

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: P209075

Luminaire Tested: **LDSQA6A45940D010TE LARH40FL 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209075
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: LDSQA6A45940D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4302.4 lumens
Efficiency: N/A
Efficacy: 79.1 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

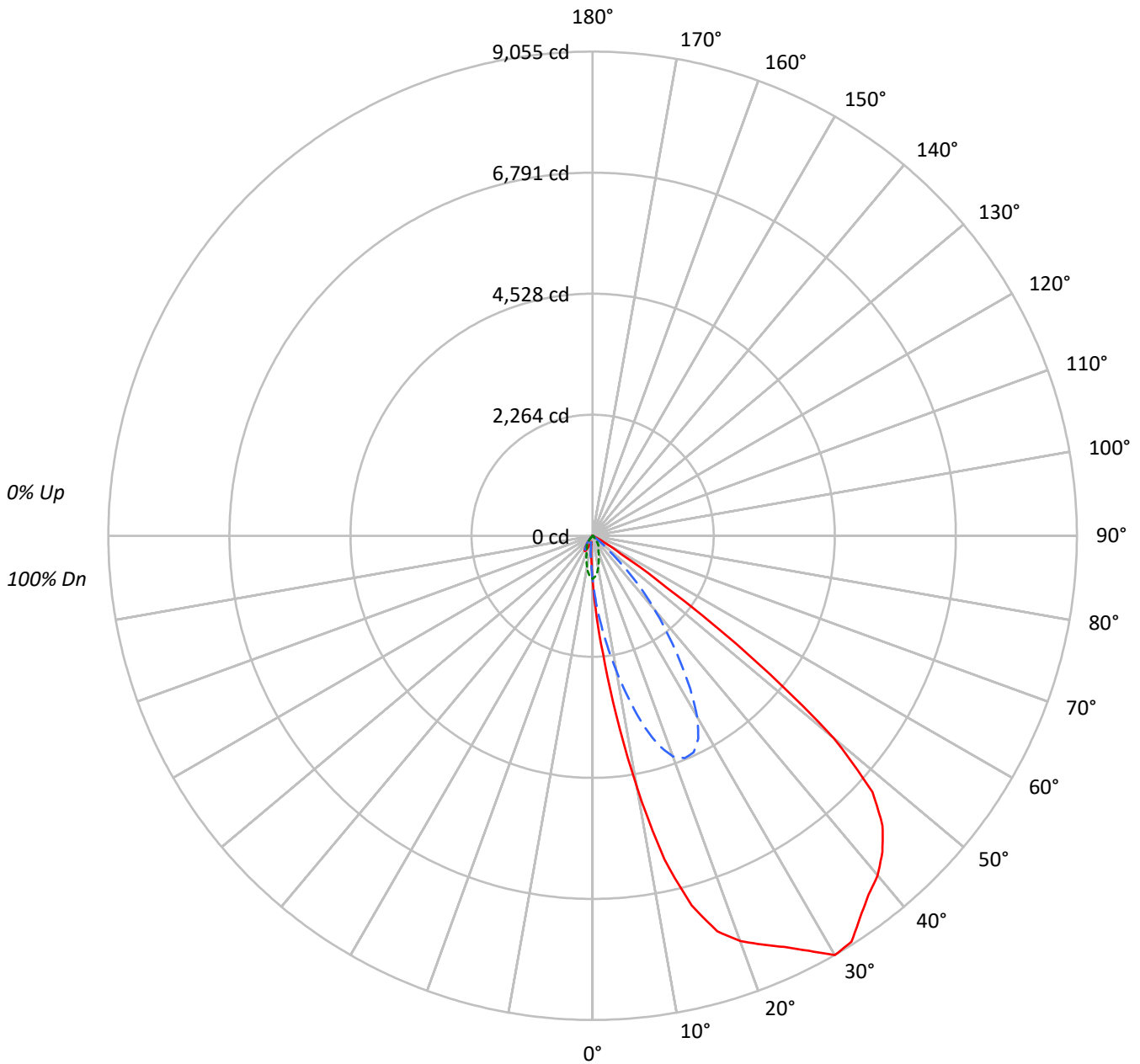
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	34716	34716	34716
5°	95292	31987	13052
10°	208815	26179	4975
15°	318966	19929	5835
20°	369552	14827	9068
25°	403132	12190	14632
30°	450177	11057	14940
35°	458029	7585	10244
40°	466076	3597	5182
45°	466831	1492	2265
50°	394662	650	697
55°	127085	450	113
60°	25239	517	0
65°	2578	611	0
70°	277	843	0
75°	0	1115	0
80°	0	1835	174
85°	0	3656	346



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	109.5	2.5
10°-20°	566.1	13.2
20°-30°	1083.9	25.2
30°-40°	1277.0	29.7
40°-50°	1003.1	23.3
50°-60°	244.4	5.7
60°-70°	10.5	0.2
70°-80°	4.0	0.1
80°-90°	3.9	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°	1759.5	40.9
0°-40°	3036.5	70.6
0°-60°	4284.0	99.6
0°-90°	4302.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4302.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	806	806	806	806	806	
5°	2205	1596	740	388	302	291
15°	7156	3675	447	128	131	1998
25°	8486	4469	257	268	308	3955
35°	8714	2825	144	186	195	5464
45°	7667	873	24	34	37	5760
55°	1693	32	6	4	2	2015
65°	25	4	6	4	0	67
75°	0	4	7	4	0	0
85°	0	4	7	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°	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3
2.5°	1382.1	1379.1	1359.0	1377.6	1321.1	1318.8	1293.6	1282.4	1249.7	1218.4	1173.8
5°	2204.8	2156.4	2117.0	2118.5	2009.9	1989.8	1933.3	1876.0	1788.2	1706.4	1595.6
7.5°	3360.7	3303.4	3220.1	3185.2	2977.6	2916.6	2799.8	2647.4	2456.2	2265.8	2060.5
10°	4776.2	4785.2	4677.3	4577.6	4263.7	4140.3	3951.3	3650.8	3288.6	2930.8	2567.0
12.5°	6200.7	6194.8	6066.1	5915.1	5528.3	5354.2	5102.8	4727.9	4248.1	3693.2	3124.2
15°	7155.8	7198.2	7143.9	7023.4	6693.1	6493.8	6210.4	5701.6	5116.9	4443.0	3675.4
17.5°	7755.4	7795.5	7776.2	7681.7	7390.1	7177.4	6940.8	6524.3	5848.1	5000.9	4109.8
20°	8065.5	8128.8	8119.8	8017.2	7797.0	7620.7	7359.6	6973.6	6388.2	5388.4	4390.9
22.5°	8272.3	8320.7	8334.1	8218.0	7990.4	7823.0	7631.9	7240.6	6690.2	5625.0	4502.5
25°	8485.8	8571.4	8487.3	8344.5	8135.5	7974.8	7771.0	7396.1	6834.5	5721.7	4469.0
27.5°	8747.6	8788.6	8598.1	8468.0	8235.9	8061.8	7845.4	7486.1	6859.8	5644.3	4277.9
30°	9054.9	8885.3	8752.1	8494.0	8230.7	8061.1	7840.9	7429.6	6726.6	5387.7	3907.4
32.5°	9004.3	8848.8	8697.8	8424.8	8164.5	7996.4	7750.9	7241.4	6412.0	4958.5	3396.4
35°	8714.2	8747.6	8584.7	8358.6	8064.1	7890.7	7623.0	6973.6	5877.9	4366.4	2825.1
37.5°	8469.4	8543.1	8436.7	8227.7	7928.7	7694.4	7332.8	6543.6	5180.9	3615.1	2283.6
40°	8292.4	8316.2	8258.9	8024.6	7665.3	7326.9	6908.9	5771.5	4334.4	2837.8	1802.3
42.5°	8017.9	8081.2	7980.0	7724.1	7179.6	6796.5	6191.0	4879.6	3366.7	2167.6	1356.8
45°	7666.8	7727.1	7602.1	7176.6	6419.4	5857.8	5119.2	3804.8	2490.4	1597.8	873.3
47.5°	7094.1	7131.3	6889.5	6301.1	5200.2	4671.4	3914.1	2652.6	1604.5	893.4	424.7
50°	5892.0	5874.2	5375.8	4652.0	3478.2	2923.3	2329.7	1437.9	720.8	423.2	265.6
52.5°	3797.3	3756.4	3263.3	2605.0	1761.4	1344.1	1010.1	620.4	375.6	236.5	104.9
55°	1693.0	1677.4	1373.1	1066.7	720.8	620.4	473.8	304.2	200.1	82.6	32.0
57.5°	627.8	613.7	540.8	453.7	348.1	289.4	229.8	145.8	51.3	27.5	17.1
60°	293.1	292.3	257.4	212.0	147.3	111.6	64.7	34.2	21.6	14.9	9.7
62.5°	93.7	91.5	64.0	46.9	33.5	29.0	23.1	17.1	11.2	8.2	6.0
65°	25.3	25.3	23.1	19.3	15.6	13.4	11.2	8.2	5.2	4.5	3.7
67.5°	9.7	9.7	8.9	8.2	6.0	5.2	4.5	3.7	3.0	3.7	3.7
70°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.0	3.0	3.7
72.5°	0.0	0.0	0.7	0.7	1.5	1.5	2.2	2.2	3.0	3.7	3.7
75°	0.0	0.0	0.7	0.7	1.5	1.5	2.2	2.2	3.0	3.7	3.7
77.5°	0.0	0.0	0.7	0.7	1.5	1.5	2.2	2.2	3.0	3.7	3.7
80°	0.0	0.0	0.7	0.7	1.5	1.5	2.2	2.2	3.0	3.7	3.7
82.5°	0.0	0.0	0.7	1.5	1.5	1.5	2.2	3.0	3.0	3.7	4.5
85°	0.0	0.0	0.7	1.5	1.5	2.2	2.2	3.0	3.0	3.7	4.5
87.5°	0.0	0.0	0.7	1.5	1.5	2.2	2.2	3.0	3.0	3.7	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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3
2.5°	1141.1	1092.0	1024.3	984.9	975.2	954.4	917.9	863.6	819.0	775.8	750.5
5°	1501.8	1385.8	1255.6	1164.1	1126.9	1077.1	988.6	897.1	813.0	740.1	682.9
7.5°	1884.2	1693.0	1482.5	1312.9	1251.9	1173.0	1028.7	892.6	777.3	676.2	599.5
10°	2264.3	1956.3	1670.7	1425.2	1325.5	1218.4	1028.0	851.7	716.3	598.8	514.0
12.5°	2644.4	2201.8	1809.0	1492.9	1363.5	1228.1	997.5	789.2	639.0	519.2	438.1
15°	2995.5	2397.4	1902.8	1516.0	1359.8	1199.8	935.8	713.3	557.9	447.1	371.9
17.5°	3257.3	2500.1	1924.3	1481.0	1301.0	1124.0	841.3	624.1	480.5	383.1	306.5
20°	3386.0	2516.4	1873.0	1381.3	1199.8	1016.1	737.9	538.5	414.3	323.6	258.9
22.5°	3386.0	2439.1	1761.4	1256.4	1073.4	891.9	638.2	467.9	362.3	281.9	227.6
25°	3257.3	2285.1	1611.9	1112.1	934.3	769.1	551.9	415.1	322.1	256.6	211.3
27.5°	3007.4	2072.4	1420.0	951.4	797.4	659.8	483.5	366.7	291.6	231.3	232.1
30°	2663.7	1811.3	1199.8	781.8	656.8	542.3	406.9	307.2	233.6	222.4	229.1
32.5°	2266.5	1498.9	950.6	606.2	508.8	427.0	309.4	217.2	186.0	187.4	194.9
35°	1858.9	1179.7	715.6	449.3	378.6	309.4	203.1	142.8	141.3	144.3	149.5
37.5°	1467.6	882.9	517.7	328.8	254.4	190.4	109.3	98.2	98.2	101.2	104.1
40°	1099.4	626.3	356.3	194.9	123.5	87.0	69.2	64.0	63.2	64.0	67.7
42.5°	755.0	396.5	212.0	78.1	59.5	50.6	43.9	40.2	39.4	40.2	42.4
45°	424.0	244.0	82.6	41.7	35.7	32.0	27.5	25.3	24.5	24.5	26.0
47.5°	265.6	96.7	37.2	26.0	22.3	20.8	17.9	16.4	15.6	15.6	16.4
50°	101.9	37.9	23.1	17.1	14.9	13.4	11.9	10.4	9.7	9.7	10.4
52.5°	35.0	22.3	14.9	11.2	9.7	8.9	7.4	6.7	6.7	6.7	6.7
55°	19.3	13.4	8.9	6.7	6.0	6.0	6.0	6.0	6.0	6.0	6.0
57.5°	11.9	8.2	6.0	5.2	5.2	5.2	5.2	5.2	5.2	6.0	6.0
60°	6.7	5.2	4.5	4.5	4.5	4.5	5.2	5.2	5.2	6.0	6.0
62.5°	4.5	4.5	4.5	4.5	4.5	4.5	5.2	5.2	6.0	6.0	6.0
65°	3.7	3.7	3.7	4.5	4.5	4.5	5.2	5.2	6.0	6.0	6.0
67.5°	3.7	3.7	4.5	4.5	4.5	5.2	5.2	6.0	6.0	6.0	6.0
70°	3.7	4.5	4.5	5.2	5.2	5.2	6.0	6.0	6.0	6.7	6.7
72.5°	3.7	4.5	4.5	5.2	5.2	5.2	6.0	6.0	6.7	6.7	6.7
75°	4.5	4.5	4.5	5.2	5.2	5.2	6.0	6.7	6.7	6.7	6.7
77.5°	4.5	4.5	5.2	5.2	5.2	6.0	6.0	6.7	6.7	6.7	6.7
80°	4.5	4.5	5.2	5.2	6.0	6.0	6.7	6.7	6.7	7.4	7.4
82.5°	4.5	4.5	5.2	6.0	6.0	6.0	6.7	6.7	7.4	7.4	7.4
85°	4.5	5.2	5.2	6.0	6.0	6.0	6.7	6.7	7.4	7.4	7.4
87.5°	4.5	5.2	5.2	6.0	6.0	6.0	6.7	6.7	7.4	7.4	7.4
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°	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3
2.5°	717.1	685.8	654.6	631.5	620.4	609.2	584.7	552.7	539.3	519.9	508.8
5°	624.8	572.0	530.4	502.8	486.5	464.9	436.6	405.4	387.5	367.5	354.1
7.5°	529.6	467.9	427.7	402.4	386.1	359.3	323.6	286.4	264.8	242.5	226.9
10°	446.3	387.5	342.2	313.2	292.3	261.1	225.4	199.4	180.8	161.4	145.8
12.5°	372.7	309.4	261.1	236.5	222.4	192.7	162.9	133.9	122.7	119.0	119.0
15°	302.0	244.7	203.8	183.0	168.1	136.1	130.2	128.7	127.9	127.2	128.7
17.5°	246.2	197.9	154.7	144.3	142.8	142.1	142.8	142.8	143.6	145.8	149.5
20°	206.8	162.2	159.2	159.9	159.9	162.9	166.6	169.6	172.6	176.3	183.0
22.5°	183.7	183.0	188.2	188.9	192.7	197.1	203.8	208.3	215.7	219.4	229.1
25°	212.0	217.2	226.9	229.8	235.8	243.2	253.7	259.6	268.5	273.0	284.1
27.5°	240.3	248.4	260.3	264.1	269.3	281.2	288.6	293.8	298.3	301.3	308.0
30°	238.0	245.5	257.4	258.1	265.6	273.7	278.2	282.7	285.6	284.9	288.6
32.5°	201.6	208.3	219.4	219.4	227.6	234.3	236.5	240.3	240.3	240.3	241.8
35°	154.7	159.2	166.6	168.9	175.5	180.0	181.5	186.0	186.0	184.5	184.5
37.5°	107.1	113.1	118.3	119.8	124.2	127.2	130.9	131.7	130.2	130.9	130.9
40°	69.9	73.6	77.4	78.1	81.8	84.1	87.8	87.8	88.5	87.8	89.3
42.5°	43.1	46.1	48.4	49.8	51.3	52.8	55.0	55.8	56.5	55.8	57.3
45°	26.8	28.3	29.8	30.5	31.2	32.0	34.2	34.2	34.2	34.2	35.0
47.5°	16.4	17.1	17.9	17.9	18.6	19.3	20.1	20.1	20.1	20.1	20.8
50°	9.7	10.4	10.4	10.4	11.2	11.2	11.9	11.9	11.9	11.2	11.9
52.5°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.0	6.7
55°	6.0	6.0	5.2	5.2	5.2	5.2	5.2	4.5	3.7	3.7	3.0
57.5°	5.2	5.2	5.2	5.2	5.2	4.5	4.5	3.7	3.7	3.0	2.2
60°	5.2	5.2	5.2	5.2	5.2	4.5	4.5	3.7	3.0	3.0	2.2
62.5°	6.0	5.2	5.2	5.2	5.2	4.5	4.5	3.7	3.0	3.0	2.2
65°	6.0	6.0	5.2	5.2	5.2	4.5	4.5	3.7	3.7	3.0	2.2
67.5°	6.0	6.0	6.0	5.2	6.0	5.2	4.5	4.5	3.7	3.0	3.0
70°	6.7	6.0	6.0	6.0	6.0	5.2	5.2	4.5	3.7	3.0	3.0
72.5°	6.7	6.7	6.0	6.0	6.0	5.2	5.2	4.5	3.7	3.7	3.0
75°	6.7	6.7	6.0	6.0	6.0	5.2	5.2	4.5	4.5	3.7	3.0
77.5°	6.7	6.7	6.7	6.0	6.0	6.0	5.2	5.2	4.5	3.7	3.0
80°	6.7	6.7	6.7	6.7	6.7	6.0	6.0	5.2	4.5	3.7	3.0
82.5°	7.4	6.7	6.7	6.7	6.7	6.0	6.0	5.2	4.5	3.7	3.7
85°	7.4	7.4	6.7	6.7	6.7	6.0	6.0	5.2	4.5	4.5	3.7
87.5°	7.4	6.7	6.7	6.7	6.7	6.0	6.0	5.2	4.5	3.7	3.7
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: P209075

CATALOG NUMBER: LDSQA6A45940D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	806.3	806.3	806.3	806.3	806.3	806.3	806.3	806.3
2.5°	497.6	491.7	491.7	481.3	479.8	471.6	478.3	473.8
5°	339.2	329.5	326.5	316.1	312.4	302.7	305.7	302.0
7.5°	213.5	203.8	200.8	193.4	188.9	181.5	182.2	180.0
10°	130.2	121.2	119.0	116.8	114.6	113.8	114.6	113.8
12.5°	118.3	117.5	116.0	116.8	115.3	116.0	116.8	116.0
15°	128.7	130.2	128.7	129.4	128.7	130.2	130.9	130.9
17.5°	151.0	154.0	152.5	154.7	154.0	157.7	157.7	157.7
20°	185.2	190.4	188.9	191.9	191.9	196.4	196.4	197.9
22.5°	232.8	239.5	238.8	245.5	244.0	249.2	249.2	250.7
25°	290.1	296.8	297.5	302.0	301.3	306.5	306.5	308.0
27.5°	313.9	317.6	316.9	319.1	319.9	322.8	325.1	323.6
30°	294.6	297.5	296.8	298.3	298.3	300.5	302.7	300.5
32.5°	247.7	249.9	249.9	252.9	250.7	251.4	255.1	252.9
35°	189.7	191.2	189.7	191.2	191.9	191.9	195.6	194.9
37.5°	135.4	136.1	136.1	138.4	136.1	136.1	139.8	140.6
40°	90.7	91.5	90.7	93.7	92.2	92.2	94.5	92.2
42.5°	58.0	58.8	58.0	60.3	58.8	60.3	61.0	61.7
45°	35.7	35.7	35.0	36.4	35.7	36.4	37.2	37.2
47.5°	20.8	20.8	20.1	21.6	20.8	20.8	20.8	21.6
50°	11.2	11.2	11.2	11.9	11.2	11.2	11.2	10.4
52.5°	6.0	6.0	5.2	6.0	5.2	5.2	5.2	5.2
55°	3.0	2.2	2.2	2.2	1.5	1.5	1.5	1.5
57.5°	2.2	1.5	1.5	0.7	0.7	0.7	0.0	0.0
60°	1.5	1.5	0.7	0.7	0.0	0.0	0.0	0.0
62.5°	1.5	1.5	0.7	0.7	0.0	0.0	0.0	0.0
65°	1.5	1.5	0.7	0.7	0.0	0.0	0.0	0.0
67.5°	2.2	1.5	1.5	0.7	0.7	0.0	0.0	0.0
70°	2.2	1.5	1.5	0.7	0.7	0.0	0.0	0.0
72.5°	2.2	1.5	1.5	1.5	0.7	0.7	0.0	0.0
75°	2.2	2.2	1.5	1.5	0.7	0.7	0.0	0.0
77.5°	3.0	2.2	1.5	1.5	0.7	0.7	0.0	0.0
80°	3.0	2.2	1.5	1.5	1.5	0.7	0.7	0.7
82.5°	3.0	2.2	2.2	1.5	1.5	0.7	0.7	0.7
85°	3.0	2.2	2.2	1.5	1.5	0.7	0.7	0.7
87.5°	3.0	2.2	2.2	1.5	1.5	0.7	0.7	0.7
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)