

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: P179639

Luminaire Tested: **LDA6A45840D010TE LARH20SP 6LA1LI 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P179639  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26670)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA6A45840D010TE LARH20SP 6LA1LI 30°  
Description: PORTFOLIO 6" Adjustable Reflector, Angle-cut Trim, Self-flanged, 20° Spot, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4626.2 lumens  
Efficiency: N/A  
Efficacy: 87.3 lumens/watt  
Spacing Criteria (0/90/45): 2.28 / 0.6 / 1.28  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

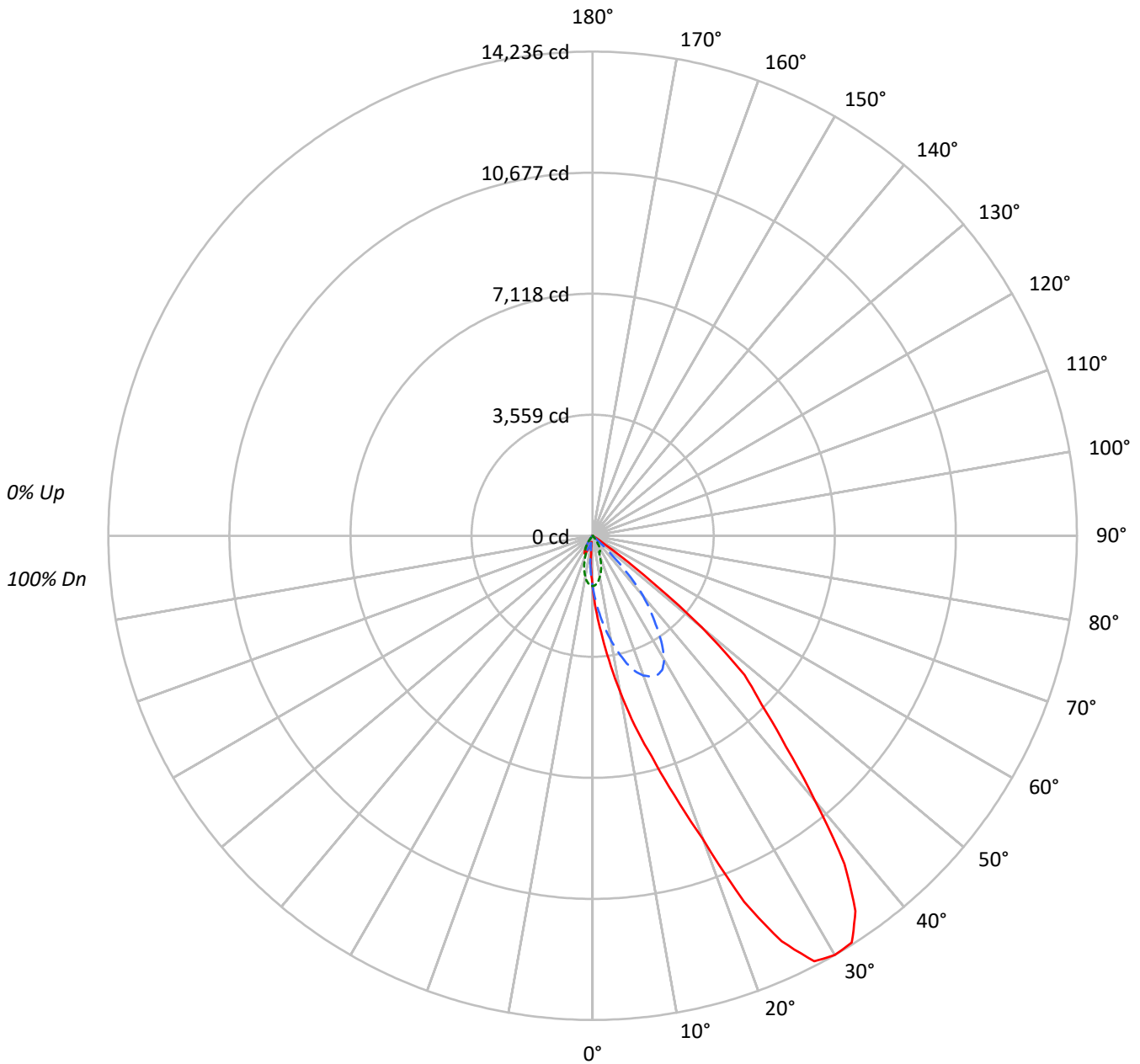
Input Watts (W): 53  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91								
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83								
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	75								
4	92	84	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67								
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	61								
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55								
7	76	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49								
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45								
9	66	55	48	43	65	54	47	43	53	47	43	52	47	43	51	46	42	41								
10	62	51	44	39	61	50	44	39	49	43	39	48	43	39	48	42	39	37								

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

	0°	90°	180°
0°	81167	81167	81167
5°	156207	77757	29122
10°	258373	68241	10476
15°	381444	55057	16703
20°	553871	35061	28265
25°	795657	30631	34278
30°	901183	26523	24947
35°	901253	13779	12802
40°	727935	5131	5360
45°	545088	1775	1938
50°	356833	708	623
55°	41939	593	96
60°	1250	680	0
65°	272	804	0
70°	160	994	0
75°	0	1546	0
80°	0	2305	316
85°	0	4592	629



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	152.8	3.3
10°-20°	619.0	13.4
20°-30°	1358.1	29.4
30°-40°	1507.6	32.6
40°-50°	872.8	18.9
50°-60°	103.7	2.2
60°-70°	4.0	0.1
70°-80°	4.3	0.1
80°-90°	4.0	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°	2129.8	46.0
0°-40°	3637.4	78.6
0°-60°	4613.8	99.7
0°-90°	4626.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4626.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1481	1481	1481	1481	1481	
5°	2839	2295	1413	809	529	326
15°	6721	3888	970	263	294	2018
25°	13154	4515	506	564	567	5941
35°	13467	3293	206	203	191	8119
45°	7031	776	23	27	25	5495
55°	439	6	6	4	1	965
65°	2	4	6	4	0	4
75°	0	4	7	4	0	0
85°	0	4	7	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°	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6
2.5°	2153.4	2110.7	2068.1	2065.0	2029.6	1982.8	2015.1	1946.4	1967.2	1915.2	1883.0
5°	2838.6	2791.8	2729.4	2711.7	2651.4	2581.7	2607.7	2487.1	2474.6	2374.8	2294.8
7.5°	3678.7	3624.6	3526.9	3480.1	3380.3	3276.3	3288.8	3095.4	3037.2	2872.9	2726.3
10°	4641.5	4603.0	4462.7	4366.0	4209.0	4057.2	4031.2	3745.2	3618.4	3360.5	3129.7
12.5°	5721.8	5664.6	5470.2	5323.6	5109.4	4917.0	4859.9	4450.2	4222.5	3849.2	3521.7
15°	6721.0	6682.6	6515.2	6294.7	6023.4	5774.9	5677.1	5198.8	4839.1	4343.1	3887.7
17.5°	8002.0	7896.0	7594.4	7161.9	6774.1	6526.6	6408.1	5809.2	5368.3	4763.2	4181.9
20°	9494.1	9350.6	8888.9	8290.0	7646.4	7211.8	6950.8	6306.2	5760.3	5057.4	4373.2
22.5°	11653.7	11361.5	10485.0	9411.9	8516.7	7936.5	7563.2	6626.4	6046.2	5241.5	4479.3
25°	13154.1	12897.2	12096.6	10685.7	9250.8	8583.3	8058.2	6891.6	6233.4	5350.6	4514.7
27.5°	14104.4	13968.2	13047.0	11637.0	9818.5	8950.3	8356.6	7059.0	6304.1	5347.5	4442.9
30°	14236.5	14244.8	13390.1	11891.8	9863.2	8959.7	8292.1	6987.2	6157.5	5145.8	4206.9
32.5°	14179.3	14065.9	13011.6	11409.3	9368.3	8574.9	7940.7	6684.6	5804.0	4740.3	3797.2
35°	13467.0	13214.4	12099.7	10332.1	8647.7	7892.9	7301.2	6200.1	5241.5	4202.7	3292.9
37.5°	12161.1	11760.8	10516.2	9010.6	7763.9	7098.5	6651.4	5580.4	4659.2	3643.3	2791.8
40°	10172.0	9741.6	8864.0	7812.8	6830.2	6373.8	5944.3	4900.4	4003.1	3071.5	2307.2
42.5°	8415.9	8179.8	7524.8	6720.0	6066.0	5596.0	5186.3	4192.3	3375.1	2515.2	1634.5
45°	7030.9	6870.8	6458.0	5867.4	5218.6	4790.2	4416.9	3403.1	2466.3	1597.1	775.7
47.5°	6054.5	5876.7	5408.9	4787.1	4024.9	3559.1	3139.0	2122.2	1346.5	617.6	180.9
50°	4184.0	3974.0	3475.9	2877.0	2225.1	1874.7	1581.5	857.8	353.5	107.1	20.8
52.5°	1893.4	1747.8	1435.9	1101.1	727.8	540.7	352.5	148.7	37.4	15.6	11.4
55°	438.8	384.7	292.2	179.9	89.4	59.3	39.5	15.6	11.4	8.3	6.2
57.5°	28.1	25.0	21.8	17.7	14.6	12.5	11.4	8.3	6.2	5.2	4.2
60°	11.4	11.4	10.4	8.3	7.3	6.2	6.2	4.2	4.2	4.2	4.2
62.5°	5.2	5.2	5.2	4.2	3.1	3.1	3.1	3.1	3.1	3.1	4.2
65°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1	3.1	4.2
67.5°	1.0	1.0	1.0	1.0	2.1	2.1	2.1	2.1	3.1	3.1	4.2
70°	1.0	1.0	1.0	1.0	2.1	2.1	2.1	2.1	3.1	4.2	4.2
72.5°	0.0	1.0	1.0	1.0	2.1	2.1	2.1	2.1	3.1	4.2	4.2
75°	0.0	0.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2
77.5°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	2.1	3.1	4.2	4.2
80°	0.0	0.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2
82.5°	0.0	0.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2
85°	0.0	0.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2
87.5°	0.0	0.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6
2.5°	1835.2	1790.5	1743.7	1695.9	1674.0	1638.7	1582.5	1543.0	1507.7	1460.9	1401.6
5°	2198.1	2098.2	1993.2	1895.5	1847.7	1785.3	1676.1	1587.7	1505.6	1413.0	1321.5
7.5°	2559.9	2387.3	2220.9	2061.9	1984.9	1895.5	1727.0	1590.8	1461.9	1334.0	1209.2
10°	2881.2	2631.6	2393.5	2172.1	2068.1	1948.5	1728.1	1546.1	1383.9	1225.9	1075.1
12.5°	3180.6	2842.7	2531.8	2244.9	2108.6	1965.2	1697.9	1481.7	1287.2	1103.2	927.5
15°	3444.7	3018.4	2629.6	2279.2	2120.1	1948.5	1642.8	1395.4	1178.1	970.1	744.5
17.5°	3632.9	3119.3	2664.9	2259.4	2080.6	1890.3	1553.4	1288.3	1053.3	797.5	528.2
20°	3732.8	3150.5	2642.0	2197.0	2004.7	1798.8	1448.4	1174.9	905.6	601.0	431.5
22.5°	3768.1	3131.8	2578.6	2108.6	1905.9	1696.9	1341.3	1056.4	736.2	509.5	441.9
25°	3751.5	3075.6	2496.5	2004.7	1801.9	1591.9	1237.3	904.6	595.8	506.4	471.0
27.5°	3640.2	2949.8	2342.6	1848.7	1644.9	1437.0	1056.4	667.5	527.2	475.2	484.5
30°	3394.8	2694.0	2079.5	1594.0	1401.6	1182.2	718.5	490.8	413.8	419.0	419.0
32.5°	2999.7	2311.4	1712.5	1266.4	1017.9	737.2	409.7	307.8	313.0	311.9	307.8
35°	2515.2	1888.2	1314.3	777.7	499.1	339.0	206.9	200.7	206.9	205.9	202.8
37.5°	2070.2	1447.4	814.1	311.9	200.7	146.6	122.7	122.7	124.8	124.8	123.7
40°	1561.7	850.5	284.9	102.9	71.7	68.6	69.7	69.7	70.7	71.7	72.8
42.5°	874.4	280.7	74.9	40.6	40.6	38.5	38.5	38.5	40.6	40.6	41.6
45°	236.0	60.3	25.0	23.9	22.9	21.8	21.8	21.8	22.9	22.9	23.9
47.5°	35.4	17.7	14.6	13.5	13.5	12.5	12.5	12.5	13.5	13.5	13.5
50°	13.5	10.4	9.4	8.3	8.3	8.3	7.3	7.3	8.3	8.3	8.3
52.5°	8.3	7.3	6.2	5.2	6.2	5.2	5.2	5.2	6.2	6.2	6.2
55°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	6.2	6.2
57.5°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	6.2	6.2
60°	4.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	6.2	6.2	6.2
62.5°	4.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	6.2	6.2	6.2
65°	4.2	5.2	5.2	5.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
67.5°	4.2	5.2	5.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
70°	5.2	5.2	5.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
72.5°	5.2	5.2	5.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	7.3
75°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	7.3	7.3
77.5°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3
80°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3
82.5°	5.2	5.2	6.2	6.2	6.2	7.3	6.2	7.3	7.3	7.3	7.3
85°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3	7.3
87.5°	5.2	5.2	6.2	6.2	6.2	7.3	6.2	6.2	7.3	7.3	7.3
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°	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6
2.5°	1360.0	1336.1	1292.4	1262.3	1249.8	1224.8	1178.1	1172.9	1116.7	1087.6	1057.4
5°	1243.6	1184.3	1110.5	1063.7	1036.6	983.6	910.8	877.6	808.9	764.2	698.7
7.5°	1101.1	1009.6	908.8	849.5	805.8	716.4	587.5	510.5	408.6	349.4	306.7
10°	937.9	816.2	663.4	565.6	493.9	388.9	308.8	283.9	256.8	235.0	214.2
12.5°	746.6	541.7	394.1	336.9	309.8	278.7	245.4	216.3	211.1	213.2	220.4
15°	508.4	361.8	311.9	289.1	270.3	240.2	247.5	255.8	263.1	268.3	277.6
17.5°	382.6	334.8	285.9	287.0	294.3	301.5	313.0	325.4	335.8	343.1	355.6
20°	377.4	347.3	353.5	366.0	374.3	384.7	404.5	415.9	429.4	438.8	452.3
22.5°	410.7	437.7	446.1	455.4	467.9	479.3	500.1	515.7	526.1	535.5	544.8
25°	487.6	508.4	515.7	523.0	531.3	539.6	553.2	566.7	563.6	566.7	567.7
27.5°	492.8	508.4	511.6	515.7	515.7	523.0	523.0	531.3	517.8	515.7	511.6
30°	424.2	429.4	432.5	432.5	428.4	433.6	428.4	434.6	419.0	413.8	408.6
32.5°	313.0	320.2	317.1	316.1	313.0	318.2	311.9	318.2	304.7	301.5	296.3
35°	200.7	212.1	206.9	210.0	208.0	213.2	209.0	213.2	202.8	201.7	198.6
37.5°	125.8	130.0	127.9	128.9	128.9	132.1	130.0	132.1	127.9	127.9	124.8
40°	73.8	75.9	75.9	76.9	78.0	79.0	78.0	80.1	78.0	79.0	75.9
42.5°	42.6	43.7	43.7	44.7	45.7	45.7	45.7	47.8	45.7	46.8	44.7
45°	23.9	26.0	25.0	26.0	26.0	27.0	27.0	27.0	27.0	27.0	26.0
47.5°	14.6	15.6	15.6	15.6	15.6	15.6	16.6	16.6	15.6	15.6	15.6
50°	9.4	9.4	9.4	9.4	10.4	10.4	10.4	9.4	9.4	9.4	8.3
52.5°	6.2	6.2	6.2	6.2	7.3	6.2	6.2	6.2	5.2	5.2	5.2
55°	6.2	6.2	6.2	6.2	6.2	5.2	5.2	5.2	4.2	3.1	3.1
57.5°	6.2	6.2	6.2	6.2	6.2	5.2	5.2	4.2	4.2	3.1	3.1
60°	6.2	6.2	6.2	6.2	6.2	5.2	5.2	4.2	4.2	3.1	3.1
62.5°	6.2	6.2	6.2	6.2	6.2	5.2	5.2	4.2	4.2	3.1	3.1
65°	6.2	6.2	6.2	6.2	6.2	5.2	5.2	5.2	4.2	3.1	3.1
67.5°	6.2	7.3	6.2	6.2	6.2	6.2	5.2	5.2	4.2	3.1	3.1
70°	6.2	7.3	6.2	6.2	6.2	6.2	5.2	5.2	4.2	3.1	3.1
72.5°	7.3	7.3	7.3	6.2	6.2	6.2	6.2	5.2	4.2	3.1	3.1
75°	7.3	7.3	7.3	6.2	6.2	6.2	6.2	5.2	4.2	3.1	3.1
77.5°	7.3	7.3	7.3	7.3	7.3	6.2	6.2	5.2	4.2	4.2	3.1
80°	7.3	7.3	7.3	7.3	7.3	6.2	6.2	5.2	4.2	4.2	3.1
82.5°	7.3	7.3	7.3	7.3	7.3	6.2	6.2	5.2	4.2	4.2	3.1
85°	7.3	7.3	7.3	7.3	7.3	6.2	6.2	5.2	4.2	4.2	3.1
87.5°	7.3	7.3	7.3	7.3	7.3	6.2	6.2	5.2	4.2	4.2	3.1
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: P179639

CATALOG NUMBER: LDA6A45840D010TE LARH20SP 6LA1LI 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6	1480.6
2.5°	1064.7	1054.3	1047.0	1030.4	1021.0	1010.7	995.1	987.8
5°	675.8	644.7	624.9	595.8	551.1	561.5	537.6	529.2
7.5°	291.1	277.6	273.5	267.2	256.8	251.6	250.6	248.5
10°	199.6	188.2	187.2	188.2	189.2	188.2	188.2	188.2
12.5°	224.6	225.6	227.7	230.8	231.9	231.9	230.8	230.8
15°	282.8	284.9	288.0	292.2	294.3	294.3	294.3	294.3
17.5°	362.9	366.0	371.2	375.4	379.5	379.5	379.5	380.6
20°	466.9	466.9	473.1	478.3	481.4	482.5	483.5	484.5
22.5°	559.4	560.4	564.6	568.8	571.9	570.8	568.8	568.8
25°	577.1	574.0	575.0	575.0	574.0	568.8	568.8	566.7
27.5°	514.7	510.5	510.5	507.4	506.4	504.3	500.1	498.0
30°	408.6	406.5	405.5	402.4	407.6	400.3	396.2	394.1
32.5°	294.3	295.3	294.3	291.1	296.3	289.1	287.0	283.9
35°	197.6	198.6	197.6	195.5	195.5	195.5	193.4	191.3
37.5°	124.8	123.7	124.8	124.8	126.9	123.7	123.7	121.7
40°	75.9	75.9	76.9	76.9	78.0	75.9	74.9	74.9
42.5°	44.7	44.7	45.7	45.7	46.8	44.7	44.7	44.7
45°	26.0	26.0	26.0	26.0	27.0	26.0	25.0	25.0
47.5°	14.6	14.6	14.6	14.6	14.6	14.6	14.6	13.5
50°	8.3	8.3	8.3	8.3	8.3	7.3	7.3	7.3
52.5°	5.2	4.2	4.2	4.2	4.2	3.1	3.1	3.1
55°	2.1	2.1	2.1	2.1	2.1	1.0	1.0	1.0
57.5°	2.1	2.1	2.1	1.0	1.0	1.0	0.0	0.0
60°	2.1	2.1	1.0	1.0	1.0	0.0	0.0	0.0
62.5°	2.1	2.1	1.0	1.0	1.0	0.0	0.0	0.0
65°	2.1	2.1	1.0	1.0	1.0	0.0	0.0	0.0
67.5°	2.1	2.1	2.1	1.0	1.0	0.0	0.0	0.0
70°	2.1	2.1	2.1	1.0	1.0	1.0	0.0	0.0
72.5°	2.1	2.1	2.1	1.0	1.0	1.0	0.0	0.0
75°	3.1	2.1	2.1	2.1	1.0	1.0	0.0	0.0
77.5°	3.1	2.1	2.1	2.1	1.0	1.0	1.0	0.0
80°	3.1	2.1	2.1	2.1	1.0	1.0	1.0	1.0
82.5°	3.1	2.1	2.1	2.1	1.0	1.0	1.0	1.0
85°	3.1	2.1	2.1	2.1	1.0	1.0	1.0	1.0
87.5°	3.1	2.1	2.1	2.1	1.0	1.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180°    - - 45°-225°    - - - - 90°-270°















(END OF REPORT)