

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: P179636

Luminaire Tested: **LDA6A45827D010TE LARH20SP 6LA1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179636
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: LDA6A45827D010TE LARH20SP 6LA1LI 30°
Description: PORTFOLIO 6" Adjustable Reflector, Angle-cut Trim, 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: 4051.7 lumens
Efficiency: N/A
Efficacy: 76.4 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

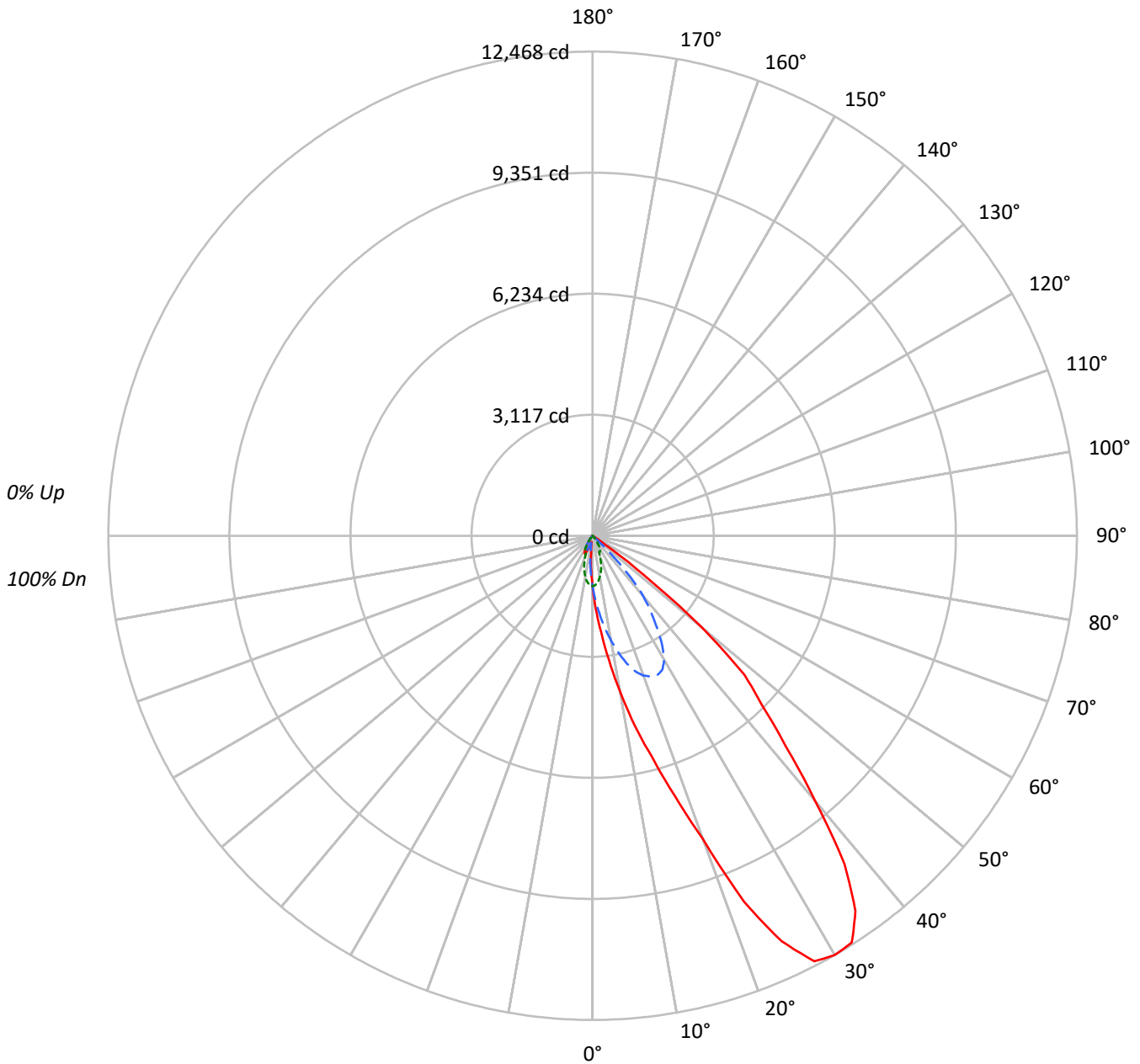
Input Watts (W): 53
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91					91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83					83			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	75					75			
4	92	83	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67					67			
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	61					61			
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55					55			
7	76	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49					49			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45					45			
9	66	55	48	43	65	54	47	43	53	47	43	52	47	43	51	46	42	41					41			
10	62	51	44	39	61	50	44	39	49	43	39	48	43	39	48	42	39	37					37			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	71085	71085	71085
5°	136804	68099	25506
10°	226287	59763	9174
15°	334071	48218	14626
20°	485084	30704	24759
25°	696839	26826	30020
30°	789261	23231	21845
35°	789324	12066	11216
40°	637530	4494	4695
45°	477391	1551	1698
50°	312519	623	546
55°	36730	526	86
60°	1096	603	0
65°	233	713	0
70°	144	882	0
75°	0	1356	0
80°	0	2020	284
85°	0	4026	566



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	133.8	3.3
10°-20°	542.1	13.4
20°-30°	1189.4	29.4
30°-40°	1320.4	32.6
40°-50°	764.4	18.9
50°-60°	90.8	2.2
60°-70°	3.5	0.1
70°-80°	3.8	0.1
80°-90°	3.5	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°	1865.3	46.0
0°-40°	3185.7	78.6
0°-60°	4040.9	99.7
0°-90°	4051.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4051.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1297	1297	1297	1297	1297	
5°	2486	2010	1238	708	464	286
15°	5886	3405	850	230	258	1767
25°	11520	3954	444	494	496	5203
35°	11794	2884	180	178	168	7111
45°	6158	679	20	24	22	4812
55°	384	6	6	4	1	845
65°	2	4	6	4	0	3
75°	0	4	6	4	0	0
85°	0	4	6	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°	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7
2.5°	1885.9	1848.6	1811.2	1808.5	1777.6	1736.6	1764.8	1704.7	1722.9	1677.4	1649.2
5°	2486.0	2445.0	2390.4	2374.9	2322.1	2261.1	2283.9	2178.2	2167.3	2079.9	2009.8
7.5°	3221.8	3174.5	3088.9	3047.9	2960.5	2869.4	2880.3	2711.0	2660.0	2516.1	2387.7
10°	4065.1	4031.4	3908.4	3823.7	3686.2	3553.3	3530.5	3280.1	3169.0	2943.2	2741.0
12.5°	5011.2	4961.1	4790.8	4662.4	4474.8	4306.4	4256.3	3897.5	3698.1	3371.2	3084.3
15°	5886.3	5852.6	5706.0	5513.0	5275.3	5057.7	4972.1	4553.2	4238.1	3803.7	3404.9
17.5°	7008.2	6915.3	6651.3	6272.4	5932.8	5716.0	5612.2	5087.7	4701.6	4171.6	3662.6
20°	8315.0	8189.3	7785.0	7260.5	6696.8	6316.1	6087.6	5523.0	5044.9	4429.3	3830.1
22.5°	10206.4	9950.5	9182.8	8243.0	7459.0	6950.9	6623.9	5803.5	5295.3	4590.5	3923.0
25°	11520.4	11295.5	10594.3	9358.6	8101.9	7517.3	7057.4	6035.7	5459.2	4686.1	3954.0
27.5°	12352.7	12233.4	11426.6	10191.8	8599.1	7838.7	7318.8	6182.3	5521.2	4683.4	3891.1
30°	12468.4	12475.7	11727.1	10414.9	8638.3	7846.9	7262.3	6119.5	5392.8	4506.7	3684.4
32.5°	12418.3	12319.0	11395.7	9992.4	8204.8	7510.0	6954.5	5854.5	5083.2	4151.6	3325.6
35°	11794.5	11573.2	10597.0	9049.0	7573.7	6912.6	6394.5	5430.1	4590.5	3680.8	2884.0
37.5°	10650.8	10300.2	9210.1	7891.5	6799.7	6216.9	5825.3	4887.4	4080.5	3190.9	2445.0
40°	8908.7	8531.7	7763.1	6842.5	5981.9	5582.2	5206.1	4291.8	3505.9	2690.0	2020.7
42.5°	7370.7	7163.9	6590.2	5885.4	5312.6	4901.0	4542.2	3671.7	2955.9	2202.8	1431.5
45°	6157.7	6017.5	5655.9	5138.7	4570.5	4195.3	3868.4	2980.5	2160.0	1398.7	679.3
47.5°	5302.6	5146.9	4737.1	4192.6	3525.1	3117.1	2749.2	1858.6	1179.3	540.9	158.5
50°	3664.4	3480.4	3044.2	2519.7	1948.8	1641.9	1385.1	751.3	309.6	93.8	18.2
52.5°	1658.3	1530.8	1257.6	964.4	637.4	473.5	308.7	130.2	32.8	13.7	10.0
55°	384.3	336.9	255.9	157.5	78.3	51.9	34.6	13.7	10.0	7.3	5.5
57.5°	24.6	21.9	19.1	15.5	12.7	10.9	10.0	7.3	5.5	4.6	3.6
60°	10.0	10.0	9.1	7.3	6.4	5.5	5.5	3.6	3.6	3.6	3.6
62.5°	4.6	4.6	4.6	3.6	2.7	2.7	2.7	2.7	2.7	2.7	3.6
65°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.7	2.7	3.6
67.5°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	1.8	2.7	2.7	3.6
70°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	1.8	2.7	3.6	3.6
72.5°	0.0	0.9	0.9	0.9	1.8	1.8	1.8	1.8	2.7	3.6	3.6
75°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6
77.5°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6
80°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6
82.5°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6
85°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6
87.5°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6
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°	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7
2.5°	1607.3	1568.1	1527.1	1485.2	1466.1	1435.2	1386.0	1351.4	1320.4	1279.4	1227.5
5°	1925.1	1837.7	1745.7	1660.1	1618.2	1563.6	1467.9	1390.5	1318.6	1237.5	1157.4
7.5°	2242.0	2090.8	1945.1	1805.8	1738.4	1660.1	1512.6	1393.3	1280.3	1168.3	1059.1
10°	2523.4	2304.8	2096.3	1902.3	1811.2	1706.5	1513.5	1354.1	1212.1	1073.6	941.6
12.5°	2785.6	2489.7	2217.4	1966.1	1846.8	1721.1	1487.1	1297.7	1127.4	966.2	812.3
15°	3016.9	2643.6	2303.0	1996.1	1856.8	1706.5	1438.8	1222.1	1031.7	849.6	652.0
17.5°	3181.8	2731.9	2334.0	1978.8	1822.2	1655.5	1360.5	1128.3	922.5	698.5	462.6
20°	3269.2	2759.2	2313.9	1924.2	1755.7	1575.4	1268.5	1029.0	793.2	526.3	377.9
22.5°	3300.1	2742.8	2258.4	1846.8	1669.2	1486.2	1174.7	925.2	644.7	446.2	387.0
25°	3285.6	2693.7	2186.4	1755.7	1578.1	1394.2	1083.7	792.3	521.8	443.5	412.5
27.5°	3188.1	2583.5	2051.7	1619.1	1440.6	1258.5	925.2	584.6	461.7	416.2	424.4
30°	2973.2	2359.4	1821.3	1396.0	1227.5	1035.4	629.2	429.8	362.4	367.0	367.0
32.5°	2627.2	2024.3	1499.8	1109.2	891.5	645.6	358.8	269.5	274.1	273.2	269.5
35°	2202.8	1653.7	1151.0	681.2	437.1	296.9	181.2	175.8	181.2	180.3	177.6
37.5°	1813.1	1267.6	713.0	273.2	175.8	128.4	107.5	107.5	109.3	109.3	108.4
40°	1367.8	744.9	249.5	90.2	62.8	60.1	61.0	61.0	61.9	62.8	63.7
42.5°	765.8	245.9	65.6	35.5	35.5	33.7	33.7	33.7	35.5	35.5	36.4
45°	206.7	52.8	21.9	20.9	20.0	19.1	19.1	19.1	20.0	20.0	20.9
47.5°	31.0	15.5	12.7	11.8	11.8	10.9	10.9	10.9	11.8	11.8	11.8
50°	11.8	9.1	8.2	7.3	7.3	7.3	6.4	6.4	7.3	7.3	7.3
52.5°	7.3	6.4	5.5	4.6	5.5	4.6	4.6	4.6	5.5	5.5	5.5
55°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.5	5.5
57.5°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.5	5.5
60°	3.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.5	5.5	5.5
62.5°	3.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.5	5.5	5.5
65°	3.6	4.6	4.6	4.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5
67.5°	3.6	4.6	4.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
70°	4.6	4.6	4.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
72.5°	4.6	4.6	4.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6.4
75°	4.6	4.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6.4	6.4
77.5°	4.6	4.6	5.5	5.5	5.5	5.5	5.5	5.5	6.4	6.4	6.4
80°	4.6	4.6	5.5	5.5	5.5	5.5	5.5	5.5	6.4	6.4	6.4
82.5°	4.6	4.6	5.5	5.5	5.5	6.4	5.5	6.4	6.4	6.4	6.4
85°	4.6	4.6	5.5	5.5	5.5	5.5	5.5	6.4	6.4	6.4	6.4
87.5°	4.6	4.6	5.5	5.5	5.5	6.4	5.5	5.5	6.4	6.4	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7
2.5°	1191.1	1170.2	1131.9	1105.5	1094.6	1072.7	1031.7	1027.2	978.0	952.5	926.1
5°	1089.1	1037.2	972.6	931.6	907.9	861.5	797.7	768.6	708.5	669.3	611.9
7.5°	964.4	884.2	795.9	744.0	705.7	627.4	514.5	447.1	357.9	306.0	268.6
10°	821.4	714.8	581.0	495.4	432.6	340.6	270.5	248.6	224.9	205.8	187.6
12.5°	653.8	474.4	345.1	295.0	271.4	244.0	214.9	189.4	184.9	186.7	193.1
15°	445.3	316.9	273.2	253.2	236.8	210.4	216.7	224.0	230.4	234.9	243.1
17.5°	335.1	293.2	250.4	251.3	257.7	264.1	274.1	285.0	294.1	300.5	311.4
20°	330.6	304.2	309.6	320.5	327.8	336.9	354.2	364.3	376.1	384.3	396.1
22.5°	359.7	383.4	390.7	398.9	409.8	419.8	438.0	451.7	460.8	469.0	477.2
25°	427.1	445.3	451.7	458.0	465.3	472.6	484.5	496.3	493.6	496.3	497.2
27.5°	431.6	445.3	448.0	451.7	451.7	458.0	458.0	465.3	453.5	451.7	448.0
30°	371.5	376.1	378.8	378.8	375.2	379.7	375.2	380.6	367.0	362.4	357.9
32.5°	274.1	280.5	277.7	276.8	274.1	278.7	273.2	278.7	266.8	264.1	259.5
35°	175.8	185.8	181.2	183.9	182.1	186.7	183.0	186.7	177.6	176.7	173.9
37.5°	110.2	113.8	112.0	112.9	112.9	115.7	113.8	115.7	112.0	112.0	109.3
40°	64.7	66.5	66.5	67.4	68.3	69.2	68.3	70.1	68.3	69.2	66.5
42.5°	37.3	38.2	38.2	39.2	40.1	40.1	40.1	41.9	40.1	41.0	39.2
45°	20.9	22.8	21.9	22.8	22.8	23.7	23.7	23.7	23.7	23.7	22.8
47.5°	12.7	13.7	13.7	13.7	13.7	13.7	14.6	14.6	13.7	13.7	13.7
50°	8.2	8.2	8.2	8.2	9.1	9.1	9.1	8.2	8.2	8.2	7.3
52.5°	5.5	5.5	5.5	5.5	6.4	5.5	5.5	5.5	4.6	4.6	4.6
55°	5.5	5.5	5.5	5.5	5.5	4.6	4.6	4.6	3.6	2.7	2.7
57.5°	5.5	5.5	5.5	5.5	5.5	4.6	4.6	3.6	3.6	2.7	2.7
60°	5.5	5.5	5.5	5.5	5.5	4.6	4.6	3.6	3.6	2.7	2.7
62.5°	5.5	5.5	5.5	5.5	5.5	4.6	4.6	3.6	3.6	2.7	2.7
65°	5.5	5.5	5.5	5.5	5.5	4.6	4.6	4.6	3.6	2.7	2.7
67.5°	5.5	6.4	5.5	5.5	5.5	5.5	4.6	4.6	3.6	2.7	2.7
70°	5.5	6.4	5.5	5.5	5.5	5.5	4.6	4.6	3.6	2.7	2.7
72.5°	6.4	6.4	6.4	5.5	5.5	5.5	5.5	4.6	3.6	2.7	2.7
75°	6.4	6.4	6.4	5.5	5.5	5.5	5.5	4.6	3.6	2.7	2.7
77.5°	6.4	6.4	6.4	6.4	6.4	5.5	5.5	4.6	3.6	3.6	2.7
80°	6.4	6.4	6.4	6.4	6.4	5.5	5.5	4.6	3.6	3.6	2.7
82.5°	6.4	6.4	6.4	6.4	6.4	5.5	5.5	4.6	3.6	3.6	2.7
85°	6.4	6.4	6.4	6.4	6.4	5.5	5.5	4.6	3.6	3.6	2.7
87.5°	6.4	6.4	6.4	6.4	6.4	5.5	5.5	4.6	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: P179636

CATALOG NUMBER: LDA6A45827D010TE LARH20SP 6LA1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7	1296.7
2.5°	932.5	923.4	917.0	902.4	894.2	885.1	871.5	865.1
5°	591.9	564.6	547.3	521.8	482.6	491.7	470.8	463.5
7.5°	255.0	243.1	239.5	234.0	224.9	220.4	219.5	217.6
10°	174.8	164.8	163.9	164.8	165.7	164.8	164.8	164.8
12.5°	196.7	197.6	199.4	202.2	203.1	203.1	202.2	202.2
15°	247.7	249.5	252.2	255.9	257.7	257.7	257.7	257.7
17.5°	317.8	320.5	325.1	328.7	332.4	332.4	332.4	333.3
20°	408.9	408.9	414.3	418.9	421.6	422.5	423.4	424.4
22.5°	489.9	490.8	494.5	498.1	500.8	499.9	498.1	498.1
25°	505.4	502.7	503.6	503.6	502.7	498.1	498.1	496.3
27.5°	450.8	447.1	447.1	444.4	443.5	441.7	438.0	436.2
30°	357.9	356.1	355.1	352.4	357.0	350.6	347.0	345.1
32.5°	257.7	258.6	257.7	255.0	259.5	253.2	251.3	248.6
35°	173.0	173.9	173.0	171.2	171.2	171.2	169.4	167.6
37.5°	109.3	108.4	109.3	109.3	111.1	108.4	108.4	106.5
40°	66.5	66.5	67.4	67.4	68.3	66.5	65.6	65.6
42.5°	39.2	39.2	40.1	40.1	41.0	39.2	39.2	39.2
45°	22.8	22.8	22.8	22.8	23.7	22.8	21.9	21.9
47.5°	12.7	12.7	12.7	12.7	12.7	12.7	12.7	11.8
50°	7.3	7.3	7.3	7.3	7.3	6.4	6.4	6.4
52.5°	4.6	3.6	3.6	3.6	3.6	2.7	2.7	2.7
55°	1.8	1.8	1.8	1.8	1.8	0.9	0.9	0.9
57.5°	1.8	1.8	1.8	0.9	0.9	0.9	0.0	0.0
60°	1.8	1.8	0.9	0.9	0.9	0.0	0.0	0.0
62.5°	1.8	1.8	0.9	0.9	0.9	0.0	0.0	0.0
65°	1.8	1.8	0.9	0.9	0.9	0.0	0.0	0.0
67.5°	1.8	1.8	1.8	0.9	0.9	0.0	0.0	0.0
70°	1.8	1.8	1.8	0.9	0.9	0.9	0.0	0.0
72.5°	1.8	1.8	1.8	0.9	0.9	0.9	0.0	0.0
75°	2.7	1.8	1.8	1.8	0.9	0.9	0.0	0.0
77.5°	2.7	1.8	1.8	1.8	0.9	0.9	0.9	0.0
80°	2.7	1.8	1.8	1.8	0.9	0.9	0.9	0.9
82.5°	2.7	1.8	1.8	1.8	0.9	0.9	0.9	0.9
85°	2.7	1.8	1.8	1.8	0.9	0.9	0.9	0.9
87.5°	2.7	1.8	1.8	1.8	0.9	0.9	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)