

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: P209072

Luminaire Tested: **LDSQA6A45927D010TE LARH40FL 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209072
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: LDSQA6A45927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3682.2 lumens
Efficiency: N/A
Efficacy: 67.7 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

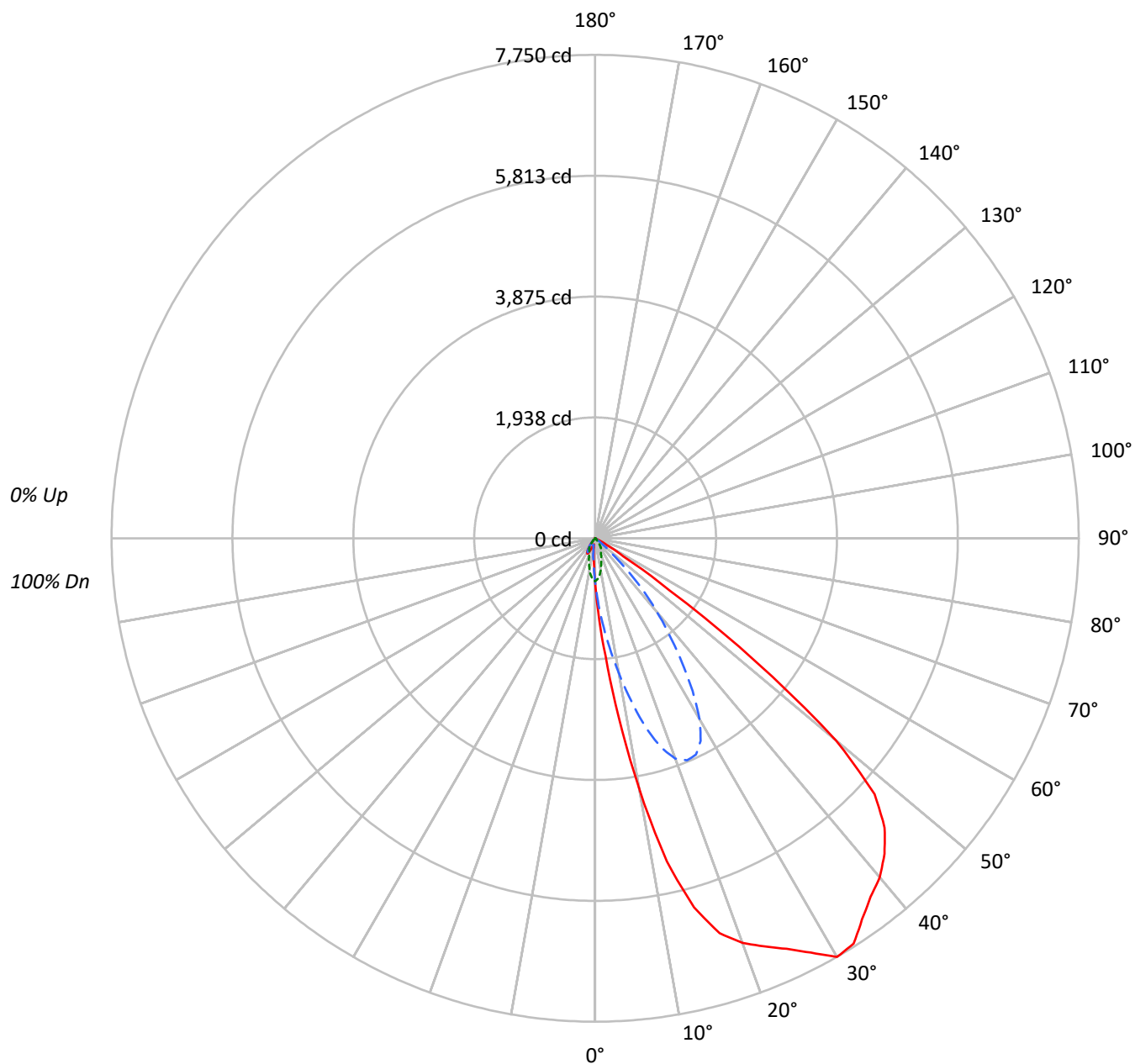
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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				0
RW	70	50	30	10	70	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°	29713	29713	29713
5°	81556	27380	11172
10°	178718	22406	4258
15°	272992	17054	4992
20°	316288	12687	7757
25°	345027	10432	12523
30°	385292	9466	12787
35°	392012	6491	8767
40°	398899	3080	4435
45°	399547	1279	1936
50°	337780	556	596
55°	108770	383	98
60°	21597	439	0
65°	2201	520	0
70°	239	718	0
75°	0	948	0
80°	0	1587	149
85°	0	3162	296



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	93.7	2.5
10°-20°	484.5	13.2
20°-30°	927.7	25.2
30°-40°	1093.0	29.7
40°-50°	858.5	23.3
50°-60°	209.2	5.7
60°-70°	9.0	0.2
70°-80°	3.4	0.1
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°	1505.9	40.9
0°-40°	2598.8	70.6
0°-60°	3666.5	99.6
0°-90°	3682.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3682.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	690	690	690	690	690	
5°	1887	1366	634	332	258	249
15°	6124	3146	383	110	112	1710
25°	7263	3825	220	230	264	3385
35°	7458	2418	124	159	167	4677
45°	6562	747	21	29	32	4930
55°	1449	27	5	3	1	1725
65°	22	3	5	3	0	57
75°	0	3	6	4	0	0
85°	0	4	6	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°	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1
2.5°	1182.9	1180.3	1163.1	1179.1	1130.7	1128.8	1107.1	1097.6	1069.5	1042.8	1004.6
5°	1887.0	1845.6	1811.9	1813.1	1720.2	1703.0	1654.6	1605.6	1530.5	1460.4	1365.6
7.5°	2876.3	2827.3	2756.0	2726.1	2548.5	2496.3	2396.3	2265.8	2102.2	1939.2	1763.5
10°	4087.8	4095.5	4003.2	3917.9	3649.2	3543.5	3381.8	3124.6	2814.6	2508.3	2197.0
12.5°	5307.0	5301.9	5191.8	5062.5	4731.5	4582.5	4367.3	4046.5	3635.8	3160.9	2673.9
15°	6124.4	6160.7	6114.3	6011.1	5728.5	5557.8	5315.3	4879.8	4379.4	3802.6	3145.6
17.5°	6637.6	6671.9	6655.4	6574.5	6325.0	6142.9	5940.5	5583.9	5005.2	4280.1	3517.4
20°	6903.0	6957.2	6949.5	6861.7	6673.2	6522.3	6298.9	5968.5	5467.4	4611.8	3758.1
22.5°	7080.0	7121.4	7132.9	7033.6	6838.7	6695.5	6531.9	6197.0	5725.9	4814.2	3853.6
25°	7262.7	7336.0	7264.0	7141.8	6962.9	6825.4	6650.9	6330.1	5849.4	4897.0	3824.9
27.5°	7486.8	7521.9	7358.9	7247.5	7048.8	6899.9	6714.6	6407.1	5871.1	4830.8	3661.3
30°	7749.8	7604.6	7490.7	7269.7	7044.4	6899.2	6710.8	6358.7	5757.1	4611.2	3344.2
32.5°	7706.5	7573.4	7444.2	7210.5	6987.7	6843.8	6633.7	6197.7	5487.8	4243.8	2906.9
35°	7458.2	7486.8	7347.4	7153.9	6901.8	6753.4	6524.2	5968.5	5030.7	3737.1	2417.9
37.5°	7248.7	7311.8	7220.7	7041.8	6785.9	6585.4	6276.0	5600.5	4434.2	3094.1	1954.5
40°	7097.2	7117.6	7068.6	6868.0	6560.5	6270.9	5913.1	4939.7	3709.7	2428.8	1542.6
42.5°	6862.3	6916.4	6829.8	6610.8	6144.8	5816.9	5298.7	4176.3	2881.4	1855.2	1161.2
45°	6561.8	6613.4	6506.4	6142.3	5494.2	5013.5	4381.3	3256.4	2131.5	1367.5	747.4
47.5°	6071.6	6103.4	5896.5	5392.9	4450.7	3998.1	3350.0	2270.2	1373.2	764.6	363.5
50°	5042.8	5027.5	4601.0	3981.5	2976.9	2502.0	1993.9	1230.6	616.9	362.2	227.3
52.5°	3250.0	3215.0	2792.9	2229.5	1507.6	1150.4	864.6	531.0	321.5	202.5	89.8
55°	1449.0	1435.6	1175.2	912.9	616.9	531.0	405.5	260.4	171.3	70.7	27.4
57.5°	537.3	525.2	462.8	388.3	297.9	247.7	196.7	124.8	43.9	23.6	14.6
60°	250.8	250.2	220.3	181.4	126.1	95.5	55.4	29.3	18.5	12.7	8.3
62.5°	80.2	78.3	54.8	40.1	28.6	24.8	19.7	14.6	9.5	7.0	5.1
65°	21.6	21.6	19.7	16.6	13.4	11.5	9.5	7.0	4.5	3.8	3.2
67.5°	8.3	8.3	7.6	7.0	5.1	4.5	3.8	3.2	2.5	3.2	3.2
70°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	3.2
72.5°	0.0	0.0	0.6	0.6	1.3	1.3	1.9	1.9	2.5	3.2	3.2
75°	0.0	0.0	0.6	0.6	1.3	1.3	1.9	1.9	2.5	3.2	3.2
77.5°	0.0	0.0	0.6	0.6	1.3	1.3	1.9	1.9	2.5	3.2	3.2
80°	0.0	0.0	0.6	0.6	1.3	1.3	1.9	1.9	2.5	3.2	3.2
82.5°	0.0	0.0	0.6	1.3	1.3	1.3	1.9	2.5	2.5	3.2	3.8
85°	0.0	0.0	0.6	1.3	1.3	1.9	1.9	2.5	2.5	3.2	3.8
87.5°	0.0	0.0	0.6	1.3	1.3	1.9	1.9	2.5	2.5	3.2	3.8
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°	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1
2.5°	976.6	934.6	876.6	842.9	834.6	816.8	785.6	739.1	700.9	664.0	642.4
5°	1285.4	1186.1	1074.6	996.3	964.5	921.8	846.1	767.8	695.8	633.5	584.4
7.5°	1612.6	1449.0	1268.8	1123.7	1071.5	1004.0	880.5	764.0	665.3	578.7	513.1
10°	1937.9	1674.4	1429.9	1219.8	1134.5	1042.8	879.8	728.9	613.1	512.5	439.9
12.5°	2263.2	1884.4	1548.3	1277.7	1167.0	1051.1	853.7	675.5	546.9	444.4	375.0
15°	2563.7	2051.9	1628.5	1297.5	1163.8	1026.9	800.9	610.5	477.5	382.6	318.3
17.5°	2787.8	2139.7	1647.0	1267.5	1113.5	962.0	720.0	534.1	411.3	327.9	262.3
20°	2898.0	2153.7	1603.0	1182.2	1026.9	869.6	631.5	460.9	354.6	276.9	221.5
22.5°	2898.0	2087.5	1507.6	1075.3	918.7	763.3	546.2	400.4	310.0	241.3	194.8
25°	2787.8	1955.7	1379.6	951.8	799.6	658.3	472.4	355.2	275.7	219.6	180.8
27.5°	2573.9	1773.7	1215.3	814.3	682.5	564.7	413.8	313.9	249.6	198.0	198.6
30°	2279.8	1550.2	1026.9	669.1	562.1	464.1	348.2	262.9	199.9	190.4	196.1
32.5°	1939.8	1282.8	813.6	518.9	435.5	365.4	264.8	185.9	159.2	160.4	166.8
35°	1591.0	1009.7	612.4	384.5	324.0	264.8	173.8	122.2	121.0	123.5	128.0
37.5°	1256.1	755.7	443.1	281.4	217.7	163.0	93.6	84.0	84.0	86.6	89.1
40°	940.9	536.0	304.9	166.8	105.7	74.5	59.2	54.8	54.1	54.8	57.9
42.5°	646.2	339.3	181.4	66.8	50.9	43.3	37.6	34.4	33.7	34.4	36.3
45°	362.9	208.8	70.7	35.7	30.6	27.4	23.6	21.6	21.0	21.0	22.3
47.5°	227.3	82.8	31.8	22.3	19.1	17.8	15.3	14.0	13.4	13.4	14.0
50°	87.2	32.5	19.7	14.6	12.7	11.5	10.2	8.9	8.3	8.3	8.9
52.5°	29.9	19.1	12.7	9.5	8.3	7.6	6.4	5.7	5.7	5.7	5.7
55°	16.6	11.5	7.6	5.7	5.1	5.1	5.1	5.1	5.1	5.1	5.1
57.5°	10.2	7.0	5.1	4.5	4.5	4.5	4.5	4.5	4.5	5.1	5.1
60°	5.7	4.5	3.8	3.8	3.8	3.8	4.5	4.5	4.5	5.1	5.1
62.5°	3.8	3.8	3.8	3.8	3.8	3.8	4.5	4.5	5.1	5.1	5.1
65°	3.2	3.2	3.2	3.8	3.8	3.8	4.5	4.5	5.1	5.1	5.1
67.5°	3.2	3.2	3.8	3.8	3.8	4.5	4.5	5.1	5.1	5.1	5.1
70°	3.2	3.8	3.8	4.5	4.5	4.5	5.1	5.1	5.1	5.7	5.7
72.5°	3.2	3.8	3.8	4.5	4.5	4.5	5.1	5.1	5.7	5.7	5.7
75°	3.8	3.8	3.8	4.5	4.5	4.5	5.1	5.7	5.7	5.7	5.7
77.5°	3.8	3.8	4.5	4.5	4.5	5.1	5.1	5.7	5.7	5.7	5.7
80°	3.8	3.8	4.5	4.5	5.1	5.1	5.7	5.7	5.7	6.4	6.4
82.5°	3.8	3.8	4.5	5.1	5.1	5.1	5.7	5.7	6.4	6.4	6.4
85°	3.8	4.5	4.5	5.1	5.1	5.1	5.7	5.7	6.4	6.4	6.4
87.5°	3.8	4.5	4.5	5.1	5.1	5.1	5.7	5.7	6.4	6.4	6.4
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°	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1
2.5°	613.7	587.0	560.2	540.5	531.0	521.4	500.4	473.0	461.6	445.0	435.5
5°	534.8	489.6	453.9	430.4	416.4	397.9	373.7	347.0	331.7	314.5	303.0
7.5°	453.3	400.4	366.1	344.4	330.4	307.5	276.9	245.1	226.6	207.5	194.2
10°	382.0	331.7	292.9	268.0	250.2	223.5	192.9	170.6	154.7	138.2	124.8
12.5°	319.0	264.8	223.5	202.5	190.4	164.9	139.4	114.6	105.0	101.9	101.9
15°	258.5	209.5	174.4	156.6	143.9	116.5	111.4	110.1	109.5	108.9	110.1
17.5°	210.7	169.3	132.4	123.5	122.2	121.6	122.2	122.2	122.9	124.8	128.0
20°	177.0	138.8	136.2	136.9	136.9	139.4	142.6	145.2	147.7	150.9	156.6
22.5°	157.2	156.6	161.1	161.7	164.9	168.7	174.4	178.3	184.6	187.8	196.1
25°	181.4	185.9	194.2	196.7	201.8	208.2	217.1	222.2	229.8	233.6	243.2
27.5°	205.6	212.6	222.8	226.0	230.5	240.6	247.0	251.5	255.3	257.8	263.6
30°	203.7	210.1	220.3	220.9	227.3	234.3	238.1	241.9	244.5	243.8	247.0
32.5°	172.5	178.3	187.8	187.8	194.8	200.5	202.5	205.6	205.6	205.6	206.9
35°	132.4	136.2	142.6	144.5	150.2	154.1	155.3	159.2	159.2	157.9	157.9
37.5°	91.7	96.8	101.2	102.5	106.3	108.9	112.0	112.7	111.4	112.0	112.0
40°	59.8	63.0	66.2	66.8	70.0	71.9	75.1	75.1	75.8	75.1	76.4
42.5°	36.9	39.5	41.4	42.7	43.9	45.2	47.1	47.7	48.4	47.7	49.0
45°	22.9	24.2	25.5	26.1	26.7	27.4	29.3	29.3	29.3	29.3	29.9
47.5°	14.0	14.6	15.3	15.3	15.9	16.6	17.2	17.2	17.2	17.2	17.8
50°	8.3	8.9	8.9	8.9	9.5	9.5	10.2	10.2	10.2	9.5	10.2
52.5°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.1	5.7
55°	5.1	5.1	4.5	4.5	4.5	4.5	4.5	3.8	3.2	3.2	2.5
57.5°	4.5	4.5	4.5	4.5	4.5	3.8	3.8	3.2	3.2	2.5	1.9
60°	4.5	4.5	4.5	4.5	4.5	3.8	3.8	3.2	2.5	2.5	1.9
62.5°	5.1	4.5	4.5	4.5	4.5	3.8	3.8	3.2	2.5	2.5	1.9
65°	5.1	5.1	4.5	4.5	4.5	3.8	3.8	3.2	3.2	2.5	1.9
67.5°	5.1	5.1	5.1	4.5	5.1	4.5	3.8	3.8	3.2	2.5	2.5
70°	5.7	5.1	5.1	5.1	5.1	4.5	4.5	3.8	3.2	2.5	2.5
72.5°	5.7	5.7	5.1	5.1	5.1	4.5	4.5	3.8	3.2	3.2	2.5
75°	5.7	5.7	5.1	5.1	5.1	4.5	4.5	3.8	3.8	3.2	2.5
77.5°	5.7	5.7	5.7	5.1	5.1	5.1	4.5	4.5	3.8	3.2	2.5
80°	5.7	5.7	5.7	5.7	5.7	5.1	5.1	4.5	3.8	3.2	2.5
82.5°	6.4	5.7	5.7	5.7	5.7	5.1	5.1	4.5	3.8	3.2	3.2
85°	6.4	6.4	5.7	5.7	5.7	5.1	5.1	4.5	3.8	3.8	3.2
87.5°	6.4	5.7	5.7	5.7	5.7	5.1	5.1	4.5	3.8	3.2	3.2
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: P209072

CATALOG NUMBER: LDSQA6A45927D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	690.1	690.1	690.1	690.1	690.1	690.1	690.1	690.1
2.5°	425.9	420.8	420.8	411.9	410.6	403.6	409.4	405.5
5°	290.3	282.0	279.5	270.6	267.4	259.1	261.7	258.5
7.5°	182.7	174.4	171.9	165.5	161.7	155.3	156.0	154.1
10°	111.4	103.8	101.9	100.0	98.0	97.4	98.0	97.4
12.5°	101.2	100.6	99.3	100.0	98.7	99.3	100.0	99.3
15°	110.1	111.4	110.1	110.8	110.1	111.4	112.0	112.0
17.5°	129.2	131.8	130.5	132.4	131.8	135.0	135.0	135.0
20°	158.5	163.0	161.7	164.3	164.3	168.1	168.1	169.3
22.5°	199.3	205.0	204.4	210.1	208.8	213.3	213.3	214.5
25°	248.3	254.0	254.7	258.5	257.8	262.3	262.3	263.6
27.5°	268.7	271.8	271.2	273.1	273.8	276.3	278.2	276.9
30°	252.1	254.7	254.0	255.3	255.3	257.2	259.1	257.2
32.5°	212.0	213.9	213.9	216.5	214.5	215.2	218.4	216.5
35°	162.3	163.6	162.3	163.6	164.3	164.3	167.4	166.8
37.5°	115.9	116.5	116.5	118.4	116.5	116.5	119.7	120.3
40°	77.7	78.3	77.7	80.2	78.9	78.9	80.9	78.9
42.5°	49.7	50.3	49.7	51.6	50.3	51.6	52.2	52.8
45°	30.6	30.6	29.9	31.2	30.6	31.2	31.8	31.8
47.5°	17.8	17.8	17.2	18.5	17.8	17.8	17.8	18.5
50°	9.5	9.5	9.5	10.2	9.5	9.5	9.5	8.9
52.5°	5.1	5.1	4.5	5.1	4.5	4.5	4.5	4.5
55°	2.5	1.9	1.9	1.9	1.3	1.3	1.3	1.3
57.5°	1.9	1.3	1.3	0.6	0.6	0.6	0.0	0.0
60°	1.3	1.3	0.6	0.6	0.0	0.0	0.0	0.0
62.5°	1.3	1.3	0.6	0.6	0.0	0.0	0.0	0.0
65°	1.3	1.3	0.6	0.6	0.0	0.0	0.0	0.0
67.5°	1.9	1.3	1.3	0.6	0.6	0.0	0.0	0.0
70°	1.9	1.3	1.3	0.6	0.6	0.0	0.0	0.0
72.5°	1.9	1.3	1.3	1.3	0.6	0.6	0.0	0.0
75°	1.9	1.9	1.3	1.3	0.6	0.6	0.0	0.0
77.5°	2.5	1.9	1.3	1.3	0.6	0.6	0.0	0.0
80°	2.5	1.9	1.3	1.3	1.3	0.6	0.6	0.6
82.5°	2.5	1.9	1.9	1.3	1.3	0.6	0.6	0.6
85°	2.5	1.9	1.9	1.3	1.3	0.6	0.6	0.6
87.5°	2.5	1.9	1.9	1.3	1.3	0.6	0.6	0.6
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)