

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: P179661

Luminaire Tested: **LDA6A45830D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P179661  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26673)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA6A45830D010TE LARH20SP 6LAL1LI 30°  
Description: PORTFOLIO 6" Lensed Adjustable, Self-flanged, 20° Spot, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4033.1 lumens  
Efficiency: N/A  
Efficacy: 76.1 lumens/watt  
Spacing Criteria (0/90/45): 2.36 / 0.56 / 1.31  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

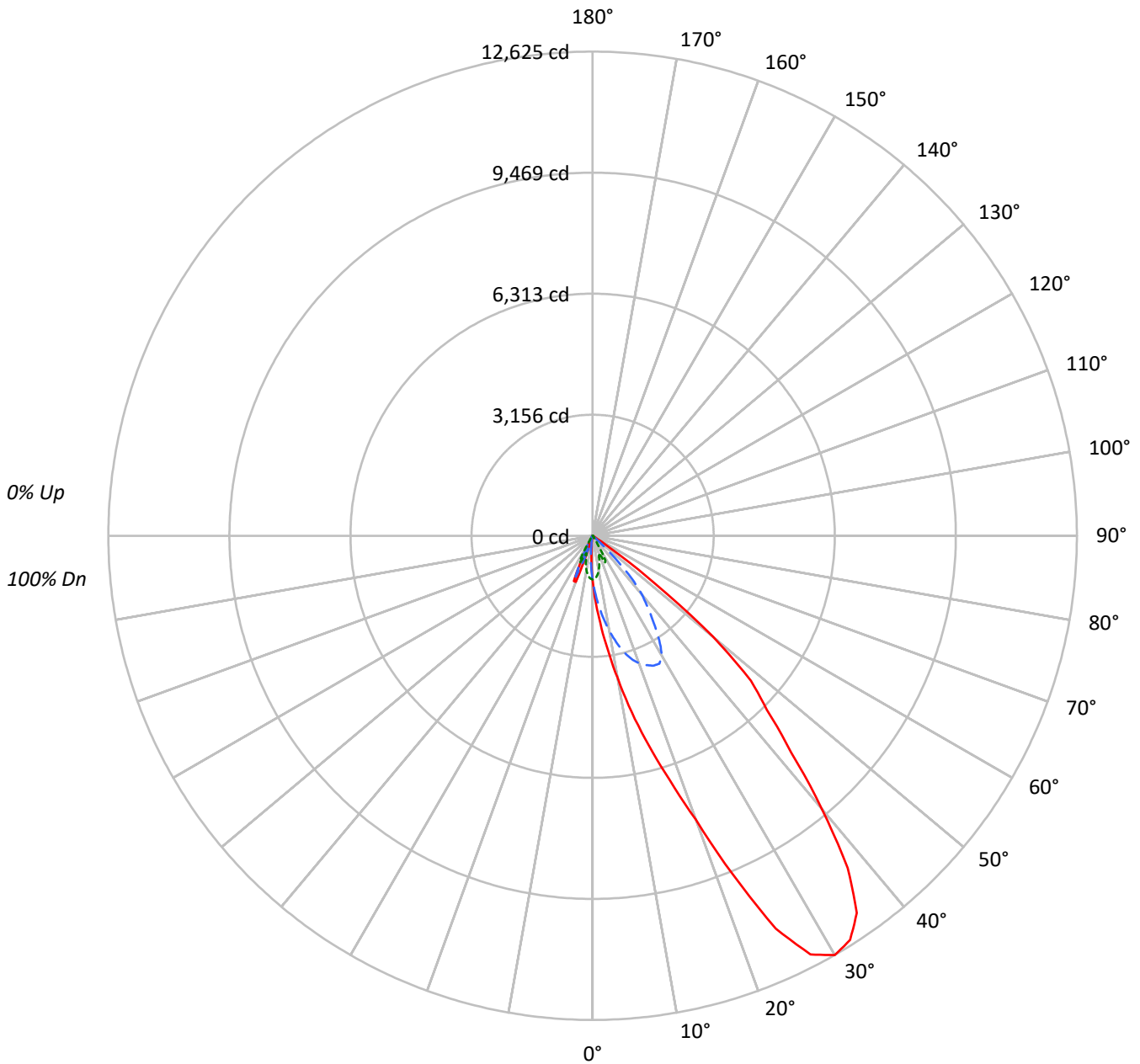
Input Watts (W): 53  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	93	90	95	91	88	91	88	86	89	86	84	82																			
3	99	91	85	80	96	89	84	79	87	82	78	84	80	77	82	79	76	74																			
4	92	83	76	71	90	82	76	71	79	74	70	77	73	69	75	71	68	66																			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	69	65	61	60																			
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	55	54																			
7	75	64	56	51	73	63	56	51	62	55	51	60	55	51	59	54	50	49																			
8	70	59	51	46	69	58	51	46	57	50	46	56	50	46	55	49	46	44																			
9	66	54	47	42	64	53	47	42	52	46	42	51	46	42	50	45	41	40																			
10	62	50	43	38	60	49	43	38	48	42	38	48	42	38	47	42	38	36																			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	62588	62588	62588
5°	125335	59536	15964
10°	210194	50901	4364
15°	320984	38156	6339
20°	459893	27897	74667
25°	683719	46297	38295
30°	799148	20472	5957
35°	803559	4263	3145
40°	665347	2383	1825
45°	498036	1520	1442
50°	349029	1083	836
55°	56103	841	659
60°	3443	855	537
65°	1012	1141	506
70°	625	1250	785
75°	424	1461	1038
80°	316	2178	1547
85°	629	4340	1824



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	118.3	2.9
10°-20°	499.5	12.4
20°-30°	1201.9	29.8
30°-40°	1280.5	31.8
40°-50°	798.5	19.8
50°-60°	116.7	2.9
60°-70°	7.4	0.2
70°-80°	5.8	0.1
80°-90°	4.4	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°	1819.7	45.1
0°-40°	3100.2	76.9
0°-60°	4015.4	99.6
0°-90°	4033.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4033.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1142	1142	1142	1142	1142	
5°	2278	1827	1082	539	290	263
15°	5656	3143	672	104	112	1678
25°	11304	3738	765	793	633	5093
35°	12007	2773	64	59	47	7244
45°	6424	812	20	22	19	5057
55°	587	14	9	10	7	1038
65°	8	6	9	8	4	12
75°	2	4	7	7	5	2
85°	1	4	7	6	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°	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7
2.5°	1698.4	1640.5	1660.1	1617.0	1601.3	1605.3	1573.9	1548.4	1534.7	1501.4	1467.1
5°	2277.6	2210.9	2230.5	2165.8	2125.7	2116.8	2067.8	2013.0	1964.0	1889.5	1826.7
7.5°	2980.2	2897.9	2911.6	2814.6	2733.3	2705.8	2631.3	2524.5	2425.5	2299.1	2178.6
10°	3776.0	3698.6	3694.7	3546.7	3407.5	3353.6	3244.8	3068.4	2899.9	2709.7	2511.8
12.5°	4713.9	4597.3	4577.7	4387.5	4179.8	4091.6	3939.7	3670.2	3403.6	3126.3	2841.1
15°	5655.7	5530.2	5498.9	5259.7	4969.7	4851.1	4648.2	4289.5	3922.0	3530.0	3142.9
17.5°	6659.2	6458.3	6288.8	6012.4	5677.2	5555.7	5293.1	4833.4	4370.9	3886.7	3369.3
20°	7883.2	7658.8	7420.7	6948.3	6333.8	6094.7	5806.6	5288.2	4710.9	4151.3	3536.9
22.5°	9561.0	9192.5	8686.9	7927.3	7082.6	6741.5	6296.6	5625.3	4972.6	4344.4	3648.6
25°	11303.5	10794.9	10239.2	9072.0	7767.6	7351.1	6766.0	5883.0	5180.4	4486.5	3737.8
27.5°	12307.0	11898.4	11268.2	10045.2	8323.3	7776.4	7102.2	6077.1	5312.7	4555.1	3763.3
30°	12624.6	12293.3	11721.0	10466.6	8509.5	7857.8	7133.5	6079.0	5249.0	4435.6	3616.3
32.5°	12492.3	12177.7	11544.6	10202.9	8168.4	7568.7	6866.0	5832.1	4935.4	4068.0	3239.0
35°	12007.2	11591.6	10822.3	9327.8	7588.3	6992.4	6335.8	5390.1	4453.2	3569.2	2773.4
37.5°	10918.4	10487.1	9612.0	8205.7	6840.5	6322.1	5793.9	4895.2	3968.1	3115.5	2367.7
40°	9297.4	8841.7	8122.4	7135.5	6034.0	5680.2	5234.3	4347.3	3454.6	2670.5	1992.4
42.5°	7661.8	7369.7	6943.4	6161.4	5394.0	5045.1	4612.0	3750.5	2960.6	2211.9	1513.1
45°	6424.0	6192.7	5909.5	5415.6	4691.3	4363.0	3960.2	3149.8	2307.9	1477.9	811.5
47.5°	5597.8	5315.6	5068.6	4517.9	3740.7	3341.9	2914.6	2075.7	1330.9	640.9	224.4
50°	4092.5	3752.5	3522.2	2904.8	2199.2	1866.9	1554.3	963.4	431.2	143.1	37.2
52.5°	2074.7	1817.9	1682.7	1271.1	839.9	628.2	461.6	198.9	85.3	28.4	21.6
55°	587.0	472.4	423.4	279.3	151.9	106.8	69.6	35.3	25.5	19.6	13.7
57.5°	60.8	51.9	49.0	40.2	32.3	30.4	27.4	21.6	16.7	13.7	8.8
60°	31.4	28.4	27.4	24.5	20.6	18.6	17.6	14.7	10.8	7.8	6.9
62.5°	16.7	15.7	13.7	12.7	10.8	10.8	9.8	7.8	6.9	6.9	5.9
65°	7.8	7.8	7.8	7.8	6.9	6.9	5.9	5.9	5.9	5.9	5.9
67.5°	5.9	5.9	5.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
70°	3.9	3.9	3.9	3.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9
72.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9	2.9	3.9	3.9
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9	2.9	3.9	3.9
77.5°	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.9	2.9	3.9	3.9
80°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.9	2.9	3.9	3.9
82.5°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.9	2.9	3.9	3.9
85°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.9	3.9	3.9
87.5°	0.0	0.0	1.0	1.0	1.0	2.0	2.0	2.0	2.9	3.9	3.9
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7
2.5°	1425.9	1401.4	1362.2	1323.0	1311.3	1278.9	1240.7	1195.6	1153.5	1120.2	1087.8
5°	1725.8	1660.1	1586.6	1487.7	1452.4	1397.5	1315.2	1227.0	1150.5	1081.9	1018.2
7.5°	2024.7	1901.2	1767.0	1623.9	1563.1	1481.8	1352.4	1228.0	1114.3	1013.3	918.3
10°	2289.3	2099.2	1910.1	1713.1	1627.8	1522.9	1350.5	1191.7	1046.7	914.4	794.8
12.5°	2533.3	2270.7	2019.8	1767.0	1660.1	1533.7	1321.1	1129.0	956.5	801.7	661.5
15°	2747.0	2408.9	2098.2	1792.4	1657.2	1512.2	1263.2	1042.7	850.7	672.3	520.4
17.5°	2895.9	2487.3	2120.8	1766.0	1617.0	1450.4	1175.0	939.8	729.1	541.9	368.5
20°	2985.1	2507.9	2099.2	1708.2	1543.5	1371.0	1092.7	854.6	649.8	478.2	333.2
22.5°	3034.1	2517.7	2083.5	1687.6	1520.0	1355.4	1096.6	869.3	693.9	578.2	566.4
25°	3083.1	2549.0	2111.0	1711.1	1554.3	1401.4	1154.5	922.2	802.6	765.4	778.1
27.5°	3080.2	2529.4	2085.5	1689.5	1538.6	1379.9	1104.5	860.5	778.1	720.3	672.3
30°	2905.7	2343.2	1889.5	1469.0	1296.6	1084.9	736.0	505.7	387.1	323.4	291.1
32.5°	2502.0	1911.0	1443.6	1021.2	852.6	616.4	316.5	166.6	143.1	127.4	113.7
35°	2079.6	1522.0	1086.8	643.9	428.3	234.2	108.8	70.6	65.7	63.7	62.7
37.5°	1715.0	1203.5	714.4	257.7	153.9	87.2	50.0	45.1	44.1	45.1	44.1
40°	1353.4	793.8	283.2	86.2	47.0	38.2	35.3	32.3	32.3	33.3	32.3
42.5°	810.5	296.0	86.2	32.3	30.4	27.4	26.5	25.5	24.5	25.5	25.5
45°	267.5	75.5	28.4	22.5	21.6	20.6	19.6	19.6	19.6	19.6	20.6
47.5°	60.8	26.5	19.6	16.7	16.7	15.7	15.7	14.7	15.7	15.7	16.7
50°	23.5	16.7	13.7	12.7	12.7	11.8	11.8	11.8	11.8	12.7	12.7
52.5°	14.7	11.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	10.8
55°	9.8	8.8	7.8	7.8	7.8	7.8	7.8	8.8	8.8	8.8	8.8
57.5°	6.9	6.9	6.9	6.9	7.8	6.9	7.8	6.9	6.9	7.8	8.8
60°	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	7.8	7.8	8.8
62.5°	5.9	6.9	6.9	6.9	6.9	6.9	6.9	7.8	7.8	7.8	8.8
65°	5.9	5.9	6.9	6.9	6.9	6.9	7.8	7.8	7.8	8.8	8.8
67.5°	4.9	5.9	5.9	6.9	6.9	6.9	6.9	7.8	7.8	7.8	8.8
70°	4.9	4.9	5.9	5.9	5.9	5.9	6.9	6.9	6.9	7.8	7.8
72.5°	4.9	4.9	5.9	5.9	5.9	5.9	5.9	6.9	6.9	6.9	7.8
75°	4.9	4.9	5.9	5.9	5.9	5.9	5.9	6.9	6.9	6.9	7.8
77.5°	4.9	4.9	5.9	5.9	5.9	5.9	5.9	6.9	6.9	6.9	7.8
80°	4.9	4.9	5.9	5.9	5.9	5.9	6.9	6.9	6.9	6.9	7.8
82.5°	4.9	4.9	5.9	5.9	5.9	5.9	5.9	6.9	6.9	6.9	6.9
85°	4.9	4.9	5.9	5.9	5.9	5.9	5.9	5.9	6.9	6.9	6.9
87.5°	4.9	4.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	6.9
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°	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7
2.5°	1044.7	1004.5	984.9	955.5	957.5	908.5	889.9	854.6	835.0	814.4	790.9
5°	940.8	870.3	820.3	781.1	759.5	695.8	652.7	596.8	539.0	483.1	437.1
7.5°	810.5	717.4	640.9	590.9	560.6	432.2	349.9	284.2	258.7	239.1	219.5
10°	665.4	549.8	414.5	345.9	303.8	243.0	218.5	181.3	154.8	130.3	115.6
12.5°	519.4	343.0	247.9	227.4	212.7	157.8	124.5	115.6	94.1	89.2	87.2
15°	326.3	225.4	175.4	150.9	131.3	109.8	100.9	100.0	103.9	104.9	103.9
17.5°	231.3	180.3	132.3	129.4	129.4	141.1	143.1	151.9	159.7	166.6	167.6
20°	296.9	266.6	310.7	330.3	364.6	406.7	468.4	554.7	630.2	706.6	765.4
22.5°	568.4	635.1	733.1	767.4	825.2	915.3	1000.6	1080.0	1160.3	1220.1	1232.9
25°	836.0	882.0	939.8	927.1	944.7	939.8	891.8	827.1	792.8	730.1	708.6
27.5°	640.0	591.9	551.7	505.7	483.1	440.0	378.3	339.1	303.8	268.5	253.8
30°	260.7	228.3	204.8	188.2	178.4	154.8	143.1	130.3	124.5	115.6	110.7
32.5°	101.9	96.0	93.1	90.2	89.2	86.2	83.3	79.4	78.4	78.4	74.5
35°	60.8	60.8	60.8	59.8	60.8	59.8	58.8	57.8	58.8	58.8	55.9
37.5°	43.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	43.1	43.1	40.2
40°	32.3	33.3	34.3	33.3	34.3	34.3	33.3	32.3	32.3	32.3	30.4
42.5°	26.5	26.5	26.5	26.5	27.4	26.5	26.5	26.5	26.5	26.5	25.5
45°	21.6	21.6	21.6	21.6	22.5	22.5	21.6	21.6	22.5	22.5	21.6
47.5°	16.7	16.7	16.7	16.7	16.7	16.7	16.7	15.7	15.7	15.7	14.7
50°	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	13.7	12.7	12.7
52.5°	10.8	10.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	10.8
55°	9.8	9.8	10.8	10.8	10.8	10.8	10.8	9.8	9.8	9.8	8.8
57.5°	8.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	8.8	8.8	7.8
60°	8.8	8.8	9.8	9.8	9.8	9.8	8.8	8.8	7.8	7.8	6.9
62.5°	8.8	8.8	9.8	9.8	9.8	8.8	8.8	7.8	7.8	6.9	6.9
65°	8.8	9.8	9.8	9.8	9.8	8.8	8.8	7.8	7.8	6.9	6.9
67.5°	8.8	9.8	9.8	9.8	9.8	8.8	8.8	7.8	7.8	6.9	6.9
70°	8.8	8.8	8.8	8.8	8.8	8.8	8.8	7.8	7.8	6.9	6.9
72.5°	7.8	8.8	8.8	8.8	8.8	8.8	7.8	7.8	7.8	6.9	6.9
75°	7.8	7.8	7.8	7.8	8.8	7.8	7.8	7.8	6.9	6.9	5.9
77.5°	7.8	7.8	7.8	7.8	7.8	7.8	7.8	6.9	6.9	6.9	5.9
80°	7.8	7.8	7.8	7.8	7.8	7.8	7.8	6.9	6.9	5.9	5.9
82.5°	7.8	7.8	7.8	7.8	7.8	7.8	6.9	6.9	5.9	5.9	5.9
85°	6.9	6.9	6.9	6.9	6.9	6.9	6.9	5.9	5.9	4.9	4.9
87.5°	6.9	6.9	6.9	6.9	6.9	5.9	5.9	4.9	3.9	3.9	2.9
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: P179661

CATALOG NUMBER: LDA6A45830D010TE LARH20SP 6LAL1LI 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7	1141.7
2.5°	765.4	748.7	744.8	744.8	736.0	718.4	715.4	709.5
5°	387.1	345.9	338.1	329.3	314.6	296.9	292.0	290.1
7.5°	199.9	182.3	179.3	173.5	164.6	155.8	153.9	152.9
10°	117.6	106.8	101.9	93.1	84.3	79.4	79.4	78.4
12.5°	87.2	87.2	87.2	87.2	87.2	87.2	87.2	87.2
15°	105.8	108.8	108.8	109.8	110.7	111.7	113.7	111.7
17.5°	178.4	193.1	192.1	194.0	200.9	209.7	205.8	210.7
20°	866.3	979.0	1011.4	1043.7	1141.7	1233.8	1215.2	1279.9
22.5°	1244.6	1278.9	1265.2	1256.4	1277.0	1266.2	1312.2	1281.9
25°	667.4	660.5	660.5	631.1	637.0	622.3	641.9	633.1
27.5°	246.0	224.4	222.5	208.7	217.6	197.0	202.9	198.9
30°	105.8	106.8	102.9	100.0	97.0	95.1	95.1	94.1
32.5°	72.5	72.5	70.6	68.6	66.6	64.7	63.7	62.7
35°	53.9	53.9	51.9	51.0	50.0	48.0	47.0	47.0
37.5°	39.2	39.2	38.2	37.2	35.3	34.3	33.3	33.3
40°	30.4	29.4	28.4	28.4	26.5	26.5	25.5	25.5
42.5°	24.5	24.5	24.5	23.5	22.5	21.6	21.6	21.6
45°	21.6	21.6	20.6	19.6	19.6	19.6	18.6	18.6
47.5°	14.7	14.7	13.7	13.7	12.7	12.7	11.8	11.8
50°	11.8	11.8	11.8	11.8	10.8	9.8	9.8	9.8
52.5°	10.8	9.8	9.8	9.8	8.8	8.8	7.8	7.8
55°	8.8	8.8	7.8	7.8	6.9	6.9	6.9	6.9
57.5°	7.8	6.9	6.9	6.9	5.9	5.9	5.9	5.9
60°	6.9	5.9	5.9	5.9	4.9	4.9	4.9	4.9
62.5°	5.9	5.9	5.9	5.9	4.9	4.9	4.9	4.9
65°	5.9	5.9	5.9	4.9	4.9	4.9	4.9	3.9
67.5°	5.9	5.9	5.9	5.9	4.9	4.9	4.9	4.9
70°	5.9	5.9	5.9	5.9	4.9	4.9	4.9	4.9
72.5°	5.9	5.9	5.9	5.9	4.9	4.9	4.9	4.9
75°	5.9	5.9	5.9	5.9	4.9	4.9	4.9	4.9
77.5°	5.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
80°	5.9	4.9	4.9	4.9	4.9	3.9	3.9	4.9
82.5°	4.9	4.9	4.9	4.9	3.9	3.9	3.9	3.9
85°	3.9	3.9	3.9	3.9	2.9	2.9	2.9	2.9
87.5°	2.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)