

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: P170920

Luminaire Tested: **LDA4A13840D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170920
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: LDA4A13840D010TE 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 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1333.7 lumens
Efficiency: N/A
Efficacy: 59.9 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

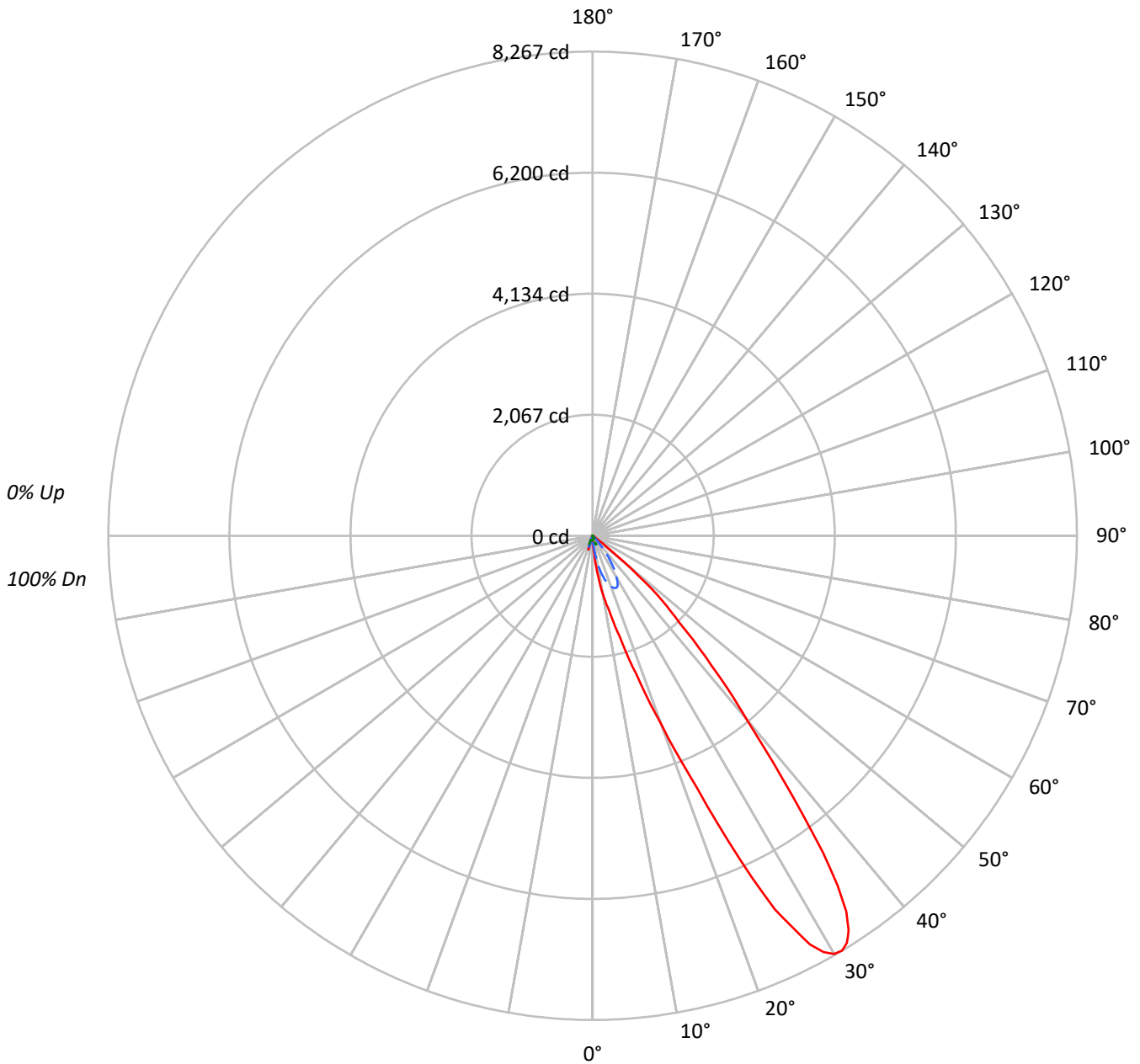
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	112	109	106	104	110	107	104	102	103	101	99	99	98	96	96	94	93	91					91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82					82			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74					74			
4	92	83	77	71	90	82	76	71	80	74	70	78	73	69	76	72	68	67					67			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	70	65	62	60					60			
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	56	54					54			
7	75	64	56	51	73	63	56	51	62	55	51	60	55	50	59	54	50	49					49			
8	70	58	51	46	69	58	51	46	57	50	46	55	50	46	54	49	45	44					44			
9	65	54	47	42	64	53	46	42	52	46	41	51	45	41	50	45	41	40					40			
10	61	49	42	38	60	49	42	38	48	42	38	47	41	37	46	41	37	36					36			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	9596	9596	9596
5°	43039	9014	5844
10°	127403	8291	7465
15°	227454	9833	21032
20°	450543	19335	22603
25°	876722	12616	6424
30°	1174370	4714	2236
35°	1098867	1988	873
40°	658492	934	274
45°	365428	576	0
50°	134056	480	0
55°	20472	366	0
60°	4490	419	0
65°	1459	496	0
70°	289	613	0
75°	0	1191	0
80°	0	1776	0
85°	0	3538	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	17.1	1.3
10°-20°	144.1	10.8
20°-30°	430.0	32.2
30°-40°	509.3	38.2
40°-50°	211.3	15.8
50°-60°	16.4	1.2
60°-70°	2.3	0.2
70°-80°	1.7	0.1
80°-90°	1.6	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°	591.2	44.3
0°-40°	1100.4	82.5
0°-60°	1328.1	99.6
0°-90°	1333.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1333.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	78	78	78	78	78	
5°	348	176	73	50	47	55
15°	1781	752	77	115	165	588
25°	6442	978	93	54	47	2942
35°	7298	545	13	7	6	4229
45°	2095	48	3	2	0	1708
55°	95	7	2	1	0	139
65°	5	2	2	2	0	6
75°	0	2	2	2	0	0
85°	0	2	2	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°	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8
2.5°	134.9	128.3	131.6	125.8	129.1	123.3	119.2	123.3	123.3	120.0	115.0
5°	347.6	346.0	352.6	336.9	341.0	323.6	308.7	312.9	309.6	298.8	279.8
7.5°	662.1	655.5	663.0	640.6	641.5	612.5	590.1	595.1	580.2	562.0	528.9
10°	1017.2	1008.1	1016.4	989.9	984.9	944.4	912.9	917.9	884.0	854.2	803.7
12.5°	1325.1	1324.3	1297.8	1302.8	1292.8	1230.8	1210.9	1212.6	1166.2	1133.1	1072.7
15°	1781.2	1798.6	1803.5	1769.6	1708.3	1595.8	1546.1	1527.1	1451.8	1396.3	1309.4
17.5°	2482.2	2506.2	2424.3	2444.2	2343.2	2166.9	2068.4	2009.6	1868.1	1763.8	1606.5
20°	3432.4	3411.7	3293.4	3278.5	3106.3	2879.5	2672.6	2561.7	2344.0	2191.7	1962.4
22.5°	4659.0	4643.3	4440.5	4350.3	3990.3	3670.8	3402.6	3124.5	2800.9	2597.3	2286.1
25°	6441.9	6369.9	5979.2	5722.6	5089.4	4546.5	4099.5	3667.5	3171.7	2950.7	2555.1
26°	7098.2	7080.8	6673.6	6335.9	5572.8	4899.1	4296.5	3863.6	3317.4	3059.1	2631.2
27°	7492.2	7630.4	7251.4	6869.0	6034.7	5227.7	4529.1	4021.7	3430.8	3135.3	2680.0
28°	7901.1	7990.5	7651.1	7171.1	6404.6	5489.2	4705.4	4128.5	3500.3	3172.5	2696.6
29°	8126.2	8212.3	7896.9	7446.7	6647.1	5658.9	4809.7	4175.7	3525.9	3171.7	2681.7
30°	8245.4	8325.7	8017.8	7580.8	6747.3	5711.9	4832.0	4156.6	3501.1	3133.6	2639.5
31°	8266.9	8334.0	8030.2	7576.6	6709.2	5646.5	4769.1	4078.0	3434.9	3063.3	2575.8
32°	8194.1	8246.2	7937.5	7454.1	6537.9	5480.9	4638.3	3956.3	3333.9	2975.5	2493.8
33°	8023.6	8117.1	7740.5	7206.7	6239.9	5235.9	4452.9	3797.4	3208.1	2861.3	2393.7
34°	7741.3	7800.9	7411.1	6819.3	5842.6	4938.0	4225.3	3612.8	3064.1	2726.4	2280.3
35°	7297.7	7350.7	6919.5	6296.2	5389.9	4601.9	3965.4	3409.2	2902.7	2574.9	2154.5
36°	6683.6	6734.0	6283.0	5715.2	4933.0	4251.8	3691.5	3187.4	2728.1	2412.7	2021.2
37°	5966.0	6009.8	5608.4	5144.9	4484.4	3897.6	3414.2	2962.3	2543.5	2247.2	1894.6
38°	5272.4	5312.1	4987.6	4610.2	4051.5	3551.6	3137.8	2728.9	2353.1	2080.8	1761.3
39°	4646.6	4681.4	4419.8	4108.6	3639.3	3219.7	2862.1	2497.1	2161.9	1914.4	1623.9
40°	4089.6	4119.4	3904.2	3648.4	3265.2	2909.3	2594.0	2272.8	1974.9	1753.0	1495.6
42.5°	3002.0	3008.6	2880.3	2729.7	2431.7	2227.3	2003.0	1771.2	1553.6	1401.3	1237.4
45°	2094.9	2176.8	2093.2	1993.1	1779.5	1651.2	1508.0	1368.2	1242.4	1095.9	933.6
47.5°	1506.4	1509.7	1460.0	1397.1	1228.3	1140.6	1023.0	853.3	728.4	520.6	386.5
50°	698.6	659.7	662.1	619.1	552.1	438.7	366.7	261.5	208.6	149.0	120.0
51°	415.5	386.5	390.7	360.0	315.3	245.8	208.6	167.2	144.8	112.6	92.7
52°	242.5	232.6	231.8	217.7	185.4	170.5	150.6	125.8	110.1	86.9	72.0
53°	176.3	169.7	169.7	160.6	138.2	128.3	114.2	96.8	84.4	66.2	54.6
54°	131.6	126.6	126.6	120.8	111.7	96.0	86.1	72.0	62.9	51.3	40.6
55°	95.2	91.9	91.9	87.7	81.1	69.5	62.1	52.1	46.4	37.2	29.8
57.5°	39.7	38.1	38.1	36.4	34.8	29.8	28.1	24.0	20.7	18.2	14.9
60°	18.2	17.4	18.2	17.4	15.7	16.6	14.1	12.4	11.6	9.9	8.3
61°	14.1	13.2	13.2	13.2	11.6	11.6	10.8	9.9	9.1	7.4	6.6
62°	10.8	9.9	9.9	9.9	9.1	9.1	8.3	7.4	7.4	5.8	5.0
63°	8.3	7.4	7.4	7.4	6.6	6.6	6.6	5.8	5.8	5.0	4.1
64°	5.8	5.8	5.8	5.8	5.8	5.0	5.0	5.0	4.1	3.3	3.3
65°	5.0	4.1	5.0	4.1	4.1	4.1	4.1	4.1	3.3	2.5	2.5
66°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.5	1.7



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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	0.8	0.8	0.8	0.8	0.8	0.8	0.8
75°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
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°	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8
2.5°	112.6	115.9	113.4	106.8	110.1	108.4	105.1	102.6	87.7	76.1	64.6
5°	265.7	268.2	254.1	229.3	221.0	207.7	188.7	175.5	99.3	72.8	57.1
7.5°	502.4	485.9	472.6	426.3	406.4	375.8	339.4	313.7	113.4	68.7	53.0
10°	760.6	734.2	706.8	639.0	603.4	556.2	504.1	474.3	128.3	66.2	53.0
12.5°	1016.4	980.8	931.1	856.7	806.2	742.4	671.3	618.3	139.1	67.9	61.2
15°	1238.2	1195.2	1140.6	1056.1	997.4	917.9	825.2	752.4	144.0	77.0	85.3
17.5°	1479.9	1402.1	1311.9	1204.3	1139.7	1047.8	943.6	855.0	144.0	97.7	136.6
20°	1758.0	1615.6	1470.8	1320.2	1229.1	1133.1	1021.4	926.2	149.8	147.3	187.9
22.5°	2017.1	1820.9	1616.5	1420.3	1293.7	1189.4	1076.0	966.7	173.8	162.2	125.0
25°	2218.2	1969.1	1728.2	1489.8	1346.6	1230.8	1109.1	977.5	158.9	92.7	67.9
26°	2270.3	2001.3	1750.6	1498.1	1349.1	1229.9	1105.8	965.9	133.3	73.7	54.6
27°	2297.7	2012.1	1752.2	1490.7	1339.2	1215.9	1087.6	941.9	106.8	59.6	44.7
28°	2297.7	1999.7	1734.8	1470.0	1313.5	1189.4	1056.1	903.8	86.9	48.8	35.6
29°	2274.5	1967.4	1700.1	1438.5	1278.8	1152.1	1013.1	859.1	73.7	40.6	29.0
30°	2229.8	1920.2	1653.7	1398.0	1234.1	1109.9	965.9	812.8	63.7	33.1	23.2
31°	2166.9	1867.3	1596.6	1354.1	1192.7	1071.0	922.9	765.6	55.5	26.5	19.0
32°	2091.6	1801.0	1537.8	1308.6	1158.8	1034.6	878.2	715.9	48.0	22.3	16.6
33°	2004.7	1726.6	1476.6	1263.9	1125.7	993.2	829.3	662.1	41.4	18.2	14.1
34°	1908.6	1644.6	1413.7	1215.9	1085.1	941.1	772.2	605.0	35.6	15.7	11.6
35°	1804.4	1552.7	1349.1	1167.0	1039.6	883.1	711.0	544.6	30.6	13.2	9.9
36°	1691.8	1466.7	1286.2	1118.2	983.3	820.2	643.9	482.5	26.5	10.8	9.1
37°	1579.2	1385.5	1224.1	1066.1	917.9	749.1	573.6	418.0	23.2	9.1	7.4
38°	1472.5	1306.9	1162.9	1005.6	841.8	670.4	500.7	353.4	19.9	8.3	6.6
39°	1372.3	1230.8	1100.0	933.6	763.1	594.3	430.4	286.4	17.4	7.4	5.8
40°	1282.1	1158.8	1031.3	853.3	682.0	516.5	359.2	213.5	14.9	5.8	5.0
42.5°	1091.7	960.9	792.9	595.1	461.0	299.6	167.2	79.5	10.8	4.1	4.1
45°	720.9	554.5	376.6	224.3	151.5	91.0	67.9	48.0	8.3	3.3	3.3
47.5°	240.9	153.1	111.7	80.3	68.7	54.6	43.9	29.8	5.8	2.5	2.5
50°	91.9	74.5	61.2	46.4	41.4	33.1	26.5	17.4	4.1	2.5	2.5
51°	72.0	58.8	48.0	36.4	33.1	26.5	21.5	14.9	3.3	2.5	2.5
52°	55.5	45.5	37.2	28.1	26.5	21.5	18.2	12.4	3.3	1.7	2.5
53°	42.2	34.8	28.1	21.5	20.7	17.4	14.9	9.9	2.5	1.7	2.5
54°	31.5	26.5	22.3	17.4	17.4	14.9	12.4	8.3	2.5	1.7	2.5
55°	24.0	19.9	17.4	13.2	14.1	12.4	10.8	6.6	2.5	1.7	2.5
57.5°	12.4	11.6	9.9	8.3	9.1	8.3	7.4	4.1	2.5	1.7	2.5
60°	7.4	6.6	5.8	5.0	5.8	5.8	5.8	2.5	2.5	1.7	2.5
61°	5.8	5.0	4.1	4.1	5.0	5.0	5.0	2.5	2.5	1.7	2.5
62°	4.1	4.1	3.3	3.3	5.0	4.1	4.1	2.5	2.5	1.7	2.5
63°	3.3	3.3	3.3	2.5	4.1	4.1	4.1	2.5	2.5	1.7	2.5
64°	2.5	2.5	2.5	2.5	3.3	4.1	4.1	1.7	2.5	1.7	2.5
65°	2.5	2.5	1.7	1.7	3.3	3.3	3.3	1.7	2.5	1.7	2.5
66°	1.7	1.7	1.7	1.7	3.3	3.3	3.3	1.7	2.5	1.7	2.5



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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°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.7	2.5	2.5	2.5
75°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.7	2.5	2.5	2.5
77.5°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.7	2.5	2.5	3.3
80°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.7	2.5	2.5	3.3
82.5°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.7	2.5	2.5	3.3
85°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.7	2.5	2.5	3.3
87.5°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.7	2.5	2.5	2.5
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):

	135°	157.5°	180°
0°	77.8	77.8	77.8
2.5°	58.8	56.3	54.6
5°	50.5	48.0	47.2
7.5°	47.2	46.4	47.2
10°	52.1	55.5	59.6
12.5°	69.5	81.9	88.6
15°	115.0	149.8	164.7
17.5°	202.8	230.9	247.5
20°	178.8	163.1	172.2
22.5°	96.8	84.4	86.9
25°	53.8	46.4	47.2
26°	43.0	37.2	37.2
27°	34.8	29.8	29.8
28°	28.1	24.0	24.0
29°	22.3	19.0	19.0
30°	18.2	15.7	15.7
31°	14.9	12.4	12.4
32°	12.4	10.8	9.9
33°	10.8	9.1	8.3
34°	9.1	7.4	6.6
35°	7.4	5.8	5.8
36°	6.6	5.0	5.0
37°	5.8	4.1	4.1
38°	5.0	3.3	3.3
39°	4.1	3.3	2.5
40°	3.3	2.5	1.7
42.5°	2.5	1.7	0.8
45°	2.5	0.8	0.0
47.5°	1.7	0.8	0.0
50°	1.7	0.0	0.0
51°	1.7	0.0	0.0
52°	1.7	0.0	0.0
53°	0.8	0.0	0.0
54°	1.7	0.0	0.0
55°	0.8	0.0	0.0
57.5°	1.7	0.0	0.0
60°	1.7	0.0	0.0
61°	1.7	0.0	0.0
62°	1.7	0.0	0.0
63°	1.7	0.0	0.0
64°	1.7	0.8	0.0
65°	1.7	0.8	0.0
66°	1.7	0.8	0.0



TEST NUMBER: P170920

CATALOG NUMBER: LDA4A13840D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.7	0.8	0.0
75°	1.7	0.8	0.0
77.5°	1.7	0.8	0.0
80°	1.7	0.8	0.0
82.5°	1.7	0.8	0.0
85°	1.7	0.8	0.0
87.5°	1.7	0.8	0.0
90°	0.0	0.0	0.0



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







67.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.7	1.7
70°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.7	1.7	0.8	0.8





67.5°	1.7	0.8	1.7	1.7	2.5	3.3	3.3	1.7	2.5	1.7	2.5
70°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.7	2.5	1.7	2.5





67.5°	1.7	0.8	0.0
70°	1.7	0.8	0.0



(END OF REPORT)