

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: P209082

Luminaire Tested: **LDSQA6A55935D010TE LARH40FL 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209082
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: LDSQA6A55935D010TE LARH40FL 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 40° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4592.8 lumens
Efficiency: N/A
Efficacy: 75.5 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

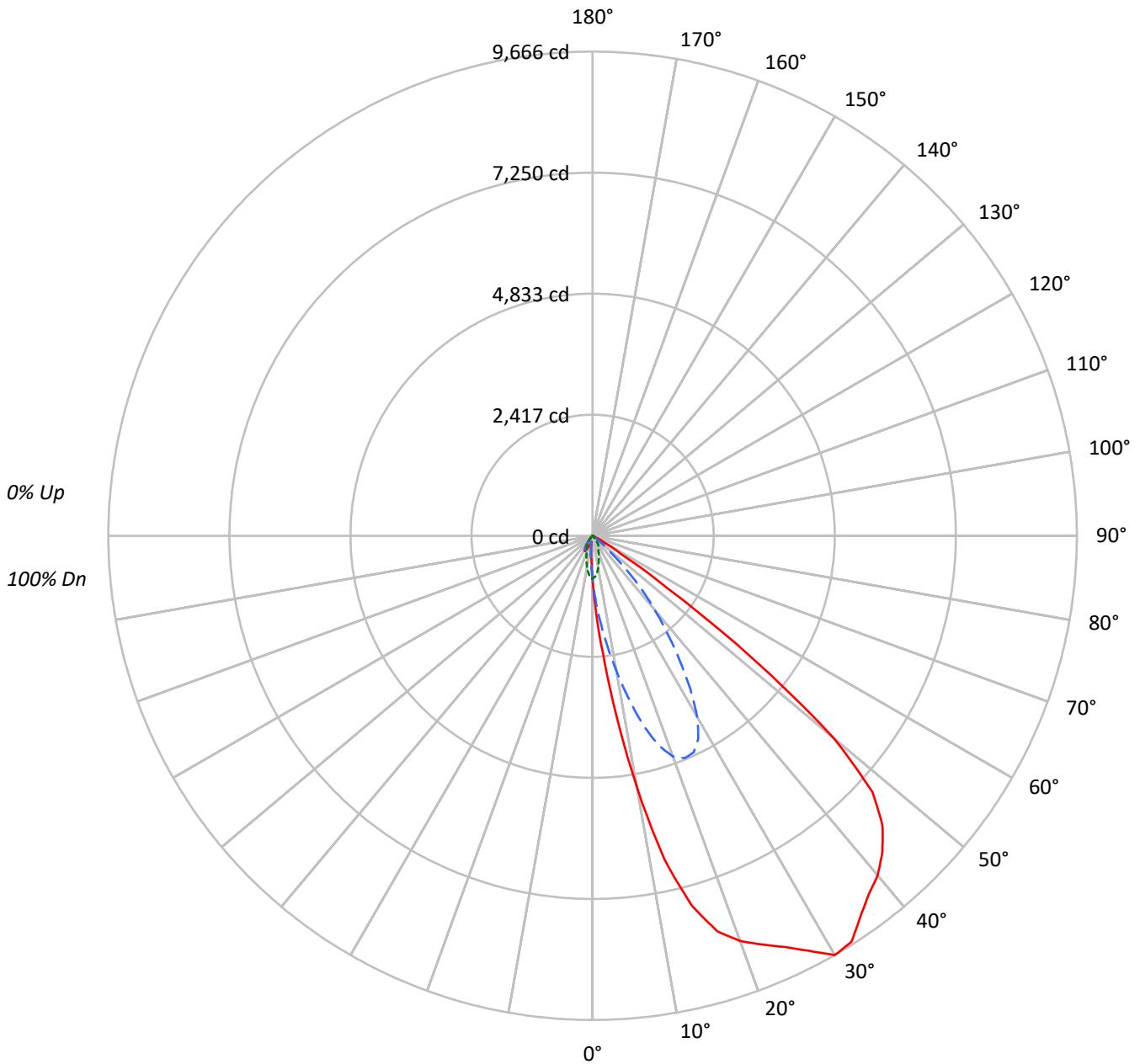
Input Watts (W): 60.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	37058	37058	37058
5°	101723	34148	13934
10°	222910	27946	5312
15°	340491	21271	6232
20°	394496	15826	9677
25°	430339	13012	15615
30°	480554	11803	15949
35°	488941	8094	10933
40°	497528	3839	5536
45°	498335	1595	2417
50°	421294	690	744
55°	135665	480	120
60°	26944	551	0
65°	2751	652	0
70°	302	894	0
75°	0	1181	0
80°	0	1959	198
85°	0	3903	395



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.8	2.5
10°-20°	604.3	13.2
20°-30°	1157.1	25.2
30°-40°	1363.2	29.7
40°-50°	1070.7	23.3
50°-60°	260.9	5.7
60°-70°	11.2	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°	1878.2	40.9
0°-40°	3241.4	70.6
0°-60°	4573.1	99.6
0°-90°	4592.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4592.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	861	861	861	861	861	
5°	2354	1703	790	414	322	311
15°	7639	3923	477	137	140	2132
25°	9058	4771	274	287	329	4222
35°	9302	3016	154	198	208	5833
45°	8184	932	26	36	40	6149
55°	1807	34	6	4	2	2151
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	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7
2.5°	1475.3	1472.2	1450.7	1470.6	1410.2	1407.8	1380.8	1368.9	1334.0	1300.6	1253.0
5°	2353.6	2301.9	2259.9	2261.4	2145.5	2124.1	2063.7	2002.6	1908.9	1821.5	1703.2
7.5°	3587.5	3526.4	3437.4	3400.1	3178.6	3113.5	2988.8	2826.0	2621.9	2418.7	2199.5
10°	5098.6	5108.1	4993.0	4886.6	4551.5	4419.7	4218.0	3897.2	3510.5	3128.5	2740.3
12.5°	6619.2	6612.8	6475.5	6314.3	5901.4	5715.6	5447.2	5047.0	4534.8	3942.4	3335.0
15°	7638.7	7684.0	7626.0	7497.4	7144.8	6932.0	6629.5	6086.4	5462.3	4742.8	3923.4
17.5°	8278.7	8321.6	8301.0	8200.1	7888.9	7661.8	7409.3	6964.6	6242.8	5338.4	4387.1
20°	8609.9	8677.4	8667.8	8558.2	8323.2	8135.0	7856.3	7444.2	6819.3	5752.1	4687.3
22.5°	8830.6	8882.2	8896.5	8772.6	8529.7	8351.0	8146.9	7729.3	7141.7	6004.6	4806.4
25°	9058.5	9149.8	9060.1	8907.6	8684.5	8513.0	8295.4	7895.2	7295.7	6107.8	4770.6
27.5°	9338.0	9381.7	9178.4	9039.4	8791.7	8605.9	8374.8	7991.3	7322.7	6025.2	4566.6
30°	9665.9	9484.9	9342.8	9067.2	8786.1	8605.1	8370.1	7930.9	7180.6	5751.3	4171.1
32.5°	9611.9	9446.0	9284.8	8993.4	8715.5	8536.0	8274.0	7730.1	6844.7	5293.1	3625.6
35°	9302.3	9338.0	9164.1	8922.7	8608.3	8423.3	8137.4	7444.2	6274.6	4661.1	3015.8
37.5°	9041.0	9119.6	9006.1	8783.0	8463.8	8213.6	7827.7	6985.2	5530.5	3859.1	2437.7
40°	8852.0	8877.5	8816.3	8566.2	8182.7	7821.4	7375.1	6161.0	4626.9	3029.3	1924.0
42.5°	8559.0	8626.5	8518.5	8245.4	7664.1	7255.2	6608.9	5209.0	3593.9	2313.9	1448.3
45°	8184.2	8248.6	8115.2	7661.0	6852.6	6253.1	5464.6	4061.6	2658.5	1705.6	932.2
47.5°	7572.8	7612.5	7354.5	6726.4	5551.2	4986.6	4178.3	2831.6	1712.8	953.7	453.4
50°	6289.6	6270.6	5738.6	4966.0	3713.0	3120.6	2487.0	1534.9	769.4	451.8	283.5
52.5°	4053.6	4009.9	3483.5	2780.8	1880.3	1434.8	1078.3	662.2	401.0	252.5	112.0
55°	1807.3	1790.6	1465.8	1138.7	769.4	662.2	505.8	324.8	213.6	88.1	34.1
57.5°	670.2	655.1	577.3	484.4	371.6	308.9	245.4	155.6	54.8	29.4	18.3
60°	312.9	312.1	274.7	226.3	157.2	119.1	69.1	36.5	23.0	15.9	10.3
62.5°	100.0	97.7	68.3	50.0	35.7	31.0	24.6	18.3	11.9	8.7	6.4
65°	27.0	27.0	24.6	20.6	16.7	14.3	11.9	8.7	5.6	4.8	4.0
67.5°	10.3	10.3	9.5	8.7	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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7
2.5°	1218.1	1165.7	1093.4	1051.3	1041.0	1018.8	979.9	921.9	874.2	828.2	801.2
5°	1603.2	1479.3	1340.4	1242.7	1203.0	1149.8	1055.3	957.6	867.9	790.1	728.9
7.5°	2011.3	1807.3	1582.5	1401.5	1336.4	1252.2	1098.2	952.9	829.8	721.8	640.0
10°	2417.1	2088.3	1783.4	1521.4	1415.0	1300.6	1097.4	909.2	764.7	639.2	548.7
12.5°	2822.8	2350.4	1931.1	1593.7	1455.5	1311.0	1064.8	842.5	682.1	554.2	467.7
15°	3197.6	2559.2	2031.2	1618.3	1451.5	1280.8	998.9	761.5	595.5	477.2	397.0
17.5°	3477.1	2668.8	2054.2	1580.9	1388.8	1199.8	898.1	666.2	513.0	408.9	327.1
20°	3614.5	2686.3	1999.4	1474.5	1280.8	1084.7	787.7	574.9	442.3	345.4	276.3
22.5°	3614.5	2603.7	1880.3	1341.1	1145.8	952.1	681.3	499.5	386.7	300.9	243.0
25°	3477.1	2439.3	1720.7	1187.1	997.3	821.0	589.2	443.1	343.8	273.9	225.5
27.5°	3210.3	2212.2	1515.8	1015.6	851.2	704.3	516.1	391.5	311.3	246.9	247.7
30°	2843.5	1933.5	1280.8	834.5	701.1	578.9	434.3	327.9	249.3	237.4	244.6
32.5°	2419.5	1600.0	1014.8	647.1	543.1	455.8	330.3	231.9	198.5	200.1	208.0
35°	1984.3	1259.4	763.9	479.6	404.2	330.3	216.8	152.5	150.9	154.0	159.6
37.5°	1566.7	942.5	552.7	351.0	271.6	203.3	116.7	104.8	104.8	108.0	111.2
40°	1173.6	668.6	380.3	208.0	131.8	92.9	73.8	68.3	67.5	68.3	72.3
42.5°	806.0	423.2	226.3	83.4	63.5	54.0	46.8	42.9	42.1	42.9	45.3
45°	452.6	260.4	88.1	44.5	38.1	34.1	29.4	27.0	26.2	26.2	27.8
47.5°	283.5	103.2	39.7	27.8	23.8	22.2	19.1	17.5	16.7	16.7	17.5
50°	108.8	40.5	24.6	18.3	15.9	14.3	12.7	11.1	10.3	10.3	11.1
52.5°	37.3	23.8	15.9	11.9	10.3	9.5	7.9	7.1	7.1	7.1	7.1
55°	20.6	14.3	9.5	7.1	6.4	6.4	6.4	6.4	6.4	6.4	6.4
57.5°	12.7	8.7	6.4	5.6	5.6	5.6	5.6	5.6	5.6	6.4	6.4
60°	7.1	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	7.1	7.1
72.5°	4.0	4.8	4.8	5.6	5.6	5.6	6.4	6.4	7.1	7.1	7.1
75°	4.8	4.8	4.8	5.6	5.6	5.6	6.4	7.1	7.1	7.1	7.1
77.5°	4.8	4.8	5.6	5.6	5.6	6.4	6.4	7.1	7.1	7.1	7.1
80°	4.8	4.8	5.6	5.6	6.4	6.4	7.1	7.1	7.1	7.9	7.9
82.5°	4.8	4.8	5.6	6.4	6.4	6.4	7.1	7.1	7.9	7.9	7.9
85°	4.8	5.6	5.6	6.4	6.4	6.4	7.1	7.1	7.9	7.9	7.9
87.5°	4.8	5.6	5.6	6.4	6.4	6.4	7.1	7.1	7.9	7.9	7.9
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°	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7
2.5°	765.5	732.1	698.8	674.1	662.2	650.3	624.1	590.0	575.7	555.0	543.1
5°	667.0	610.6	566.2	536.8	519.3	496.3	466.1	432.8	413.7	392.3	378.0
7.5°	565.4	499.5	456.6	429.6	412.1	383.5	345.4	305.7	282.7	258.9	242.2
10°	476.4	413.7	365.3	334.3	312.1	278.7	240.6	212.8	193.0	172.3	155.6
12.5°	397.8	330.3	278.7	252.5	237.4	205.7	173.9	142.9	131.0	127.0	127.0
15°	322.4	261.2	217.6	195.3	179.5	145.3	139.0	137.4	136.6	135.8	137.4
17.5°	262.8	211.2	165.2	154.0	152.5	151.7	152.5	152.5	153.3	155.6	159.6
20°	220.7	173.1	169.9	170.7	170.7	173.9	177.9	181.0	184.2	188.2	195.3
22.5°	196.1	195.3	200.9	201.7	205.7	210.4	217.6	222.3	230.3	234.2	244.6
25°	226.3	231.9	242.2	245.4	251.7	259.7	270.8	277.1	286.7	291.4	303.3
27.5°	256.5	265.2	277.9	281.9	287.4	300.1	308.1	313.6	318.4	321.6	328.7
30°	254.1	262.0	274.7	275.5	283.5	292.2	297.0	301.7	304.9	304.1	308.1
32.5°	215.2	222.3	234.2	234.2	243.0	250.1	252.5	256.5	256.5	256.5	258.1
35°	165.2	169.9	177.9	180.2	187.4	192.2	193.7	198.5	198.5	196.9	196.9
37.5°	114.3	120.7	126.3	127.8	132.6	135.8	139.8	140.5	139.0	139.8	139.8
40°	74.6	78.6	82.6	83.4	87.3	89.7	93.7	93.7	94.5	93.7	95.3
42.5°	46.1	49.2	51.6	53.2	54.8	56.4	58.8	59.6	60.3	59.6	61.1
45°	28.6	30.2	31.8	32.6	33.3	34.1	36.5	36.5	36.5	36.5	37.3
47.5°	17.5	18.3	19.1	19.1	19.9	20.6	21.4	21.4	21.4	21.4	22.2
50°	10.3	11.1	11.1	11.1	11.9	11.9	12.7	12.7	12.7	11.9	12.7
52.5°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	6.4	7.1
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°	7.1	6.4	6.4	6.4	6.4	5.6	5.6	4.8	4.0	3.2	3.2
72.5°	7.1	7.1	6.4	6.4	6.4	5.6	5.6	4.8	4.0	4.0	3.2
75°	7.1	7.1	6.4	6.4	6.4	5.6	5.6	4.8	4.8	4.0	3.2
77.5°	7.1	7.1	7.1	6.4	6.4	6.4	5.6	5.6	4.8	4.0	3.2
80°	7.1	7.1	7.1	7.1	7.1	6.4	6.4	5.6	4.8	4.0	3.2
82.5°	7.9	7.1	7.1	7.1	7.1	6.4	6.4	5.6	4.8	4.0	4.0
85°	7.9	7.9	7.1	7.1	7.1	6.4	6.4	5.6	4.8	4.8	4.0
87.5°	7.9	7.1	7.1	7.1	7.1	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: P209082

CATALOG NUMBER: LDSQA6A55935D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	860.7	860.7	860.7	860.7	860.7	860.7	860.7	860.7
2.5°	531.2	524.9	524.9	513.7	512.2	503.4	510.6	505.8
5°	362.1	351.8	348.6	337.5	333.5	323.2	326.4	322.4
7.5°	227.9	217.6	214.4	206.5	201.7	193.7	194.5	192.2
10°	139.0	129.4	127.0	124.7	122.3	121.5	122.3	121.5
12.5°	126.3	125.5	123.9	124.7	123.1	123.9	124.7	123.9
15°	137.4	139.0	137.4	138.2	137.4	139.0	139.8	139.8
17.5°	161.2	164.4	162.8	165.2	164.4	168.3	168.3	168.3
20°	197.7	203.3	201.7	204.9	204.9	209.6	209.6	211.2
22.5°	248.5	255.7	254.9	262.0	260.4	266.0	266.0	267.6
25°	309.7	316.8	317.6	322.4	321.6	327.1	327.1	328.7
27.5°	335.1	339.1	338.3	340.6	341.4	344.6	347.0	345.4
30°	314.4	317.6	316.8	318.4	318.4	320.8	323.2	320.8
32.5°	264.4	266.8	266.8	270.0	267.6	268.4	272.4	270.0
35°	202.5	204.1	202.5	204.1	204.9	204.9	208.8	208.0
37.5°	144.5	145.3	145.3	147.7	145.3	145.3	149.3	150.1
40°	96.9	97.7	96.9	100.0	98.5	98.5	100.8	98.5
42.5°	61.9	62.7	61.9	64.3	62.7	64.3	65.1	65.9
45°	38.1	38.1	37.3	38.9	38.1	38.9	39.7	39.7
47.5°	22.2	22.2	21.4	23.0	22.2	22.2	22.2	23.0
50°	11.9	11.9	11.9	12.7	11.9	11.9	11.9	11.1
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



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - - 90°-270°













(END OF REPORT)