60	48	41	36		59	48	41	36		47	41	36		46	40	36		45	40	36

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	37368	37368	37368
5°	102561	34429	14047
10°	224755	28177	5356
15°	343308	21449	6281
20°	397758	15959	9759
25°	433897	13121	15748
30°	484531	11902	16078
35°	492983	8163	11027
40°	501648	3873	5581
45°	502457	1607	2436
50°	424784	697	750
55°	136784	480	120
60°	27160	551	0
65°	2771	652	0
70°	302	906	0
75°	0	1198	0
80°	0	1984	198
85°	0	3952	395



TEST NUMBER: P209068

CATALOG NUMBER: LDSQA6A45827D010TE LARH40FL 6LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	117.8	2.5
10°-20°	609.3	13.2
20°-30°	1166.6	25.2
30°-40°	1374.5	29.7
40°-50°	1079.6	23.3
50°-60°	263.1	5.7
60°-70°	11.3	0.2
70°-80°	4.2	0.1
80°-90°	4.2	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°	1893.7	40.9
0°-40°	3268.2	70.6
0°-60°	4610.9	99.6
0°-90°	4630.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4630.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	868	868	868	868	868	
5°	2373	1717	797	417	325	314
15°	7702	3956	481	138	141	2150
25°	9133	4810	276	289	332	4257
35°	9379	3041	155	200	210	5881
45°	8252	940	26	37	40	6200
55°	1822	34	6	4	2	2169
65°	27	4	6	4	0	72
75°	0	4	7	5	0	0
85°	0	5	8	5	1	0
90°	0	0	0	0	0	



TEST NUMBER: P209068

CATALOG NUMBER: LDSQA6A45827D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9
2.5°	1487.5	1484.3	1462.7	1482.7	1421.9	1419.5	1392.3	1380.3	1345.0	1311.4	1263.4
5°	2373.0	2321.0	2278.6	2280.2	2163.3	2141.6	2080.8	2019.2	1924.7	1836.6	1717.3
7.5°	3617.2	3555.5	3465.9	3428.2	3204.9	3139.2	3013.5	2849.4	2643.6	2438.7	2217.7
10°	5140.8	5150.4	5034.3	4927.0	4589.1	4456.2	4252.9	3929.4	3539.5	3154.4	2762.9
12.5°	6673.9	6667.5	6529.0	6366.5	5950.2	5762.8	5492.2	5088.7	4572.3	3975.1	3362.6
15°	7701.9	7747.6	7689.1	7559.4	7203.9	6989.4	6684.3	6136.7	5507.4	4782.1	3955.8
17.5°	8347.2	8390.5	8369.6	8268.0	7954.1	7725.1	7470.5	7022.2	6294.4	5382.5	4423.4
20°	8681.1	8749.1	8739.5	8629.0	8392.1	8202.3	7921.3	7505.8	6875.7	5799.7	4726.0
22.5°	8903.6	8955.7	8970.1	8845.2	8600.2	8420.1	8214.3	7793.2	7200.7	6054.3	4846.1
25°	9133.4	9225.5	9135.0	8981.3	8756.3	8583.4	8364.0	7960.5	7356.1	6158.3	4810.1
27.5°	9415.2	9459.3	9254.3	9114.2	8864.4	8677.1	8444.1	8057.4	7383.3	6075.1	4604.3
30°	9745.9	9563.4	9420.0	9142.2	8858.8	8676.3	8439.3	7996.6	7240.0	5798.9	4205.6
32.5°	9691.5	9524.1	9361.6	9067.8	8787.6	8606.6	8342.4	7794.0	6901.3	5336.9	3655.6
35°	9379.2	9415.2	9239.9	8996.5	8679.5	8492.9	8204.7	7505.8	6326.5	4699.6	3040.7
37.5°	9115.8	9195.1	9080.6	8855.6	8533.8	8281.6	7892.5	7043.0	5576.3	3891.0	2457.9
40°	8925.3	8950.9	8889.2	8637.0	8250.3	7886.1	7436.1	6212.0	4665.2	3054.3	1939.9
42.5°	8629.8	8697.9	8589.0	8313.6	7727.5	7315.2	6663.5	5252.0	3623.6	2333.0	1460.3
45°	8251.9	8316.8	8182.3	7724.3	6909.3	6304.8	5509.8	4095.1	2680.5	1719.7	939.9
47.5°	7635.5	7675.5	7415.3	6782.0	5597.1	5027.9	4212.8	2855.0	1726.9	961.5	457.2
50°	6341.7	6322.5	5786.1	5007.1	3743.7	3146.4	2507.5	1547.6	775.8	455.6	285.8
52.5°	4087.1	4043.1	3512.3	2803.8	1895.9	1446.7	1087.2	667.7	404.3	254.6	112.9
55°	1822.2	1805.4	1477.9	1148.1	775.8	667.7	510.0	327.5	215.4	88.9	34.4
57.5°	675.7	660.5	582.0	488.4	374.7	311.4	247.4	156.9	55.2	29.6	18.4
60°	315.4	314.6	277.0	228.2	158.5	120.1	69.7	36.8	23.2	16.0	10.4
62.5°	100.9	98.5	68.9	50.4	36.0	31.2	24.8	18.4	12.0	8.8	6.4
65°	27.2	27.2	24.8	20.8	16.8	14.4	12.0	8.8	5.6	4.8	4.0
67.5°	10.4	10.4	9.6	8.8	6.4	5.6	4.8	4.0	3.2	4.0	4.0
70°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0
72.5°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.0
75°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.0
77.5°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.0
80°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.0
82.5°	0.0	0.0	0.8	1.6	1.6	1.6	2.4	3.2	3.2	4.0	4.8
85°	0.0	0.0	0.8	1.6	1.6	2.4	2.4	3.2	3.2	4.0	4.8
87.5°	0.0	0.0	0.8	1.6	1.6	2.4	2.4	3.2	3.2	4.0	4.8
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: P209068

CATALOG NUMBER: LDSQA6A45827D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9
2.5°	1228.1	1175.3	1102.4	1060.0	1049.6	1027.2	988.0	929.5	881.5	835.0	807.8
5°	1616.4	1491.5	1351.4	1253.0	1212.9	1159.3	1064.0	965.5	875.1	796.6	735.0
7.5°	2028.0	1822.2	1595.6	1413.1	1347.4	1262.6	1107.3	960.7	836.6	727.8	645.3
10°	2437.1	2105.6	1798.2	1534.0	1426.7	1311.4	1106.5	916.7	771.0	644.5	553.2
12.5°	2846.2	2369.8	1947.1	1606.8	1467.5	1321.8	1073.6	849.5	687.7	558.8	471.6
15°	3224.1	2580.4	2048.0	1631.7	1463.5	1291.4	1007.2	767.8	600.5	481.2	400.3
17.5°	3505.9	2690.9	2071.2	1594.0	1400.3	1209.7	905.5	671.7	517.2	412.3	329.9
20°	3644.4	2708.5	2016.0	1486.7	1291.4	1093.6	794.2	579.6	445.9	348.3	278.6
22.5°	3644.4	2625.2	1895.9	1352.2	1155.3	959.9	686.9	503.6	389.9	303.4	245.0
25°	3505.9	2459.5	1734.9	1196.9	1005.6	827.8	594.1	446.7	346.7	276.2	227.4
27.5°	3236.9	2230.5	1528.4	1024.0	858.3	710.1	520.4	394.7	313.8	249.0	249.8
30°	2867.0	1949.5	1291.4	841.4	706.9	583.6	437.9	330.7	251.4	239.4	246.6
32.5°	2439.5	1613.2	1023.2	652.5	547.6	459.6	333.1	233.8	200.2	201.8	209.8
35°	2000.7	1269.8	770.2	483.6	407.5	333.1	218.6	153.7	152.1	155.3	160.9
37.5°	1579.6	950.3	557.2	353.9	273.8	205.0	117.7	105.7	105.7	108.9	112.1
40°	1183.3	674.1	383.5	209.8	132.9	93.7	74.5	68.9	68.1	68.9	72.9
42.5°	812.6	426.7	228.2	84.1	64.0	54.4	47.2	43.2	42.4	43.2	45.6
45°	456.4	262.6	88.9	44.8	38.4	34.4	29.6	27.2	26.4	26.4	28.0
47.5°	285.8	104.1	40.0	28.0	24.0	22.4	19.2	17.6	16.8	16.8	17.6
50°	109.7	40.8	24.8	18.4	16.0	14.4	12.8	11.2	10.4	10.4	11.2
52.5°	37.6	24.0	16.0	12.0	10.4	9.6	8.0	7.2	7.2	7.2	7.2
55°	20.8	14.4	9.6	7.2	6.4	6.4	6.4	6.4	6.4	6.4	6.4
57.5°	12.8	8.8	6.4	5.6	5.6	5.6	5.6	5.6	5.6	6.4	6.4
60°	7.2	5.6	4.8	4.8	4.8	4.8	5.6	5.6	5.6	6.4	6.4
62.5°	4.8	4.8	4.8	4.8	4.8	4.8	5.6	5.6	6.4	6.4	6.4
65°	4.0	4.0	4.0	4.8	4.8	4.8	5.6	5.6	6.4	6.4	6.4
67.5°	4.0	4.0	4.8	4.8	4.8	5.6	5.6	6.4	6.4	6.4	6.4
70°	4.0	4.8	4.8	5.6	5.6	5.6	6.4	6.4	6.4	7.2	7.2
72.5°	4.0	4.8	4.8	5.6	5.6	5.6	6.4	6.4	7.2	7.2	7.2
75°	4.8	4.8	4.8	5.6	5.6	5.6	6.4	7.2	7.2	7.2	7.2
77.5°	4.8	4.8	5.6	5.6	5.6	6.4	6.4	7.2	7.2	7.2	7.2
80°	4.8	4.8	5.6	5.6	6.4	6.4	7.2	7.2	7.2	8.0	8.0
82.5°	4.8	4.8	5.6	6.4	6.4	6.4	7.2	7.2	8.0	8.0	8.0
85°	4.8	5.6	5.6	6.4	6.4	6.4	7.2	7.2	8.0	8.0	8.0
87.5°	4.8	5.6	5.6	6.4	6.4	6.4	7.2	7.2	8.0	8.0	8.0
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: P209068

CATALOG NUMBER: LDSQA6A45827D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9
2.5°	771.8	738.2	704.5	679.7	667.7	655.7	629.3	594.9	580.4	559.6	547.6
5°	672.5	615.7	570.8	541.2	523.6	500.4	470.0	436.3	417.1	395.5	381.1
7.5°	570.0	503.6	460.4	433.1	415.5	386.7	348.3	308.2	285.0	261.0	244.2
10°	480.4	417.1	368.3	337.1	314.6	281.0	242.6	214.6	194.5	173.7	156.9
12.5°	401.1	333.1	281.0	254.6	239.4	207.4	175.3	144.1	132.1	128.1	128.1
15°	325.0	263.4	219.4	197.0	180.9	146.5	140.1	138.5	137.7	136.9	138.5
17.5°	265.0	213.0	166.5	155.3	153.7	152.9	153.7	153.7	154.5	156.9	160.9
20°	222.6	174.5	171.3	172.1	172.1	175.3	179.3	182.5	185.7	189.7	197.0
22.5°	197.8	197.0	202.6	203.4	207.4	212.2	219.4	224.2	232.2	236.2	246.6
25°	228.2	233.8	244.2	247.4	253.8	261.8	273.0	279.4	289.0	293.8	305.8
27.5°	258.6	267.4	280.2	284.2	289.8	302.6	310.6	316.2	321.0	324.2	331.5
30°	256.2	264.2	277.0	277.8	285.8	294.6	299.4	304.2	307.4	306.6	310.6
32.5°	217.0	224.2	236.2	236.2	245.0	252.2	254.6	258.6	258.6	258.6	260.2
35°	166.5	171.3	179.3	181.7	188.9	193.7	195.4	200.2	200.2	198.6	198.6
37.5°	115.3	121.7	127.3	128.9	133.7	136.9	140.9	141.7	140.1	140.9	140.9
40°	75.3	79.3	83.3	84.1	88.1	90.5	94.5	94.5	95.3	94.5	96.1
42.5°	46.4	49.6	52.0	53.6	55.2	56.8	59.2	60.0	60.8	60.0	61.6
45°	28.8	30.4	32.0	32.8	33.6	34.4	36.8	36.8	36.8	36.8	37.6
47.5°	17.6	18.4	19.2	19.2	20.0	20.8	21.6	21.6	21.6	21.6	22.4
50°	10.4	11.2	11.2	11.2	12.0	12.0	12.8	12.8	12.8	12.0	12.8
52.5°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.4	7.2
55°	6.4	6.4	5.6	5.6	5.6	5.6	5.6	4.8	4.0	4.0	3.2
57.5°	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.0	4.0	3.2	2.4
60°	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.0	3.2	3.2	2.4
62.5°	6.4	5.6	5.6	5.6	5.6	4.8	4.8	4.0	3.2	3.2	2.4
65°	6.4	6.4	5.6	5.6	5.6	4.8	4.8	4.0	4.0	3.2	2.4
67.5°	6.4	6.4	6.4	5.6	6.4	5.6	4.8	4.8	4.0	3.2	3.2
70°	7.2	6.4	6.4	6.4	6.4	5.6	5.6	4.8	4.0	3.2	3.2
72.5°	7.2	7.2	6.4	6.4	6.4	5.6	5.6	4.8	4.0	4.0	3.2
75°	7.2	7.2	6.4	6.4	6.4	5.6	5.6	4.8	4.8	4.0	3.2
77.5°	7.2	7.2	7.2	6.4	6.4	6.4	5.6	5.6	4.8	4.0	3.2
80°	7.2	7.2	7.2	7.2	7.2	6.4	6.4	5.6	4.8	4.0	3.2
82.5°	8.0	7.2	7.2	7.2	7.2	6.4	6.4	5.6	4.8	4.0	4.0
85°	8.0	8.0	7.2	7.2	7.2	6.4	6.4	5.6	4.8	4.8	4.0
87.5°	8.0	7.2	7.2	7.2	7.2	6.4	6.4	5.6	4.8	4.0	4.0
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: P209068

CATALOG NUMBER: LDSQA6A45827D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	867.9	867.9	867.9	867.9	867.9	867.9	867.9	867.9
2.5°	535.6	529.2	529.2	518.0	516.4	507.6	514.8	510.0
5°	365.1	354.7	351.5	340.3	336.3	325.9	329.1	325.0
7.5°	229.8	219.4	216.2	208.2	203.4	195.4	196.2	193.7
10°	140.1	130.5	128.1	125.7	123.3	122.5	123.3	122.5
12.5°	127.3	126.5	124.9	125.7	124.1	124.9	125.7	124.9
15°	138.5	140.1	138.5	139.3	138.5	140.1	140.9	140.9
17.5°	162.5	165.7	164.1	166.5	165.7	169.7	169.7	169.7
20°	199.4	205.0	203.4	206.6	206.6	211.4	211.4	213.0
22.5°	250.6	257.8	257.0	264.2	262.6	268.2	268.2	269.8
25°	312.2	319.4	320.2	325.0	324.2	329.9	329.9	331.5
27.5°	337.9	341.9	341.1	343.5	344.3	347.5	349.9	348.3
30°	317.0	320.2	319.4	321.0	321.0	323.4	325.9	323.4
32.5°	266.6	269.0	269.0	272.2	269.8	270.6	274.6	272.2
35°	204.2	205.8	204.2	205.8	206.6	206.6	210.6	209.8
37.5°	145.7	146.5	146.5	148.9	146.5	146.5	150.5	151.3
40°	97.7	98.5	97.7	100.9	99.3	99.3	101.7	99.3
42.5°	62.4	63.2	62.4	64.8	63.2	64.8	65.7	66.5
45°	38.4	38.4	37.6	39.2	38.4	39.2	40.0	40.0
47.5°	22.4	22.4	21.6	23.2	22.4	22.4	22.4	23.2
50°	12.0	12.0	12.0	12.8	12.0	12.0	12.0	11.2
52.5°	6.4	6.4	5.6	6.4	5.6	5.6	5.6	5.6
55°	3.2	2.4	2.4	2.4	1.6	1.6	1.6	1.6
57.5°	2.4	1.6	1.6	0.8	0.8	0.8	0.0	0.0
60°	1.6	1.6	0.8	0.8	0.0	0.0	0.0	0.0
62.5°	1.6	1.6	0.8	0.8	0.0	0.0	0.0	0.0
65°	1.6	1.6	0.8	0.8	0.0	0.0	0.0	0.0
67.5°	2.4	1.6	1.6	0.8	0.8	0.0	0.0	0.0
70°	2.4	1.6	1.6	0.8	0.8	0.0	0.0	0.0
72.5°	2.4	1.6	1.6	1.6	0.8	0.8	0.0	0.0
75°	2.4	2.4	1.6	1.6	0.8	0.8	0.0	0.0
77.5°	3.2	2.4	1.6	1.6	0.8	0.8	0.0	0.0
80°	3.2	2.4	1.6	1.6	1.6	0.8	0.8	0.8
82.5°	3.2	2.4	2.4	1.6	1.6	0.8	0.8	0.8
85°	3.2	2.4	2.4	1.6	1.6	0.8	0.8	0.8
87.5°	3.2	2.4	2.4	1.6	1.6	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)