

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: P179920

Luminaire Tested: **LDA6A65927D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179920
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: LDA6A65927D010TE LARH20SP 6LAL1LI 30°
Description: PORTFOLIO 6" Lensed Adjustable, Self-flanged, 20° Spot, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4140.0 lumens
Efficiency: N/A
Efficacy: 53.1 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

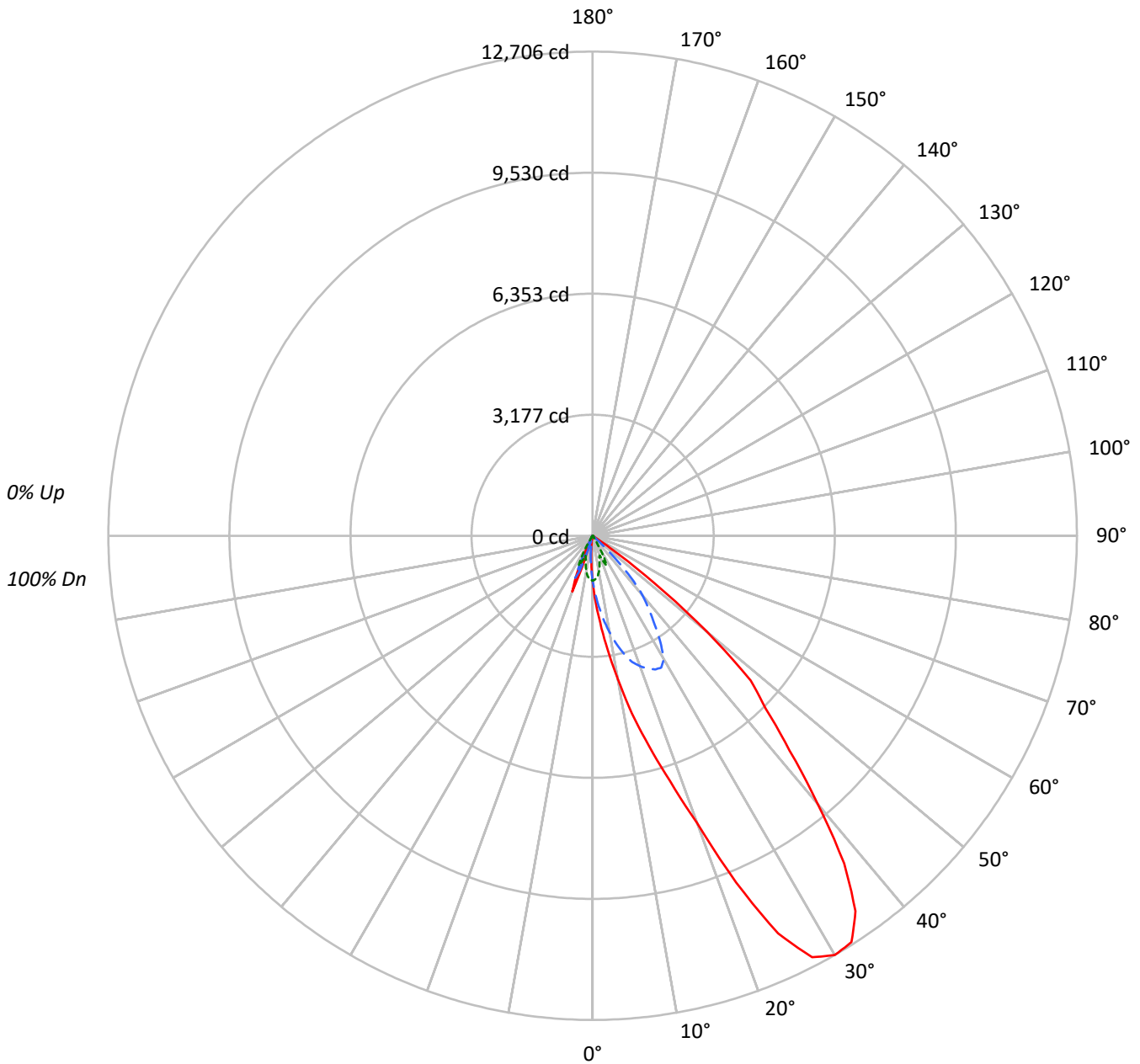
Input Watts (W): 78
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	64606	64606	64606
5°	126315	61413	22403
10°	212616	52732	4971
15°	323787	39926	8156
20°	467886	32343	90990
25°	696331	52328	26300
30°	804276	17914	5197
35°	804536	4002	2811
40°	657582	2233	1725
45°	497951	1450	1109
50°	330693	989	759
55°	53159	851	593
60°	3333	877	493
65°	1038	1154	584
70°	577	1282	721
75°	381	1504	953
80°	284	2241	1421
85°	566	4466	1698



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	123.0	3.0
10°-20°	526.0	12.7
20°-30°	1238.3	29.9
30°-40°	1304.7	31.5
40°-50°	813.5	19.6
50°-60°	116.9	2.8
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°	1887.3	45.6
0°-40°	3192.0	77.1
0°-60°	4122.3	99.6
0°-90°	4140.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4140.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1178	1178	1178	1178	1178	
5°	2295	1858	1116	579	407	266
15°	5705	3229	704	122	144	1699
25°	11512	3871	865	626	435	5180
35°	12022	2836	60	55	42	7252
45°	6423	785	19	20	14	5027
55°	556	14	9	10	6	999
65°	8	6	9	7	4	12
75°	2	4	7	7	4	2
85°	1	4	7	5	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°	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5
2.5°	1720.5	1708.8	1712.4	1685.6	1649.9	1666.0	1625.8	1626.7	1601.7	1538.3	1510.6
5°	2295.4	2293.6	2291.0	2241.9	2178.5	2185.6	2126.7	2104.4	2040.1	1928.5	1857.9
7.5°	3009.7	3010.6	2997.2	2877.5	2807.0	2802.5	2709.7	2642.7	2523.1	2347.2	2218.6
10°	3819.5	3844.5	3820.4	3636.4	3505.2	3507.0	3340.0	3211.5	3019.5	2763.3	2580.2
12.5°	4770.3	4773.9	4736.4	4494.4	4294.4	4279.3	4055.2	3809.6	3517.7	3182.9	2916.8
15°	5705.1	5730.1	5681.9	5383.7	5105.1	5063.2	4777.5	4453.4	4090.9	3595.4	3229.3
17.5°	6741.6	6702.4	6574.7	6147.9	5813.1	5751.5	5444.4	5020.3	4557.8	3958.7	3478.4
20°	8020.2	8033.5	7763.0	7125.6	6559.5	6319.3	5963.1	5498.8	4922.1	4225.7	3644.5
22.5°	9846.9	9774.5	9194.2	8163.0	7312.2	6991.6	6483.6	5843.5	5194.4	4428.4	3768.6
25°	11512.0	11321.8	10787.0	9368.3	8036.2	7639.8	7113.9	6137.2	5420.3	4578.4	3871.2
27.5°	12468.2	12383.3	11777.1	10345.9	8621.0	8063.0	7322.9	6353.3	5554.2	4652.5	3900.7
30°	12705.6	12720.8	12181.6	10670.0	8759.4	8121.9	7356.8	6347.0	5464.0	4520.3	3731.1
32.5°	12644.9	12562.8	11888.7	10312.0	8390.7	7810.3	7024.7	6063.1	5105.1	4126.6	3308.8
35°	12021.8	11901.2	11071.8	9380.8	7764.8	7200.6	6488.1	5597.9	4604.2	3624.8	2835.6
37.5°	10836.1	10696.8	9739.7	8263.0	7014.0	6536.3	5920.3	5080.1	4098.0	3157.0	2419.5
40°	9188.9	9015.6	8215.7	7191.6	6206.8	5872.9	5352.4	4489.1	3573.0	2714.2	2035.6
42.5°	7648.7	7565.7	7085.4	6206.8	5543.5	5221.2	4696.2	3892.7	3049.9	2261.5	1507.1
45°	6422.9	6367.6	6048.8	5490.8	4817.6	4515.9	4021.2	3237.3	2320.4	1523.1	784.8
47.5°	5622.1	5481.0	5169.4	4583.7	3835.5	3459.7	2988.3	2132.9	1308.9	675.0	241.1
50°	3877.5	3890.9	3539.1	2893.6	2257.0	1939.2	1601.7	981.2	433.0	147.3	42.0
52.5°	2041.9	1891.0	1643.7	1227.6	854.4	651.8	475.9	196.4	78.6	29.5	22.3
55°	556.2	488.4	390.2	275.9	149.1	104.5	68.7	36.6	25.9	20.5	14.3
57.5°	54.5	51.8	47.3	38.4	33.0	30.4	27.7	22.3	17.9	12.5	8.9
60°	30.4	29.5	27.7	24.1	21.4	19.6	17.9	15.2	10.7	8.0	7.1
62.5°	17.0	16.1	15.2	13.4	11.6	10.7	10.7	8.9	7.1	6.2	6.2
65°	8.0	8.0	8.0	8.0	8.0	7.1	6.2	6.2	6.2	6.2	6.2
67.5°	6.2	6.2	6.2	5.4	5.4	5.4	5.4	5.4	5.4	4.5	5.4
70°	3.6	3.6	4.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.5
72.5°	1.8	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.6	3.6	4.5
75°	1.8	1.8	1.8	1.8	2.7	2.7	2.7	2.7	3.6	3.6	4.5
77.5°	1.8	1.8	1.8	1.8	1.8	1.8	2.7	2.7	3.6	3.6	4.5
80°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	2.7	3.6	3.6	4.5
82.5°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6	4.5
85°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	2.7	2.7	3.6	4.5
87.5°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.7	2.7	3.6	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°	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5
2.5°	1482.1	1438.3	1394.6	1350.8	1349.0	1323.2	1284.8	1233.9	1191.9	1156.2	1121.4
5°	1787.4	1697.2	1607.1	1516.9	1490.1	1443.7	1360.6	1266.9	1186.6	1116.0	1048.2
7.5°	2093.7	1941.9	1799.0	1658.0	1601.7	1531.2	1401.7	1266.0	1149.9	1046.4	945.5
10°	2366.9	2146.3	1945.4	1747.2	1666.0	1574.0	1399.9	1227.6	1080.3	947.3	818.7
12.5°	2618.6	2311.5	2057.0	1807.1	1696.3	1584.7	1372.3	1166.9	991.0	832.1	683.9
15°	2840.0	2463.3	2135.6	1833.8	1698.1	1564.2	1314.2	1083.0	885.7	703.5	542.8
17.5°	2998.1	2539.2	2161.5	1809.7	1651.7	1501.7	1228.5	981.2	768.7	578.5	423.2
20°	3094.5	2570.4	2148.1	1765.1	1597.2	1441.9	1165.1	925.0	718.7	554.4	449.1
22.5°	3157.9	2600.8	2153.5	1764.2	1596.4	1449.9	1191.9	966.9	799.1	710.7	698.2
25°	3225.7	2643.6	2192.8	1804.4	1648.1	1512.4	1262.4	1042.8	902.6	865.1	870.5
27.5°	3222.2	2624.9	2155.3	1769.6	1605.3	1467.8	1174.9	897.3	766.0	660.7	622.3
30°	3030.2	2407.9	1899.9	1467.8	1274.0	1105.3	719.6	467.8	323.2	283.0	242.8
32.5°	2581.1	1950.8	1420.5	1015.1	797.3	595.5	283.0	150.0	127.7	107.1	97.3
35°	2146.3	1555.3	1062.4	613.4	387.5	240.2	101.8	67.0	63.4	59.8	59.8
37.5°	1774.0	1221.4	686.6	258.9	142.0	86.6	49.1	44.6	42.9	42.0	42.0
40°	1387.4	796.4	297.3	85.7	45.5	39.3	34.8	33.0	32.1	31.2	32.1
42.5°	818.7	320.5	86.6	32.1	30.4	28.6	25.9	25.0	25.0	24.1	25.0
45°	278.6	83.0	28.6	23.2	21.4	21.4	19.6	19.6	19.6	18.7	20.5
47.5°	72.3	25.9	18.7	17.0	16.1	16.1	15.2	15.2	15.2	15.2	16.1
50°	25.0	17.0	13.4	12.5	11.6	12.5	11.6	11.6	11.6	11.6	12.5
52.5°	15.2	11.6	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
55°	9.8	8.9	8.0	8.0	8.0	8.0	8.0	8.9	8.9	8.9	8.9
57.5°	8.0	7.1	7.1	7.1	7.1	7.1	8.0	7.1	7.1	8.0	8.9
60°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	8.0	8.0	8.9
62.5°	6.2	7.1	7.1	7.1	7.1	7.1	7.1	8.0	8.0	8.0	8.9
65°	6.2	6.2	6.2	7.1	7.1	7.1	8.0	8.0	8.0	8.9	8.9
67.5°	5.4	5.4	6.2	6.2	7.1	7.1	7.1	8.0	8.0	8.0	8.9
70°	5.4	5.4	5.4	6.2	6.2	6.2	6.2	7.1	7.1	8.0	8.0
72.5°	4.5	5.4	5.4	6.2	6.2	6.2	6.2	7.1	7.1	7.1	8.0
75°	4.5	5.4	5.4	6.2	6.2	6.2	6.2	6.2	7.1	7.1	8.0
77.5°	4.5	5.4	5.4	6.2	6.2	6.2	6.2	7.1	7.1	7.1	8.0
80°	4.5	5.4	5.4	6.2	6.2	6.2	6.2	7.1	7.1	7.1	7.1
82.5°	4.5	5.4	5.4	6.2	6.2	6.2	6.2	7.1	7.1	7.1	7.1
85°	4.5	5.4	5.4	6.2	6.2	6.2	6.2	6.2	7.1	7.1	7.1
87.5°	4.5	5.4	5.4	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
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°	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5
2.5°	1073.2	1058.0	1004.4	997.3	988.3	944.6	926.7	896.4	853.5	841.0	825.9
5°	968.7	918.7	840.1	818.7	795.5	726.8	684.8	634.8	579.4	549.1	520.5
7.5°	835.7	766.0	661.6	619.6	593.7	518.7	451.8	384.8	303.6	257.1	227.7
10°	687.5	591.9	483.0	434.8	400.0	291.1	227.7	198.2	170.5	148.2	128.6
12.5°	538.4	430.3	307.1	251.8	224.1	185.7	150.9	114.3	101.8	100.9	97.3
15°	394.6	274.1	207.1	186.6	167.0	119.6	118.7	118.7	122.3	125.0	125.9
17.5°	291.1	241.1	189.3	176.8	185.7	192.8	205.3	224.1	239.3	282.1	273.2
20°	426.8	423.2	461.6	510.7	545.5	619.6	713.4	819.6	930.3	1053.5	1147.3
22.5°	732.1	821.4	891.0	950.0	981.2	1065.1	1139.2	1175.8	1197.3	1186.6	1171.4
25°	894.6	926.7	905.3	884.8	887.5	811.6	756.2	685.7	625.9	571.4	539.3
27.5°	534.8	489.3	425.0	380.3	371.4	320.5	283.0	243.7	232.1	196.4	181.2
30°	192.8	179.5	158.9	142.9	141.1	127.7	119.6	110.7	109.8	101.8	97.3
32.5°	87.5	87.5	80.4	82.1	80.4	77.7	76.8	74.1	74.1	71.4	69.6
35°	57.1	58.0	57.1	57.1	56.2	56.2	56.2	54.5	55.4	53.6	50.9
37.5°	42.0	42.9	41.1	42.0	42.0	42.0	42.0	41.1	40.2	38.4	37.5
40°	32.1	32.1	32.1	32.1	32.1	32.1	32.1	31.2	31.2	30.4	28.6
42.5°	25.0	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.0	25.0
45°	20.5	21.4	20.5	21.4	21.4	21.4	20.5	20.5	20.5	19.6	18.7
47.5°	16.1	16.1	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	14.3
50°	12.5	12.5	12.5	12.5	12.5	12.5	13.4	12.5	12.5	12.5	12.5
52.5°	9.8	10.7	10.7	11.6	11.6	11.6	11.6	11.6	10.7	10.7	9.8
55°	8.9	9.8	9.8	10.7	10.7	10.7	10.7	9.8	9.8	9.8	8.9
57.5°	8.9	9.8	9.8	9.8	9.8	9.8	9.8	8.9	8.9	8.0	8.0
60°	8.9	8.9	8.9	9.8	9.8	8.9	8.9	8.0	8.0	7.1	7.1
62.5°	8.9	8.9	8.9	9.8	9.8	8.9	8.9	8.0	7.1	7.1	6.2
65°	8.9	9.8	8.9	9.8	9.8	8.9	8.9	8.0	7.1	7.1	6.2
67.5°	8.9	9.8	9.8	9.8	8.9	8.9	8.9	8.0	7.1	7.1	6.2
70°	8.0	8.9	8.9	8.9	8.9	8.9	8.0	8.0	7.1	7.1	6.2
72.5°	8.0	8.9	8.0	8.9	8.9	8.0	8.0	8.0	7.1	7.1	6.2
75°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.1	7.1	6.2	6.2
77.5°	8.0	8.0	8.0	8.0	8.0	8.0	7.1	7.1	7.1	6.2	6.2
80°	8.0	8.0	8.0	8.0	8.0	8.0	7.1	7.1	6.2	6.2	5.4
82.5°	7.1	8.0	8.0	8.0	8.0	8.0	7.1	7.1	6.2	6.2	5.4
85°	7.1	7.1	7.1	7.1	7.1	7.1	6.2	6.2	5.4	4.5	4.5
87.5°	6.2	7.1	6.2	6.2	6.2	6.2	5.4	4.5	3.6	3.6	2.7
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: P179920

CATALOG NUMBER: LDA6A65927D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5	1178.5
2.5°	801.7	779.4	780.3	783.9	761.6	750.0	747.3	735.7
5°	482.1	456.2	451.8	448.2	416.9	404.4	394.6	407.1
7.5°	207.1	197.3	195.5	192.8	178.6	171.4	167.8	171.4
10°	102.7	96.4	97.3	98.2	93.7	91.1	90.2	89.3
12.5°	101.8	100.9	101.8	101.8	102.7	100.9	101.8	101.8
15°	132.1	132.1	134.8	136.6	141.1	140.2	142.0	143.7
17.5°	329.4	312.5	321.4	321.4	361.6	325.9	356.2	328.6
20°	1294.6	1355.3	1416.9	1468.7	1521.4	1537.4	1568.7	1559.7
22.5°	1148.2	1155.3	1146.4	1136.6	1133.9	1136.6	1088.3	1095.5
25°	492.8	489.3	475.0	459.8	464.3	467.8	450.9	434.8
27.5°	168.7	164.3	159.8	156.2	154.5	151.8	146.4	142.9
30°	95.5	92.9	91.1	90.2	88.4	86.6	83.9	82.1
32.5°	68.7	67.0	66.1	65.2	63.4	61.6	58.9	58.0
35°	50.9	49.1	48.2	47.3	45.5	43.7	42.9	42.0
37.5°	37.5	35.7	35.7	35.7	33.0	31.2	30.4	29.5
40°	28.6	27.7	27.7	27.7	25.9	25.0	24.1	24.1
42.5°	25.0	24.1	24.1	24.1	22.3	21.4	21.4	20.5
45°	18.7	17.9	17.9	17.0	16.1	16.1	15.2	14.3
47.5°	14.3	13.4	13.4	13.4	12.5	11.6	11.6	10.7
50°	11.6	11.6	10.7	11.6	9.8	9.8	9.8	8.9
52.5°	9.8	9.8	8.9	8.9	8.0	8.0	8.0	7.1
55°	8.9	8.0	8.0	8.0	7.1	7.1	7.1	6.2
57.5°	7.1	7.1	6.2	6.2	5.4	5.4	5.4	5.4
60°	6.2	6.2	5.4	5.4	4.5	4.5	4.5	4.5
62.5°	6.2	5.4	5.4	5.4	4.5	4.5	4.5	4.5
65°	6.2	5.4	5.4	5.4	4.5	4.5	4.5	4.5
67.5°	6.2	5.4	5.4	5.4	4.5	4.5	4.5	4.5
70°	6.2	6.2	5.4	5.4	5.4	4.5	4.5	4.5
72.5°	6.2	6.2	5.4	5.4	5.4	5.4	4.5	4.5
75°	5.4	5.4	5.4	5.4	4.5	4.5	4.5	4.5
77.5°	5.4	5.4	5.4	5.4	4.5	4.5	4.5	4.5
80°	5.4	5.4	4.5	4.5	4.5	4.5	4.5	4.5
82.5°	5.4	4.5	4.5	4.5	4.5	3.6	3.6	3.6
85°	3.6	3.6	3.6	3.6	2.7	2.7	2.7	2.7
87.5°	2.7	1.8	1.8	1.8	0.9	0.9	0.9	0.9
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)