

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: P179916

Luminaire Tested: **LDA6A65827D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179916
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26689)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A65827D010TE LARH20SP 6LAL1LI 30°
Description: PORTFOLIO 6" Lensed Adjustable, Self-flanged, 20° Spot, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5206.4 lumens
Efficiency: N/A
Efficacy: 66.7 lumens/watt
Spacing Criteria (0/90/45): 2.34 / 0.96 / 1.3
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

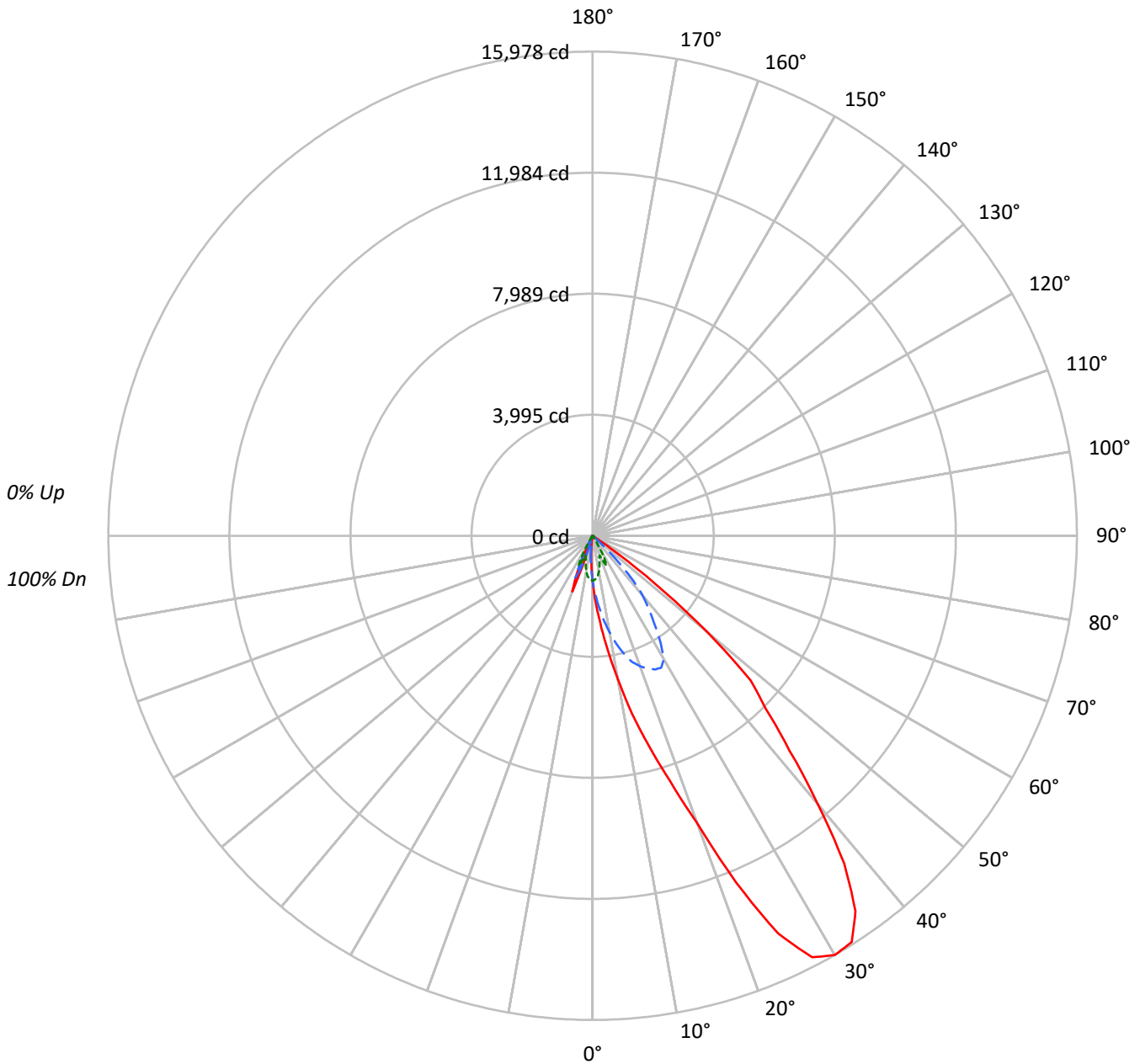
Input Watts (W): 78
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
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	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91																			
2	105	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82																			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74																			
4	92	83	76	71	90	82	76	71	80	74	70	77	73	69	76	72	68	67																			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	70	65	62	60																			
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54																			
7	75	64	57	51	74	63	56	51	62	56	51	60	55	51	59	54	50	49																			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44																			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40																			
10	62	50	43	38	61	50	43	38	49	43	38	48	42	38	47	42	38	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	81249	81249	81249
5°	158854	77234	28175
10°	267374	66315	6251
15°	407187	50210	10261
20°	588395	40674	114431
25°	875682	65810	33074
30°	1011440	22529	6539
35°	1011756	5033	3534
40°	826949	2812	2168
45°	626212	1830	1395
50°	415867	1245	955
55°	66855	1070	755
60°	4188	1107	614
65°	1310	1453	726
70°	721	1619	898
75°	466	1906	1186
80°	347	2841	1768
85°	692	5661	2139



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	154.7	3.0
10°-20°	661.5	12.7
20°-30°	1557.2	29.9
30°-40°	1640.7	31.5
40°-50°	1023.0	19.6
50°-60°	147.0	2.8
60°-70°	9.4	0.2
70°-80°	7.4	0.1
80°-90°	5.5	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°	2373.4	45.6
0°-40°	4014.1	77.1
0°-60°	5184.2	99.6
0°-90°	5206.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5206.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1482	1482	1482	1482	1482	
5°	2887	2336	1404	729	512	335
15°	7175	4061	885	154	181	2136
25°	14477	4868	1088	787	547	6514
35°	15118	3566	75	70	53	9119
45°	8077	987	24	26	18	6322
55°	700	18	11	12	8	1257
65°	10	8	11	9	6	15
75°	2	6	9	9	6	2
85°	1	6	9	7	3	1
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°	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1
2.5°	2163.6	2149.0	2153.5	2119.8	2074.9	2095.1	2044.6	2045.7	2014.3	1934.5	1899.7
5°	2886.7	2884.4	2881.1	2819.3	2739.6	2748.6	2674.5	2646.4	2565.6	2425.2	2336.5
7.5°	3784.9	3786.0	3769.2	3618.7	3530.0	3524.4	3407.6	3323.4	3173.0	2951.8	2790.1
10°	4803.2	4834.7	4804.4	4573.1	4408.0	4410.3	4200.3	4038.6	3797.2	3475.0	3244.8
12.5°	5999.0	6003.5	5956.3	5652.1	5400.6	5381.5	5099.7	4790.9	4423.7	4002.7	3668.1
15°	7174.6	7206.0	7145.4	6770.4	6420.1	6367.3	6008.0	5600.4	5144.6	4521.4	4061.1
17.5°	8478.1	8428.7	8268.1	7731.5	7310.4	7232.9	6846.7	6313.4	5731.8	4978.4	4374.3
20°	10085.9	10102.8	9762.6	8960.9	8249.1	7947.0	7499.0	6915.2	6189.9	5314.1	4583.2
22.5°	12383.1	12292.2	11562.4	10265.6	9195.6	8792.5	8153.6	7348.6	6532.3	5569.0	4739.3
25°	14477.1	14238.0	13565.4	11781.3	10106.1	9607.6	8946.3	7718.0	6816.4	5757.6	4868.4
27.5°	15679.6	15572.9	14810.6	13010.8	10841.6	10139.8	9209.0	7989.7	6984.8	5850.8	4905.4
30°	15978.3	15997.4	15319.2	13418.3	11015.6	10213.9	9251.7	7981.8	6871.4	5684.6	4692.1
32.5°	15901.9	15798.6	14950.9	12968.1	10551.9	9822.1	8834.0	7624.8	6420.1	5189.5	4161.0
35°	15118.2	14966.6	13923.6	11797.0	9764.8	9055.2	8159.2	7039.8	5790.2	4558.5	3565.9
37.5°	13627.2	13452.0	12248.4	10391.3	8820.6	8219.9	7445.1	6388.6	5153.6	3970.1	3042.7
40°	11555.6	11337.8	10331.8	9044.0	7805.6	7385.6	6731.1	5645.3	4493.4	3413.2	2559.9
42.5°	9618.8	9514.4	8910.4	7805.6	6971.3	6566.0	5905.8	4895.3	3835.4	2844.0	1895.3
45°	8077.3	8007.7	7606.8	6905.1	6058.5	5679.0	5057.0	4071.2	2918.1	1915.5	986.9
47.5°	7070.1	6892.7	6500.9	5764.3	4823.5	4350.8	3757.9	2682.3	1646.0	848.8	303.2
50°	4876.2	4893.1	4450.7	3638.9	2838.4	2438.7	2014.3	1233.9	544.5	185.3	52.8
52.5°	2567.8	2378.0	2067.0	1543.8	1074.5	819.6	598.4	247.0	98.8	37.1	28.1
55°	699.5	614.2	490.7	346.9	187.5	131.4	86.5	46.0	32.6	25.8	18.0
57.5°	68.5	65.1	59.5	48.3	41.5	38.2	34.8	28.1	22.5	15.7	11.2
60°	38.2	37.1	34.8	30.3	26.9	24.7	22.5	19.1	13.5	10.1	9.0
62.5°	21.3	20.2	19.1	16.8	14.6	13.5	13.5	11.2	9.0	7.9	7.9
65°	10.1	10.1	10.1	10.1	10.1	9.0	7.9	7.9	7.9	7.9	7.9
67.5°	7.9	7.9	7.9	6.7	6.7	6.7	6.7	6.7	6.7	5.6	6.7
70°	4.5	4.5	5.6	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.6
72.5°	2.2	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	5.6
75°	2.2	2.2	2.2	2.2	3.4	3.4	3.4	3.4	4.5	4.5	5.6
77.5°	2.2	2.2	2.2	2.2	2.2	2.2	3.4	3.4	4.5	4.5	5.6
80°	1.1	1.1	1.1	2.2	2.2	2.2	2.2	3.4	4.5	4.5	5.6
82.5°	1.1	1.1	1.1	1.1	2.2	2.2	2.2	3.4	4.5	4.5	5.6
85°	1.1	1.1	1.1	1.1	2.2	2.2	2.2	3.4	3.4	4.5	5.6
87.5°	0.0	0.0	1.1	1.1	2.2	2.2	2.2	3.4	3.4	4.5	5.6
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°	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1
2.5°	1863.8	1808.8	1753.8	1698.8	1696.5	1664.0	1615.7	1551.7	1498.9	1454.0	1410.2
5°	2247.8	2134.4	2021.0	1907.6	1873.9	1815.5	1711.1	1593.2	1492.2	1403.5	1318.1
7.5°	2632.9	2442.0	2262.4	2085.0	2014.3	1925.6	1762.8	1592.1	1446.1	1315.9	1189.0
10°	2976.5	2699.2	2446.5	2197.3	2095.1	1979.5	1760.5	1543.8	1358.6	1191.3	1029.6
12.5°	3293.1	2906.9	2586.9	2272.5	2133.3	1992.9	1725.7	1467.5	1246.3	1046.4	860.0
15°	3571.6	3097.7	2685.7	2306.2	2135.5	1967.1	1652.7	1361.9	1113.8	884.7	682.6
17.5°	3770.3	3193.2	2718.2	2275.9	2077.1	1888.5	1544.9	1233.9	966.7	727.6	532.2
20°	3891.6	3232.5	2701.4	2219.7	2008.7	1813.3	1465.2	1163.2	903.8	697.2	564.8
22.5°	3971.3	3270.7	2708.1	2218.6	2007.5	1823.4	1498.9	1216.0	1004.9	893.7	878.0
25°	4056.6	3324.5	2757.5	2269.1	2072.7	1902.0	1587.6	1311.4	1135.1	1088.0	1094.7
27.5°	4052.1	3301.0	2710.4	2225.3	2018.8	1845.8	1477.6	1128.4	963.3	830.9	782.6
30°	3810.7	3028.1	2389.3	1845.8	1602.2	1390.0	905.0	588.3	406.4	355.9	305.4
32.5°	3246.0	2453.3	1786.3	1276.6	1002.6	748.9	355.9	188.6	160.6	134.7	122.4
35°	2699.2	1955.9	1336.1	771.3	487.3	302.0	128.0	84.2	79.7	75.2	75.2
37.5°	2231.0	1536.0	863.4	325.6	178.5	108.9	61.8	56.1	53.9	52.8	52.8
40°	1744.8	1001.5	373.9	107.8	57.3	49.4	43.8	41.5	40.4	39.3	40.4
42.5°	1029.6	403.1	108.9	40.4	38.2	35.9	32.6	31.4	31.4	30.3	31.4
45°	350.3	104.4	35.9	29.2	26.9	26.9	24.7	24.7	24.7	23.6	25.8
47.5°	90.9	32.6	23.6	21.3	20.2	20.2	19.1	19.1	19.1	19.1	20.2
50°	31.4	21.3	16.8	15.7	14.6	15.7	14.6	14.6	14.6	14.6	15.7
52.5°	19.1	14.6	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4
55°	12.4	11.2	10.1	10.1	10.1	10.1	10.1	11.2	11.2	11.2	11.2
57.5°	10.1	9.0	9.0	9.0	9.0	9.0	10.1	9.0	9.0	10.1	11.2
60°	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	10.1	10.1	11.2
62.5°	7.9	9.0	9.0	9.0	9.0	9.0	9.0	10.1	10.1	10.1	11.2
65°	7.9	7.9	7.9	9.0	9.0	9.0	10.1	10.1	10.1	11.2	11.2
67.5°	6.7	6.7	7.9	7.9	9.0	9.0	9.0	10.1	10.1	10.1	11.2
70°	6.7	6.7	6.7	7.9	7.9	7.9	7.9	9.0	9.0	10.1	10.1
72.5°	5.6	6.7	6.7	7.9	7.9	7.9	7.9	9.0	9.0	9.0	10.1
75°	5.6	6.7	6.7	7.9	7.9	7.9	7.9	7.9	9.0	9.0	10.1
77.5°	5.6	6.7	6.7	7.9	7.9	7.9	7.9	9.0	9.0	9.0	10.1
80°	5.6	6.7	6.7	7.9	7.9	7.9	7.9	9.0	9.0	9.0	9.0
82.5°	5.6	6.7	6.7	7.9	7.9	7.9	7.9	9.0	9.0	9.0	9.0
85°	5.6	6.7	6.7	7.9	7.9	7.9	7.9	7.9	9.0	9.0	9.0
87.5°	5.6	6.7	6.7	7.9	7.9	7.9	7.9	7.9	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°	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1
2.5°	1349.6	1330.5	1263.1	1254.1	1242.9	1187.9	1165.4	1127.3	1073.4	1057.7	1038.6
5°	1218.2	1155.3	1056.5	1029.6	1000.4	913.9	861.2	798.3	728.7	690.5	654.6
7.5°	1050.9	963.3	832.0	779.2	746.6	652.3	568.1	483.9	381.7	323.4	286.3
10°	864.5	744.4	607.4	546.8	503.0	366.0	286.3	249.3	214.5	186.4	161.7
12.5°	677.0	541.2	386.2	316.6	281.8	233.5	189.7	143.7	128.0	126.9	122.4
15°	496.3	344.7	260.5	234.7	210.0	150.5	149.3	149.3	153.8	157.2	158.3
17.5°	366.0	303.2	238.0	222.3	233.5	242.5	258.2	281.8	300.9	354.8	343.6
20°	536.7	532.2	580.5	642.2	686.0	779.2	897.1	1030.7	1169.9	1324.9	1442.8
22.5°	920.7	1033.0	1120.5	1194.6	1233.9	1339.5	1432.7	1478.7	1505.6	1492.2	1473.1
25°	1125.0	1165.4	1138.5	1112.7	1116.0	1020.6	951.0	862.3	787.1	718.6	678.2
27.5°	672.5	615.3	534.4	478.3	467.1	403.1	355.9	306.5	291.9	247.0	227.9
30°	242.5	225.7	199.9	179.6	177.4	160.6	150.5	139.2	138.1	128.0	122.4
32.5°	110.0	110.0	101.1	103.3	101.1	97.7	96.6	93.2	93.2	89.8	87.6
35°	71.9	73.0	71.9	71.9	70.7	70.7	70.7	68.5	69.6	67.4	64.0
37.5°	52.8	53.9	51.6	52.8	52.8	52.8	52.8	51.6	50.5	48.3	47.2
40°	40.4	40.4	40.4	40.4	40.4	40.4	40.4	39.3	39.3	38.2	35.9
42.5°	31.4	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	31.4	31.4
45°	25.8	26.9	25.8	26.9	26.9	26.9	25.8	25.8	25.8	24.7	23.6
47.5°	20.2	20.2	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.1	18.0
50°	15.7	15.7	15.7	15.7	15.7	15.7	16.8	15.7	15.7	15.7	15.7
52.5°	12.4	13.5	13.5	14.6	14.6	14.6	14.6	14.6	13.5	13.5	12.4
55°	11.2	12.4	12.4	13.5	13.5	13.5	13.5	12.4	12.4	12.4	11.2
57.5°	11.2	12.4	12.4	12.4	12.4	12.4	12.4	11.2	11.2	10.1	10.1
60°	11.2	11.2	11.2	12.4	12.4	11.2	11.2	10.1	10.1	9.0	9.0
62.5°	11.2	11.2	11.2	12.4	12.4	11.2	11.2	10.1	9.0	9.0	7.9
65°	11.2	12.4	11.2	12.4	12.4	11.2	11.2	10.1	9.0	9.0	7.9
67.5°	11.2	12.4	12.4	12.4	11.2	11.2	11.2	10.1	9.0	9.0	7.9
70°	10.1	11.2	11.2	11.2	11.2	11.2	10.1	10.1	9.0	9.0	7.9
72.5°	10.1	11.2	10.1	11.2	11.2	10.1	10.1	10.1	9.0	9.0	7.9
75°	10.1	10.1	10.1	10.1	10.1	10.1	10.1	9.0	9.0	7.9	7.9
77.5°	10.1	10.1	10.1	10.1	10.1	10.1	9.0	9.0	9.0	7.9	7.9
80°	10.1	10.1	10.1	10.1	10.1	10.1	9.0	9.0	7.9	7.9	6.7
82.5°	9.0	10.1	10.1	10.1	10.1	10.1	9.0	9.0	7.9	7.9	6.7
85°	9.0	9.0	9.0	9.0	9.0	9.0	7.9	7.9	6.7	5.6	5.6
87.5°	7.9	9.0	7.9	7.9	7.9	7.9	6.7	5.6	4.5	4.5	3.4
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: P179916

CATALOG NUMBER: LDA6A65827D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1	1482.1
2.5°	1008.3	980.2	981.3	985.8	957.7	943.1	939.8	925.2
5°	606.3	573.7	568.1	563.6	524.3	508.6	496.3	512.0
7.5°	260.5	248.1	245.9	242.5	224.6	215.6	211.1	215.6
10°	129.1	121.3	122.4	123.5	117.9	114.5	113.4	112.3
12.5°	128.0	126.9	128.0	128.0	129.1	126.9	128.0	128.0
15°	166.2	166.2	169.5	171.8	177.4	176.3	178.5	180.8
17.5°	414.3	393.0	404.2	404.2	454.7	409.8	448.0	413.2
20°	1628.0	1704.4	1781.9	1847.0	1913.2	1933.4	1972.7	1961.5
22.5°	1443.9	1452.9	1441.6	1429.3	1425.9	1429.3	1368.7	1377.7
25°	619.8	615.3	597.3	578.2	583.8	588.3	567.0	546.8
27.5°	212.2	206.6	201.0	196.5	194.2	190.9	184.1	179.6
30°	120.1	116.8	114.5	113.4	111.2	108.9	105.5	103.3
32.5°	86.5	84.2	83.1	82.0	79.7	77.5	74.1	73.0
35°	64.0	61.8	60.6	59.5	57.3	55.0	53.9	52.8
37.5°	47.2	44.9	44.9	44.9	41.5	39.3	38.2	37.1
40°	35.9	34.8	34.8	34.8	32.6	31.4	30.3	30.3
42.5°	31.4	30.3	30.3	30.3	28.1	26.9	26.9	25.8
45°	23.6	22.5	22.5	21.3	20.2	20.2	19.1	18.0
47.5°	18.0	16.8	16.8	16.8	15.7	14.6	14.6	13.5
50°	14.6	14.6	13.5	14.6	12.4	12.4	12.4	11.2
52.5°	12.4	12.4	11.2	11.2	10.1	10.1	10.1	9.0
55°	11.2	10.1	10.1	10.1	9.0	9.0	9.0	7.9
57.5°	9.0	9.0	7.9	7.9	6.7	6.7	6.7	6.7
60°	7.9	7.9	6.7	6.7	5.6	5.6	5.6	5.6
62.5°	7.9	6.7	6.7	6.7	5.6	5.6	5.6	5.6
65°	7.9	6.7	6.7	6.7	5.6	5.6	5.6	5.6
67.5°	7.9	6.7	6.7	6.7	5.6	5.6	5.6	5.6
70°	7.9	7.9	6.7	6.7	6.7	5.6	5.6	5.6
72.5°	7.9	7.9	6.7	6.7	6.7	6.7	5.6	5.6
75°	6.7	6.7	6.7	6.7	5.6	5.6	5.6	5.6
77.5°	6.7	6.7	6.7	6.7	5.6	5.6	5.6	5.6
80°	6.7	6.7	5.6	5.6	5.6	5.6	5.6	5.6
82.5°	6.7	5.6	5.6	5.6	5.6	4.5	4.5	4.5
85°	4.5	4.5	4.5	4.5	3.4	3.4	3.4	3.4
87.5°	3.4	2.2	2.2	2.2	1.1	1.1	1.1	1.1
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)