

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: P170929

Luminaire Tested: **LDA4A28927D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170929
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P25648)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A28927D010TE LAR15SP 4LA1 30° Tilt
Description: PORTFOLIO 4" Adjustable Reflector, Self-flanged Trim Ring, 15° Spot
Optic, at 30° tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1780.0 lumens
Efficiency: N/A
Efficacy: 40.0 lumens/watt
Spacing Criteria (0/90/45): 2.52 / 1.04 / 1.28
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

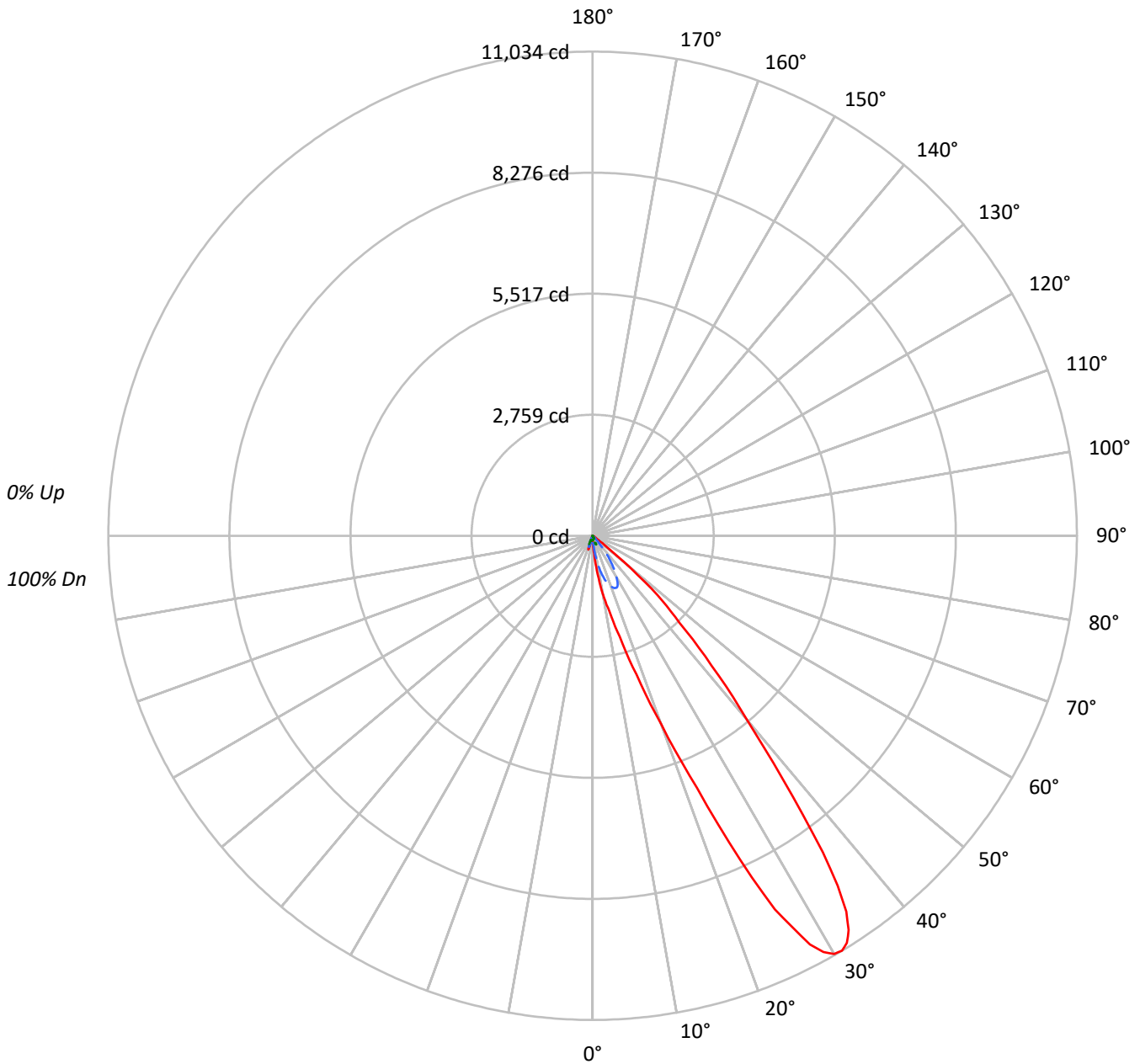
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
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	98	96	96	94	93	91																			
2	106	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	77	71	90	82	76	71	80	74	70	78	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	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	56	54																			
7	75	64	56	51	73	63	56	51	62	55	51	60	55	50	59	54	50	49																			
8	70	58	51	46	69	58	51	46	57	50	46	55	50	46	54	49	45	44																			
9	65	54	47	42	64	53	46	42	52	46	41	51	45	41	50	45	41	40																			
10	61	49	42	38	60	49	42	38	48	42	38	47	41	37	46	41	37	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	12803	12803	12803
5°	57451	12035	7800
10°	170050	11072	9957
15°	303586	13114	28068
20°	601349	25806	30164
25°	1170174	16835	8574
30°	1567455	6295	2991
35°	1466682	2665	1159
40°	878907	1240	354
45°	487743	768	0
50°	178920	633	0
55°	27311	473	0
60°	5995	543	0
65°	1926	642	0
70°	397	793	0
75°	0	1573	0
80°	0	2344	0
85°	0	4670	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	22.8	1.3
10°-20°	192.3	10.8
20°-30°	573.9	32.2
30°-40°	679.7	38.2
40°-50°	282.0	15.8
50°-60°	21.9	1.2
60°-70°	3.0	0.2
70°-80°	2.3	0.1
80°-90°	2.1	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°	789.0	44.3
0°-40°	1468.7	82.5
0°-60°	1772.6	99.6
0°-90°	1780.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1780.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	104	104	104	104	104	
5°	464	234	97	67	63	73
15°	2377	1004	103	154	220	785
25°	8598	1305	124	72	63	3927
35°	9740	727	18	10	8	5645
45°	2796	64	4	3	0	2279
55°	127	9	2	1	0	186
65°	7	2	2	2	0	8
75°	0	2	3	2	0	0
85°	0	2	3	2	0	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	103.8	103.8	103.8	103.8	103.8	103.8	103.8	103.8	103.8	103.8	103.8
2.5°	180.1	171.2	175.7	167.9	172.3	164.6	159.1	164.6	164.6	160.2	153.6
5°	464.0	461.8	470.6	449.6	455.1	431.9	412.1	417.6	413.2	398.8	373.4
7.5°	883.8	874.9	884.9	855.1	856.2	817.5	787.7	794.3	774.4	750.1	705.9
10°	1357.7	1345.6	1356.6	1321.3	1314.6	1260.5	1218.5	1225.1	1179.8	1140.1	1072.7
12.5°	1768.7	1767.6	1732.2	1738.8	1725.6	1642.7	1616.2	1618.4	1556.6	1512.4	1431.7
15°	2377.4	2400.6	2407.2	2361.9	2280.2	2129.9	2063.6	2038.2	1937.7	1863.7	1747.7
17.5°	3313.1	3345.1	3235.7	3262.3	3127.5	2892.2	2760.7	2682.3	2493.4	2354.2	2144.3
20°	4581.3	4553.7	4395.7	4375.8	4146.0	3843.3	3567.2	3419.1	3128.6	2925.3	2619.3
22.5°	6218.5	6197.5	5926.9	5806.5	5325.9	4899.5	4541.5	4170.3	3738.4	3466.6	3051.3
25°	8598.1	8502.0	7980.6	7638.1	6793.0	6068.3	5471.7	4895.0	4233.3	3938.4	3410.3
26°	9474.1	9450.9	8907.4	8456.7	7438.1	6538.9	5734.6	5156.9	4427.7	4083.1	3511.9
27°	10000.0	10184.5	9678.5	9168.1	8054.6	6977.5	6045.1	5367.9	4579.1	4184.7	3577.1
28°	10545.7	10665.0	10212.1	9571.4	8548.4	7326.6	6280.4	5510.4	4671.9	4234.4	3599.2
29°	10846.2	10961.1	10540.2	9939.2	8872.1	7553.0	6419.6	5573.4	4706.1	4233.3	3579.3
30°	11005.3	11112.5	10701.5	10118.2	9005.7	7623.7	6449.4	5547.9	4673.0	4182.5	3523.0
31°	11034.0	11123.5	10718.1	10112.7	8954.9	7536.5	6365.4	5443.0	4584.6	4088.6	3437.9
32°	10936.8	11006.4	10594.3	9949.2	8726.2	7315.5	6190.9	5280.6	4449.8	3971.5	3328.5
33°	10709.2	10834.1	10331.4	9618.9	8328.5	6988.5	5943.4	5068.5	4281.9	3819.0	3194.9
34°	10332.5	10412.1	9891.7	9101.9	7798.3	6590.8	5639.6	4822.1	4089.7	3639.0	3043.5
35°	9740.4	9811.1	9235.5	8403.7	7194.0	6142.3	5292.8	4550.4	3874.3	3436.8	2875.6
36°	8920.7	8988.1	8386.0	7628.1	6584.2	5675.0	4927.1	4254.3	3641.2	3220.3	2697.7
37°	7962.9	8021.4	7485.6	6867.0	5985.4	5202.2	4557.0	3953.8	3394.8	2999.3	2528.7
38°	7037.1	7090.1	6657.1	6153.3	5407.6	4740.4	4188.0	3642.3	3140.7	2777.3	2350.9
39°	6201.9	6248.3	5899.2	5483.9	4857.5	4297.4	3820.1	3333.0	2885.5	2555.2	2167.5
40°	5458.5	5498.2	5211.0	4869.6	4358.2	3883.1	3462.2	3033.6	2635.9	2339.8	1996.2
42.5°	4006.8	4015.7	3844.5	3643.4	3245.7	2972.8	2673.4	2364.1	2073.6	1870.3	1651.6
45°	2796.1	2905.4	2793.9	2660.2	2375.2	2203.9	2012.8	1826.1	1658.2	1462.7	1246.1
47.5°	2010.6	2015.0	1948.7	1864.8	1639.4	1522.3	1365.4	1139.0	972.2	694.9	515.9
50°	932.4	880.5	883.8	826.3	736.9	585.5	489.4	349.1	278.4	198.9	160.2
51°	554.6	515.9	521.4	480.6	420.9	328.1	278.4	223.2	193.3	150.2	123.7
52°	323.7	310.4	309.3	290.5	247.5	227.6	201.1	167.9	146.9	116.0	96.1
53°	235.3	226.5	226.5	214.3	184.5	171.2	152.5	129.3	112.7	88.4	72.9
54°	175.7	169.0	169.0	161.3	149.1	128.1	114.9	96.1	84.0	68.5	54.1
55°	127.0	122.6	122.6	117.1	108.3	92.8	82.9	69.6	61.9	49.7	39.8
57.5°	53.0	50.8	50.8	48.6	46.4	39.8	37.6	32.0	27.6	24.3	19.9
60°	24.3	23.2	24.3	23.2	21.0	22.1	18.8	16.6	15.5	13.3	11.0
61°	18.8	17.7	17.7	17.7	15.5	15.5	14.4	13.3	12.2	9.9	8.8
62°	14.4	13.3	13.3	13.3	12.2	12.2	11.0	9.9	9.9	7.7	6.6
63°	11.0	9.9	9.9	9.9	8.8	8.8	8.8	7.7	7.7	6.6	5.5
64°	7.7	7.7	7.7	7.7	7.7	6.6	6.6	6.6	5.5	4.4	4.4
65°	6.6	5.5	6.6	5.5	5.5	5.5	5.5	5.5	4.4	3.3	3.3
66°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	3.3	2.2



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CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
72.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
75°	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1
80°	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.1	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	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	103.8	103.8	103.8	103.8	103.8	103.8	103.8	103.8	103.8	103.8	103.8
2.5°	150.2	154.7	151.3	142.5	146.9	144.7	140.3	137.0	117.1	101.6	86.2
5°	354.6	357.9	339.2	306.0	295.0	277.3	251.9	234.2	132.6	97.2	76.2
7.5°	670.6	648.5	630.8	568.9	542.4	501.5	452.9	418.7	151.3	91.7	70.7
10°	1015.2	979.9	943.4	852.8	805.3	742.4	672.8	633.0	171.2	88.4	70.7
12.5°	1356.6	1309.1	1242.8	1143.4	1076.0	990.9	895.9	825.2	185.6	90.6	81.7
15°	1652.7	1595.2	1522.3	1409.6	1331.2	1225.1	1101.4	1004.2	192.2	102.7	113.8
17.5°	1975.3	1871.4	1751.0	1607.4	1521.2	1398.6	1259.4	1141.2	192.2	130.4	182.3
20°	2346.4	2156.4	1963.1	1762.0	1640.5	1512.4	1363.2	1236.2	200.0	196.6	250.8
22.5°	2692.2	2430.4	2157.5	1895.7	1726.7	1587.5	1436.1	1290.3	232.0	216.5	166.8
25°	2960.7	2628.1	2306.7	1988.5	1797.4	1642.7	1480.3	1304.7	212.1	123.7	90.6
26°	3030.3	2671.2	2336.5	1999.6	1800.7	1641.6	1475.9	1289.2	177.9	98.3	72.9
27°	3066.7	2685.6	2338.7	1989.6	1787.4	1622.8	1451.6	1257.2	142.5	79.5	59.7
28°	3066.7	2669.0	2315.5	1962.0	1753.2	1587.5	1409.6	1206.4	116.0	65.2	47.5
29°	3035.8	2625.9	2269.1	1920.0	1706.8	1537.8	1352.2	1146.7	98.3	54.1	38.7
30°	2976.1	2563.0	2207.2	1865.9	1647.1	1481.4	1289.2	1084.8	85.1	44.2	30.9
31°	2892.2	2492.3	2131.0	1807.3	1591.9	1429.5	1231.8	1021.9	74.0	35.4	25.4
32°	2791.6	2403.9	2052.6	1746.6	1546.6	1380.9	1172.1	955.6	64.1	29.8	22.1
33°	2675.7	2304.5	1970.8	1686.9	1502.4	1325.7	1106.9	883.8	55.2	24.3	18.8
34°	2547.5	2195.1	1886.9	1622.8	1448.3	1256.1	1030.7	807.6	47.5	21.0	15.5
35°	2408.3	2072.5	1800.7	1557.7	1387.5	1178.7	949.0	726.9	40.9	17.7	13.3
36°	2258.1	1957.6	1716.7	1492.5	1312.4	1094.8	859.5	644.1	35.4	14.4	12.2
37°	2107.8	1849.3	1633.9	1422.9	1225.1	999.8	765.6	557.9	30.9	12.2	9.9
38°	1965.3	1744.4	1552.1	1342.2	1123.5	894.8	668.4	471.7	26.5	11.0	8.8
39°	1831.6	1642.7	1468.2	1246.1	1018.6	793.2	574.5	382.2	23.2	9.9	7.7
40°	1711.2	1546.6	1376.5	1139.0	910.3	689.4	479.5	285.0	19.9	7.7	6.6
42.5°	1457.1	1282.6	1058.3	794.3	615.3	399.9	223.2	106.1	14.4	5.5	5.5
45°	962.2	740.2	502.7	299.4	202.2	121.5	90.6	64.1	11.0	4.4	4.4
47.5°	321.5	204.4	149.1	107.2	91.7	72.9	58.6	39.8	7.7	3.3	3.3
50°	122.6	99.4	81.7	61.9	55.2	44.2	35.4	23.2	5.5	3.3	3.3
51°	96.1	78.4	64.1	48.6	44.2	35.4	28.7	19.9	4.4	3.3	3.3
52°	74.0	60.8	49.7	37.6	35.4	28.7	24.3	16.6	4.4	2.2	3.3
53°	56.3	46.4	37.6	28.7	27.6	23.2	19.9	13.3	3.3	2.2	3.3
54°	42.0	35.4	29.8	23.2	23.2	19.9	16.6	11.0	3.3	2.2	3.3
55°	32.0	26.5	23.2	17.7	18.8	16.6	14.4	8.8	3.3	2.2	3.3
57.5°	16.6	15.5	13.3	11.0	12.2	11.0	9.9	5.5	3.3	2.2	3.3
60°	9.9	8.8	7.7	6.6	7.7	7.7	7.7	3.3	3.3	2.2	3.3
61°	7.7	6.6	5.5	5.5	6.6	6.6	6.6	3.3	3.3	2.2	3.3
62°	5.5	5.5	4.4	4.4	6.6	5.5	5.5	3.3	3.3	2.2	3.3
63°	4.4	4.4	4.4	3.3	5.5	5.5	5.5	3.3	3.3	2.2	3.3
64°	3.3	3.3	3.3	3.3	4.4	5.5	5.5	2.2	3.3	2.2	3.3
65°	3.3	3.3	2.2	2.2	4.4	4.4	4.4	2.2	3.3	2.2	3.3
66°	2.2	2.2	2.2	2.2	4.4	4.4	4.4	2.2	3.3	2.2	3.3



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CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
72.5°	1.1	1.1	1.1	1.1	3.3	3.3	4.4	2.2	3.3	3.3	3.3
75°	1.1	1.1	1.1	1.1	3.3	3.3	4.4	2.2	3.3	3.3	3.3
77.5°	1.1	1.1	1.1	1.1	3.3	3.3	4.4	2.2	3.3	3.3	4.4
80°	1.1	1.1	1.1	1.1	3.3	3.3	4.4	2.2	3.3	3.3	4.4
82.5°	1.1	1.1	1.1	1.1	3.3	3.3	4.4	2.2	3.3	3.3	4.4
85°	1.1	1.1	1.1	1.1	3.3	3.3	4.4	2.2	3.3	3.3	4.4
87.5°	1.1	1.1	1.1	1.1	3.3	3.3	4.4	2.2	3.3	3.3	3.3
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: P170929

CATALOG NUMBER: LDA4A28927D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	103.8	103.8	103.8
2.5°	78.4	75.1	72.9
5°	67.4	64.1	63.0
7.5°	63.0	61.9	63.0
10°	69.6	74.0	79.5
12.5°	92.8	109.4	118.2
15°	153.6	200.0	219.8
17.5°	270.7	308.2	330.3
20°	238.6	217.6	229.8
22.5°	129.3	112.7	116.0
25°	71.8	61.9	63.0
26°	57.4	49.7	49.7
27°	46.4	39.8	39.8
28°	37.6	32.0	32.0
29°	29.8	25.4	25.4
30°	24.3	21.0	21.0
31°	19.9	16.6	16.6
32°	16.6	14.4	13.3
33°	14.4	12.2	11.0
34°	12.2	9.9	8.8
35°	9.9	7.7	7.7
36°	8.8	6.6	6.6
37°	7.7	5.5	5.5
38°	6.6	4.4	4.4
39°	5.5	4.4	3.3
40°	4.4	3.3	2.2
42.5°	3.3	2.2	1.1
45°	3.3	1.1	0.0
47.5°	2.2	1.1	0.0
50°	2.2	0.0	0.0
51°	2.2	0.0	0.0
52°	2.2	0.0	0.0
53°	1.1	0.0	0.0
54°	2.2	0.0	0.0
55°	1.1	0.0	0.0
57.5°	2.2	0.0	0.0
60°	2.2	0.0	0.0
61°	2.2	0.0	0.0
62°	2.2	0.0	0.0
63°	2.2	0.0	0.0
64°	2.2	1.1	0.0
65°	2.2	1.1	0.0
66°	2.2	1.1	0.0



TEST NUMBER: P170929

CATALOG NUMBER: LDA4A28927D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	2.2	1.1	0.0
75°	2.2	1.1	0.0
77.5°	2.2	1.1	0.0
80°	2.2	1.1	0.0
82.5°	2.2	1.1	0.0
85°	2.2	1.1	0.0
87.5°	2.2	1.1	0.0
90°	0.0	0.0	0.0



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







67.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.2	2.2
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.2	2.2	1.1	1.1





67.5°	2.2	1.1	2.2	2.2	3.3	4.4	4.4	2.2	3.3	2.2	3.3
70°	1.1	1.1	1.1	1.1	3.3	3.3	4.4	2.2	3.3	2.2	3.3





67.5°	2.2	1.1	0.0
70°	2.2	1.1	0.0



(END OF REPORT)