

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: P209040

Luminaire Tested: **LDSQA6A45927D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209040
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26687)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA6A45927D010TE LARH30NF 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 30° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3501.4 lumens
Efficiency: N/A
Efficacy: 64.4 lumens/watt
Spacing Criteria (0/90/45): 2.58 / 0.47 / 1.37
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
CIE Type: Direct

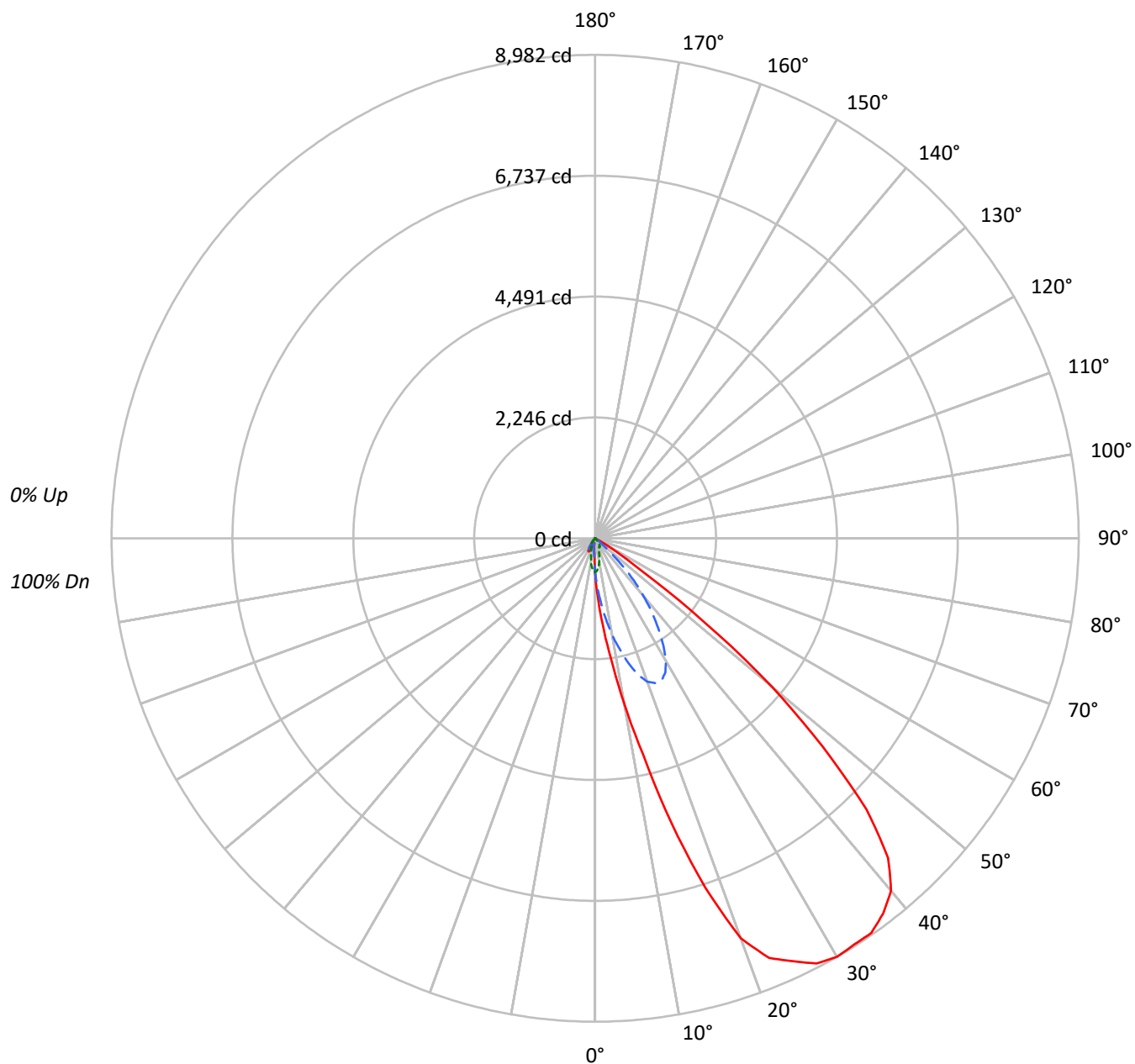
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P209040

CATALOG NUMBER: LDSQA6A45927D010TE LARH30NF 6LSQA1H 30°

Luminous Intensity Polar Plot





TEST NUMBER: P209040

CATALOG NUMBER: LDSQA6A45927D010TE LARH30NF 6LSQA1H 30°

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	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	89	83	78	86	81	77	83	79	76	81	77	74	73						
4	91	82	75	70	89	81	74	69	78	73	68	76	71	67	74	70	67	65						
5	85	74	67	62	83	73	67	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	43	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	40	36	46	40	36	45	40	36	34						

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	27194	27194	27194
5°	69757	24739	7706
10°	135978	19014	3703
15°	244094	12913	4966
20°	362404	9801	8197
25°	411926	8076	12855
30°	446533	8830	12091
35°	470344	5724	7495
40°	480515	2540	3648
45°	433999	968	1358
50°	285688	382	382
55°	78233	338	0
60°	15629	388	0
65°	1100	520	0
70°	164	642	0
75°	0	948	0
80°	0	1413	149
85°	0	2816	296



TEST NUMBER: P209040

CATALOG NUMBER: LDSQA6A45927D010TE LARH30NF 6LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	77.4	2.2
10°-20°	411.0	11.7
20°-30°	931.6	26.6
30°-40°	1118.2	31.9
40°-50°	788.1	22.5
50°-60°	162.6	4.6
60°-70°	5.8	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°	1420.0	40.6
0°-40°	2538.2	72.5
0°-60°	3488.9	99.6
0°-90°	3501.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3501.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	632	632	632	632	632	
5°	1614	1176	572	238	178	199
15°	5476	2409	290	103	111	1625
25°	8671	2914	170	238	271	4002
35°	8948	2041	109	143	143	5563
45°	7128	700	16	22	22	5242
55°	1042	14	4	3	0	1373
65°	11	3	5	3	0	32
75°	0	3	6	4	0	0
85°	0	4	6	4	1	0
90°	0	0	0	0	0	



TEST NUMBER: P209040

CATALOG NUMBER: LDSQA6A45927D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6
2.5°	1076.6	1044.2	1056.9	1019.3	1011.0	1004.0	1011.0	970.3	947.4	918.1	894.5
5°	1614.0	1575.1	1584.1	1518.5	1488.6	1468.2	1464.4	1380.3	1317.3	1247.9	1175.9
7.5°	2246.8	2209.9	2204.8	2102.9	2041.2	2006.2	1991.5	1871.2	1762.3	1638.8	1503.8
10°	3110.2	3026.1	3000.0	2852.3	2734.5	2660.0	2568.4	2376.1	2185.1	1998.5	1826.6
12.5°	4114.9	4069.0	4004.1	3743.7	3537.4	3431.7	3294.8	2994.3	2705.2	2397.1	2109.3
15°	5476.1	5313.1	5202.3	4826.0	4493.7	4330.7	4130.8	3671.1	3234.3	2844.0	2409.2
17.5°	6806.1	6720.8	6547.6	6059.3	5547.4	5290.2	4992.2	4367.6	3750.7	3195.5	2664.5
20°	7909.5	7829.2	7631.9	7171.5	6603.6	6224.2	5849.2	4992.2	4186.2	3475.6	2835.1
22.5°	8437.9	8387.0	8225.9	7831.8	7347.9	6986.9	6583.9	5523.8	4508.3	3659.0	2912.8
25°	8670.9	8647.4	8543.6	8232.9	7777.0	7470.8	7090.1	5900.1	4708.9	3744.3	2914.1
27.5°	8907.1	8911.6	8682.4	8436.6	8004.3	7710.2	7343.4	6066.9	4745.2	3696.6	2818.6
30°	8981.6	8934.5	8833.3	8480.6	8069.9	7757.3	7363.8	5989.9	4596.2	3500.5	2628.2
32.5°	8951.1	8932.6	8821.2	8448.1	7958.5	7614.0	7167.1	5684.3	4302.0	3220.3	2358.3
35°	8948.5	8914.1	8658.8	8338.6	7735.6	7310.3	6721.4	5190.2	3885.6	2851.0	2040.6
37.5°	8786.8	8701.5	8509.8	8078.2	7283.6	6744.3	6084.1	4586.6	3376.3	2436.6	1725.4
40°	8549.3	8434.7	8182.6	7529.4	6500.5	5879.1	5234.8	3900.9	2837.0	2027.8	1390.5
42.5°	8053.3	7880.2	7523.6	6625.3	5457.0	4896.7	4360.6	3206.3	2313.7	1652.2	1061.3
45°	7127.6	6890.8	6408.8	5422.6	4408.4	3951.2	3520.2	2579.8	1852.1	1225.6	699.7
47.5°	5728.8	5509.2	5070.5	4316.7	3457.2	3070.7	2726.9	1918.9	1255.5	709.9	334.3
50°	4265.1	4076.7	3734.1	3000.0	2320.7	2017.0	1722.9	1090.0	588.3	337.4	138.8
52.5°	2544.8	2451.2	2147.5	1663.6	1146.0	987.5	792.7	461.6	296.7	122.2	37.6
55°	1042.2	962.0	848.1	680.6	498.5	422.8	361.6	227.9	92.3	25.5	14.0
57.5°	471.1	453.3	401.7	315.8	229.2	192.3	129.9	43.3	20.4	12.7	8.3
60°	181.5	163.6	140.1	75.8	32.5	27.4	22.3	14.6	10.2	7.0	5.1
62.5°	26.1	24.8	22.3	17.8	14.0	12.7	10.8	7.6	5.7	4.5	3.8
65°	10.8	10.8	9.6	7.6	6.4	5.7	5.1	3.8	3.2	3.2	3.2
67.5°	4.5	4.5	3.8	3.2	2.5	2.5	2.5	1.9	2.5	2.5	3.2
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.9	1.9	2.5	2.5	3.2
72.5°	0.0	0.0	0.6	0.6	1.3	1.3	1.3	1.9	2.5	3.2	3.2
75°	0.0	0.0	0.6	0.6	1.3	1.3	1.3	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	3.8
82.5°	0.0	0.0	0.6	0.6	1.3	1.3	1.9	1.9	2.5	3.2	3.8
85°	0.0	0.0	0.6	0.6	1.3	1.3	1.9	1.9	2.5	3.2	3.8
87.5°	0.0	0.0	0.6	0.6	1.3	1.3	1.9	1.9	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



TEST NUMBER: P209040

CATALOG NUMBER: LDSQA6A45927D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6
2.5°	874.2	833.4	822.0	786.3	756.4	741.7	723.3	681.9	650.7	609.3	584.5
5°	1125.6	1048.6	987.5	913.0	864.0	832.1	782.5	706.7	645.6	572.4	520.2
7.5°	1397.5	1256.8	1146.7	1023.8	953.1	897.7	813.0	704.2	614.4	517.0	436.1
10°	1659.8	1449.7	1276.5	1100.2	1007.2	930.2	813.7	676.8	557.7	434.9	349.5
12.5°	1890.9	1619.7	1375.9	1149.2	1034.0	937.8	792.0	627.8	483.9	357.8	282.7
15°	2083.8	1751.5	1445.9	1167.7	1035.9	921.3	746.8	557.7	401.7	289.7	236.8
17.5°	2230.3	1820.9	1467.5	1145.4	998.9	874.2	677.4	469.2	326.0	245.8	199.3
20°	2306.0	1834.3	1436.3	1084.9	930.8	802.9	586.4	380.7	276.3	213.9	166.8
22.5°	2315.6	1796.7	1361.9	998.3	844.9	716.3	485.8	317.7	246.4	189.1	147.1
25°	2258.9	1715.2	1255.5	900.3	750.6	616.9	395.4	284.6	224.1	170.0	169.4
27.5°	2138.0	1575.1	1128.2	786.3	636.7	501.7	335.5	257.2	199.9	180.2	191.6
30°	1967.3	1395.6	971.6	642.4	497.2	385.8	282.7	212.0	175.7	177.6	187.2
32.5°	1736.2	1172.8	787.6	470.5	355.9	290.3	212.0	144.5	145.8	146.4	154.7
35°	1445.9	940.4	588.3	316.4	250.2	204.4	119.7	106.3	108.2	108.9	114.6
37.5°	1158.8	722.6	390.9	210.7	157.3	107.6	74.5	71.3	72.6	71.9	78.3
40°	887.5	503.6	234.3	104.4	60.5	50.3	45.8	43.9	44.6	45.2	49.0
42.5°	628.4	273.1	115.9	39.5	31.8	29.3	27.4	26.1	26.7	26.7	29.3
45°	319.0	129.2	39.5	21.6	19.7	17.8	16.6	15.9	15.9	15.9	17.2
47.5°	138.2	42.7	18.5	13.4	12.1	11.5	10.2	9.6	9.6	9.6	10.2
50°	43.3	17.2	11.5	8.9	7.6	7.0	6.4	6.4	6.4	5.7	6.4
52.5°	15.9	10.8	7.6	5.7	5.1	5.1	5.1	4.5	5.1	4.5	5.1
55°	9.6	7.0	5.1	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
57.5°	6.4	5.1	4.5	4.5	3.8	3.8	4.5	4.5	4.5	4.5	4.5
60°	4.5	4.5	3.8	3.8	3.8	3.8	4.5	4.5	4.5	4.5	4.5
62.5°	3.8	3.8	3.8	3.8	3.8	3.8	4.5	4.5	4.5	4.5	5.1
65°	3.2	3.8	3.8	3.8	3.8	3.8	4.5	4.5	5.1	5.1	5.1
67.5°	3.2	3.8	3.8	4.5	4.5	4.5	4.5	5.1	5.1	5.1	5.1
70°	3.8	3.8	4.5	4.5	4.5	4.5	5.1	5.1	5.1	5.1	5.7
72.5°	3.8	3.8	4.5	4.5	4.5	4.5	5.1	5.1	5.7	5.7	5.7
75°	3.8	4.5	4.5	4.5	4.5	5.1	5.1	5.1	5.7	5.7	5.7
77.5°	3.8	4.5	4.5	5.1	5.1	5.1	5.1	5.7	5.7	5.7	5.7
80°	3.8	4.5	4.5	5.1	5.1	5.1	5.7	5.7	5.7	5.7	6.4
82.5°	3.8	4.5	4.5	5.1	5.1	5.1	5.7	5.7	5.7	5.7	6.4
85°	4.5	4.5	5.1	5.1	5.1	5.1	5.7	5.7	5.7	5.7	6.4
87.5°	4.5	4.5	5.1	5.1	5.1	5.1	5.7	5.7	6.4	5.7	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



TEST NUMBER: P209040

CATALOG NUMBER: LDSQA6A45927D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6
2.5°	551.4	514.4	489.0	479.4	461.0	431.7	414.5	398.6	368.6	362.3	345.7
5°	460.3	401.1	359.1	343.2	322.2	297.3	273.1	257.2	238.1	230.5	219.0
7.5°	362.9	303.7	267.4	254.7	240.0	219.7	198.0	182.1	162.4	152.2	142.6
10°	285.2	241.3	210.7	198.0	182.7	161.1	138.8	117.8	100.6	89.8	87.9
12.5°	231.8	195.5	163.0	149.6	131.8	110.1	94.2	93.6	92.3	91.7	93.0
15°	189.7	154.7	120.3	105.7	100.6	100.0	101.9	103.8	103.1	105.1	106.3
17.5°	156.0	118.4	110.8	111.4	112.1	114.0	117.1	122.2	122.9	126.1	128.6
20°	127.3	125.4	128.6	131.2	133.1	136.9	143.9	150.3	152.2	156.6	161.7
22.5°	144.5	150.3	157.3	160.4	163.0	170.0	177.6	187.8	191.6	197.4	204.4
25°	174.4	184.0	194.8	198.6	202.5	213.9	222.8	234.9	238.1	245.1	252.1
27.5°	199.3	209.5	220.9	226.0	229.2	240.7	248.3	255.9	255.9	259.8	264.9
30°	195.5	203.7	213.3	217.1	218.4	226.7	234.3	236.8	235.6	237.5	241.3
32.5°	162.4	168.7	176.4	179.5	180.8	186.5	192.9	192.9	192.3	192.3	194.8
35°	120.3	124.8	128.6	131.8	133.7	137.5	143.3	142.6	142.6	141.3	143.3
37.5°	80.9	83.4	87.9	89.1	89.8	92.3	96.8	96.8	95.5	96.1	97.4
40°	49.0	52.2	54.8	55.4	56.7	58.6	61.8	61.8	61.8	61.8	62.4
42.5°	29.3	31.2	33.1	33.1	33.7	36.3	37.6	37.6	37.6	37.6	38.2
45°	17.2	17.8	19.1	19.7	19.7	21.0	21.6	21.6	21.6	21.6	22.3
47.5°	10.2	10.8	10.8	11.5	11.5	12.1	12.7	12.7	12.1	12.1	12.1
50°	6.4	6.4	6.4	6.4	7.0	7.0	7.0	7.0	7.0	7.0	6.4
52.5°	5.1	5.1	5.1	5.1	4.5	4.5	4.5	4.5	3.8	3.8	3.2
55°	4.5	4.5	4.5	4.5	4.5	3.8	3.8	3.8	3.2	2.5	1.9
57.5°	4.5	4.5	4.5	4.5	4.5	3.8	3.8	3.2	2.5	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	5.1	4.5	4.5	4.5	3.8	3.8	3.2	3.2	2.5	1.9
65°	5.1	5.1	4.5	4.5	4.5	4.5	3.8	3.8	3.2	2.5	1.9
67.5°	5.1	5.1	5.1	5.1	4.5	4.5	4.5	3.8	3.2	2.5	1.9
70°	5.7	5.7	5.1	5.1	5.1	4.5	4.5	3.8	3.2	3.2	2.5
72.5°	5.7	5.7	5.1	5.1	5.1	5.1	4.5	3.8	3.8	3.2	2.5
75°	5.7	5.7	5.7	5.7	5.1	5.1	4.5	4.5	3.8	3.2	2.5
77.5°	5.7	5.7	5.7	5.7	5.1	5.1	5.1	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	6.4	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	6.4	5.7	5.7	5.7	5.1	5.1	4.5	3.8	3.8	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: P209040

CATALOG NUMBER: LDSQA6A45927D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	631.6	631.6	631.6	631.6	631.6	631.6	631.6	631.6
2.5°	335.5	316.4	310.1	314.5	309.4	305.6	300.5	298.0
5°	210.1	196.1	191.6	192.9	188.5	184.6	179.5	178.3
7.5°	129.2	115.9	110.8	110.8	105.7	101.2	98.0	96.1
10°	86.6	84.0	84.7	85.3	84.7	85.3	83.4	84.7
12.5°	93.0	91.7	93.0	93.6	93.6	94.9	92.3	94.2
15°	108.2	107.0	108.9	110.1	110.1	112.1	109.5	111.4
17.5°	132.4	131.8	135.0	136.2	136.9	140.1	136.9	139.4
20°	167.4	166.8	171.3	173.2	172.5	178.9	174.4	178.9
22.5°	212.7	211.4	217.7	219.7	220.3	228.6	224.7	227.9
25°	257.9	259.1	262.3	265.5	266.1	273.1	267.4	270.6
27.5°	267.4	265.5	267.4	271.2	271.9	275.0	270.0	272.5
30°	241.9	238.8	239.4	243.8	245.1	246.4	241.9	243.2
32.5°	196.7	191.6	191.6	196.1	197.4	199.3	191.6	194.8
35°	145.2	140.7	140.7	143.9	144.5	145.8	140.1	142.6
37.5°	99.3	95.5	96.8	98.0	98.7	100.0	99.3	98.7
40°	63.7	61.1	63.0	63.0	63.7	64.3	64.3	64.9
42.5°	38.8	36.9	38.2	38.2	38.8	38.8	38.8	39.5
45°	22.3	21.6	21.6	22.3	22.3	22.3	21.6	22.3
47.5°	12.1	11.5	12.1	12.1	12.1	12.1	12.1	12.1
50°	6.4	5.7	5.7	5.7	5.7	5.7	5.7	5.7
52.5°	3.2	2.5	2.5	2.5	1.9	2.5	1.9	1.9
55°	1.9	1.3	1.3	1.3	0.6	0.6	0.0	0.0
57.5°	1.3	0.6	0.6	0.6	0.0	0.0	0.0	0.0
60°	1.3	0.6	0.6	0.6	0.0	0.0	0.0	0.0
62.5°	1.3	0.6	0.6	0.6	0.0	0.0	0.0	0.0
65°	1.3	0.6	0.6	0.6	0.0	0.0	0.0	0.0
67.5°	1.9	1.3	0.6	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	1.3	1.3	1.3	0.6	0.6	0.0	0.0
77.5°	1.9	1.9	1.3	1.3	0.6	0.6	0.6	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	1.3	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)