

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: P170912

Luminaire Tested: **LDA4A09840D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170912  
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: LDA4A09840D010TE 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: 898.7 lumens  
Efficiency: N/A  
Efficacy: 64.9 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

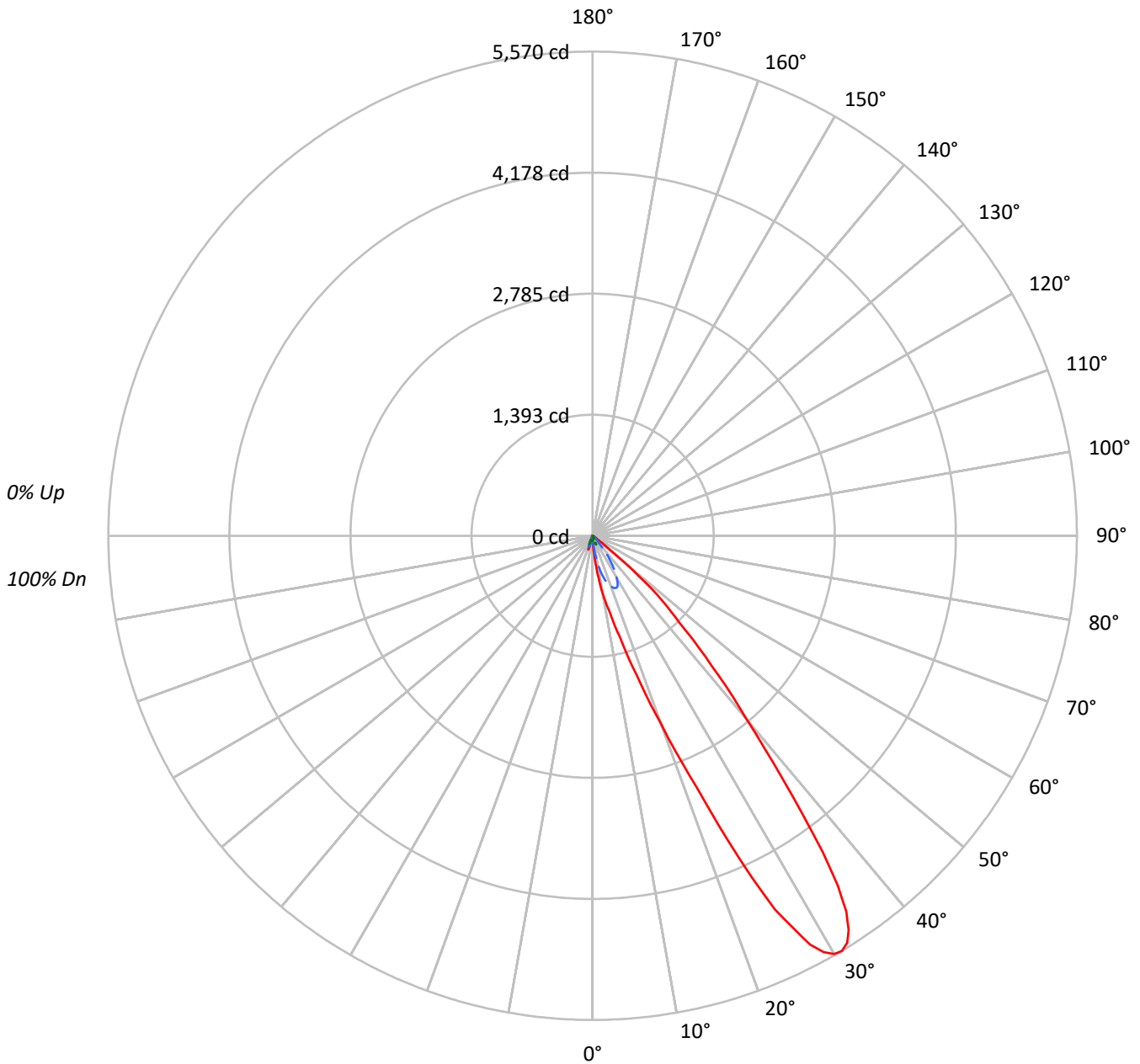
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
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°	6463	6463	6463
5°	28998	6079	3937
10°	85845	5586	5035
15°	153262	6627	14174
20°	303582	13034	15226
25°	590756	8506	4328
30°	791312	3176	1510
35°	740433	1340	587
40°	443696	628	177
45°	246235	384	0
50°	90323	326	0
55°	13784	237	0
60°	3034	271	0
65°	963	321	0
70°	216	397	0
75°	0	810	0
80°	0	1208	0
85°	0	2406	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	11.5	1.3
10°-20°	97.1	10.8
20°-30°	289.7	32.2
30°-40°	343.2	38.2
40°-50°	142.4	15.8
50°-60°	11.1	1.2
60°-70°	1.5	0.2
70°-80°	1.2	0.1
80°-90°	1.1	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°	398.3	44.3
0°-40°	741.5	82.5
0°-60°	894.9	99.6
0°-90°	898.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	898.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	52	52	52	52	52	
5°	234	118	49	34	32	37
15°	1200	507	52	78	111	396
25°	4341	659	62	36	32	1983
35°	4917	367	9	5	4	2850
45°	1412	32	2	2	0	1151
55°	64	4	1	1	0	94
65°	3	1	1	1	0	4
75°	0	1	2	1	0	0
85°	0	1	2	1	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°	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4
2.5°	90.9	86.4	88.7	84.8	87.0	83.1	80.3	83.1	83.1	80.9	77.5
5°	234.2	233.1	237.6	227.0	229.8	218.1	208.0	210.8	208.6	201.3	188.5
7.5°	446.2	441.7	446.7	431.7	432.2	412.7	397.6	401.0	391.0	378.7	356.4
10°	685.4	679.3	684.9	667.0	663.7	636.3	615.2	618.5	595.6	575.6	541.5
12.5°	892.9	892.3	874.5	877.8	871.1	829.3	815.9	817.0	785.8	763.5	722.8
15°	1200.2	1211.9	1215.3	1192.4	1151.1	1075.3	1041.8	1029.0	978.2	940.9	882.3
17.5°	1672.6	1688.7	1633.5	1646.9	1578.9	1460.1	1393.7	1354.1	1258.8	1188.5	1082.5
20°	2312.8	2298.9	2219.1	2209.1	2093.1	1940.3	1800.8	1726.1	1579.4	1476.8	1322.3
22.5°	3139.4	3128.8	2992.1	2931.3	2688.7	2473.4	2292.7	2105.4	1887.3	1750.1	1540.4
25°	4340.7	4292.1	4028.9	3856.0	3429.4	3063.5	2762.3	2471.2	2137.1	1988.2	1721.7
26°	4782.9	4771.2	4496.8	4269.3	3755.1	3301.1	2895.1	2603.4	2235.3	2061.3	1773.0
27°	5048.4	5141.5	4886.1	4628.4	4066.3	3522.5	3051.8	2709.9	2311.7	2112.6	1805.9
28°	5323.9	5384.1	5155.5	4832.0	4315.6	3698.7	3170.6	2781.9	2358.6	2137.7	1817.0
29°	5475.6	5533.6	5321.1	5017.7	4479.0	3813.1	3240.9	2813.7	2375.8	2137.1	1807.0
30°	5555.9	5610.0	5402.5	5108.1	4546.5	3848.8	3255.9	2800.8	2359.1	2111.5	1778.5
31°	5570.4	5615.6	5410.9	5105.3	4520.8	3804.7	3213.5	2747.8	2314.5	2064.1	1735.6
32°	5521.3	5556.5	5348.4	5022.7	4405.4	3693.2	3125.4	2665.9	2246.5	2005.0	1680.4
33°	5406.4	5469.5	5215.7	4856.0	4204.6	3528.1	3000.5	2558.8	2161.7	1928.0	1612.9
34°	5216.3	5256.4	4993.7	4595.0	3936.9	3327.3	2847.1	2434.4	2064.6	1837.1	1536.5
35°	4917.3	4953.0	4662.5	4242.5	3631.8	3100.9	2672.0	2297.2	1955.9	1735.0	1451.7
36°	4503.5	4537.5	4233.6	3851.0	3324.0	2865.0	2487.4	2147.7	1838.2	1625.7	1361.9
37°	4020.0	4049.5	3779.0	3466.7	3021.7	2626.3	2300.6	1996.0	1713.8	1514.2	1276.6
38°	3552.6	3579.4	3360.8	3106.4	2730.0	2393.1	2114.3	1838.8	1585.6	1402.1	1186.8
39°	3131.0	3154.4	2978.2	2768.5	2452.3	2169.5	1928.6	1682.6	1456.7	1290.0	1094.2
40°	2755.6	2775.7	2630.7	2458.4	2200.2	1960.4	1747.9	1531.5	1330.7	1181.2	1007.8
42.5°	2022.8	2027.3	1940.8	1839.3	1638.6	1500.8	1349.7	1193.5	1046.8	944.2	833.8
45°	1411.6	1466.8	1410.5	1343.0	1199.1	1112.6	1016.1	921.9	837.1	738.4	629.1
47.5°	1015.0	1017.3	983.8	941.4	827.6	768.5	689.3	575.0	490.8	350.8	260.5
50°	470.7	444.5	446.2	417.2	372.0	295.6	247.1	176.2	140.5	100.4	80.9
51°	280.0	260.5	263.2	242.6	212.5	165.6	140.5	112.7	97.6	75.8	62.5
52°	163.4	156.7	156.2	146.7	124.9	114.9	101.5	84.8	74.2	58.6	48.5
53°	118.8	114.3	114.3	108.2	93.1	86.4	77.0	65.3	56.9	44.6	36.8
54°	88.7	85.3	85.3	81.4	75.3	64.7	58.0	48.5	42.4	34.6	27.3
55°	64.1	61.9	61.9	59.1	54.7	46.8	41.8	35.1	31.2	25.1	20.1
57.5°	26.8	25.7	25.7	24.5	23.4	20.1	19.0	16.2	13.9	12.3	10.0
60°	12.3	11.7	12.3	11.7	10.6	11.2	9.5	8.4	7.8	6.7	5.6
61°	9.5	8.9	8.9	8.9	7.8	7.8	7.3	6.7	6.1	5.0	4.5
62°	7.3	6.7	6.7	6.7	6.1	6.1	5.6	5.0	5.0	3.9	3.3
63°	5.6	5.0	5.0	5.0	4.5	4.5	4.5	3.9	3.9	3.3	2.8
64°	3.9	3.9	3.9	3.9	3.9	3.3	3.3	3.3	2.8	2.2	2.2
65°	3.3	2.8	3.3	2.8	2.8	2.8	2.8	2.8	2.2	1.7	1.7
66°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.7	1.1



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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	0.6	0.6	0.6	0.6	0.6	0.6	0.6
75°	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6
85°	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6
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):**

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4	52.4
2.5°	75.8	78.1	76.4	71.9	74.2	73.1	70.8	69.2	59.1	51.3	43.5
5°	179.0	180.7	171.2	154.5	148.9	140.0	127.2	118.2	66.9	49.1	38.5
7.5°	338.5	327.4	318.5	287.2	273.8	253.2	228.7	211.4	76.4	46.3	35.7
10°	512.5	494.7	476.3	430.6	406.6	374.8	339.6	319.6	86.4	44.6	35.7
12.5°	684.9	660.9	627.4	577.2	543.2	500.3	452.3	416.6	93.7	45.7	41.3
15°	834.3	805.3	768.5	711.6	672.0	618.5	556.0	507.0	97.0	51.9	57.4
17.5°	997.2	944.8	884.0	811.5	768.0	706.1	635.8	576.1	97.0	65.8	92.0
20°	1184.6	1088.7	991.1	889.5	828.2	763.5	688.2	624.1	100.9	99.3	126.6
22.5°	1359.1	1227.0	1089.2	957.0	871.7	801.4	725.0	651.4	117.1	109.3	84.2
25°	1494.7	1326.8	1164.5	1003.9	907.4	829.3	747.3	658.7	107.1	62.5	45.7
26°	1529.8	1348.5	1179.6	1009.5	909.1	828.8	745.1	650.8	89.8	49.6	36.8
27°	1548.2	1355.8	1180.7	1004.4	902.4	819.3	732.8	634.7	71.9	40.2	30.1
28°	1548.2	1347.4	1169.0	990.5	885.1	801.4	711.6	609.0	58.6	32.9	24.0
29°	1532.6	1325.7	1145.5	969.3	861.7	776.3	682.6	578.9	49.6	27.3	19.5
30°	1502.5	1293.9	1114.3	942.0	831.5	747.9	650.8	547.7	42.9	22.3	15.6
31°	1460.1	1258.2	1075.8	912.4	803.7	721.7	621.8	515.9	37.4	17.8	12.8
32°	1409.3	1213.6	1036.2	881.7	780.8	697.1	591.7	482.4	32.3	15.1	11.2
33°	1350.8	1163.4	995.0	851.6	758.5	669.3	558.8	446.2	27.9	12.3	9.5
34°	1286.1	1108.2	952.6	819.3	731.2	634.1	520.3	407.7	24.0	10.6	7.8
35°	1215.8	1046.3	909.1	786.4	700.5	595.1	479.1	367.0	20.6	8.9	6.7
36°	1140.0	988.3	866.7	753.5	662.6	552.7	433.9	325.1	17.8	7.3	6.1
37°	1064.1	933.6	824.9	718.3	618.5	504.7	386.5	281.6	15.6	6.1	5.0
38°	992.2	880.6	783.6	677.6	567.2	451.7	337.4	238.1	13.4	5.6	4.5
39°	924.7	829.3	741.2	629.1	514.2	400.4	290.0	193.0	11.7	5.0	3.9
40°	863.9	780.8	694.9	575.0	459.6	348.0	242.0	143.9	10.0	3.9	3.3
42.5°	735.6	647.5	534.3	401.0	310.6	201.9	112.7	53.5	7.3	2.8	2.8
45°	485.8	373.7	253.8	151.1	102.1	61.3	45.7	32.3	5.6	2.2	2.2
47.5°	162.3	103.2	75.3	54.1	46.3	36.8	29.6	20.1	3.9	1.7	1.7
50°	61.9	50.2	41.3	31.2	27.9	22.3	17.8	11.7	2.8	1.7	1.7
51°	48.5	39.6	32.3	24.5	22.3	17.8	14.5	10.0	2.2	1.7	1.7
52°	37.4	30.7	25.1	19.0	17.8	14.5	12.3	8.4	2.2	1.1	1.7
53°	28.4	23.4	19.0	14.5	13.9	11.7	10.0	6.7	1.7	1.1	1.7
54°	21.2	17.8	15.1	11.7	11.7	10.0	8.4	5.6	1.7	1.1	1.7
55°	16.2	13.4	11.7	8.9	9.5	8.4	7.3	4.5	1.7	1.1	1.7
57.5°	8.4	7.8	6.7	5.6	6.1	5.6	5.0	2.8	1.7	1.1	1.7
60°	5.0	4.5	3.9	3.3	3.9	3.9	3.9	1.7	1.7	1.1	1.7
61°	3.9	3.3	2.8	2.8	3.3	3.3	3.3	1.7	1.7	1.1	1.7
62°	2.8	2.8	2.2	2.2	3.3	2.8	2.8	1.7	1.7	1.1	1.7
63°	2.2	2.2	2.2	1.7	2.8	2.8	2.8	1.7	1.7	1.1	1.7
64°	1.7	1.7	1.7	1.7	2.2	2.8	2.8	1.1	1.7	1.1	1.7
65°	1.7	1.7	1.1	1.1	2.2	2.2	2.2	1.1	1.7	1.1	1.7
66°	1.1	1.1	1.1	1.1	2.2	2.2	2.2	1.1	1.7	1.1	1.7





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CATALOG NUMBER: LDA4A09840D010TE LAR15SP 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
72.5°	0.6	0.6	0.6	0.6	1.7	1.7	2.2	1.1	1.7	1.7	1.7
75°	0.6	0.6	0.6	0.6	1.7	1.7	2.2	1.1	1.7	1.7	1.7
77.5°	0.6	0.6	0.6	0.6	1.7	1.7	2.2	1.1	1.7	1.7	2.2
80°	0.6	0.6	0.6	0.6	1.7	1.7	2.2	1.1	1.7	1.7	2.2
82.5°	0.6	0.6	0.6	0.6	1.7	1.7	2.2	1.1	1.7	1.7	2.2
85°	0.6	0.6	0.6	0.6	1.7	1.7	2.2	1.1	1.7	1.7	2.2
87.5°	0.6	0.6	0.6	0.6	1.7	1.7	2.2	1.1	1.7	1.7	1.7
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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CATALOG NUMBER: LDA4A09840D010TE LAR15SP 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
0°	52.4	52.4	52.4
2.5°	39.6	37.9	36.8
5°	34.0	32.3	31.8
7.5°	31.8	31.2	31.8
10°	35.1	37.4	40.2
12.5°	46.8	55.2	59.7
15°	77.5	100.9	111.0
17.5°	136.6	155.6	166.8
20°	120.5	109.9	116.0
22.5°	65.3	56.9	58.6
25°	36.3	31.2	31.8
26°	29.0	25.1	25.1
27°	23.4	20.1	20.1
28°	19.0	16.2	16.2
29°	15.1	12.8	12.8
30°	12.3	10.6	10.6
31°	10.0	8.4	8.4
32°	8.4	7.3	6.7
33°	7.3	6.1	5.6
34°	6.1	5.0	4.5
35°	5.0	3.9	3.9
36°	4.5	3.3	3.3
37°	3.9	2.8	2.8
38°	3.3	2.2	2.2
39°	2.8	2.2	1.7
40°	2.2	1.7	1.1
42.5°	1.7	1.1	0.6
45°	1.7	0.6	0.0
47.5°	1.1	0.6	0.0
50°	1.1	0.0	0.0
51°	1.1	0.0	0.0
52°	1.1	0.0	0.0
53°	0.6	0.0	0.0
54°	1.1	0.0	0.0
55°	0.6	0.0	0.0
57.5°	1.1	0.0	0.0
60°	1.1	0.0	0.0
61°	1.1	0.0	0.0
62°	1.1	0.0	0.0
63°	1.1	0.0	0.0
64°	1.1	0.6	0.0
65°	1.1	0.6	0.0
66°	1.1	0.6	0.0



TEST NUMBER: P170912

CATALOG NUMBER: LDA4A09840D010TE LAR15SP 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
72.5°	1.1	0.6	0.0
75°	1.1	0.6	0.0
77.5°	1.1	0.6	0.0
80°	1.1	0.6	0.0
82.5°	1.1	0.6	0.0
85°	1.1	0.6	0.0
87.5°	1.1	0.6	0.0
90°	0.0	0.0	0.0



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









67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.1	1.1
70°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.1	1.1	0.6	0.6





67.5°	1.1	0.6	1.1	1.1	1.7	2.2	2.2	1.1	1.7	1.1	1.7
70°	0.6	0.6	0.6	0.6	1.7	1.7	2.2	1.1	1.7	1.1	1.7





67.5°	1.1	0.6	0.0
70°	1.1	0.6	0.0



(END OF REPORT)