

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: P170923

Luminaire Tested: **LDA4A13935D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170923
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: LDA4A13935D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1065.9 lumens
Efficiency: N/A
Efficacy: 47.9 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

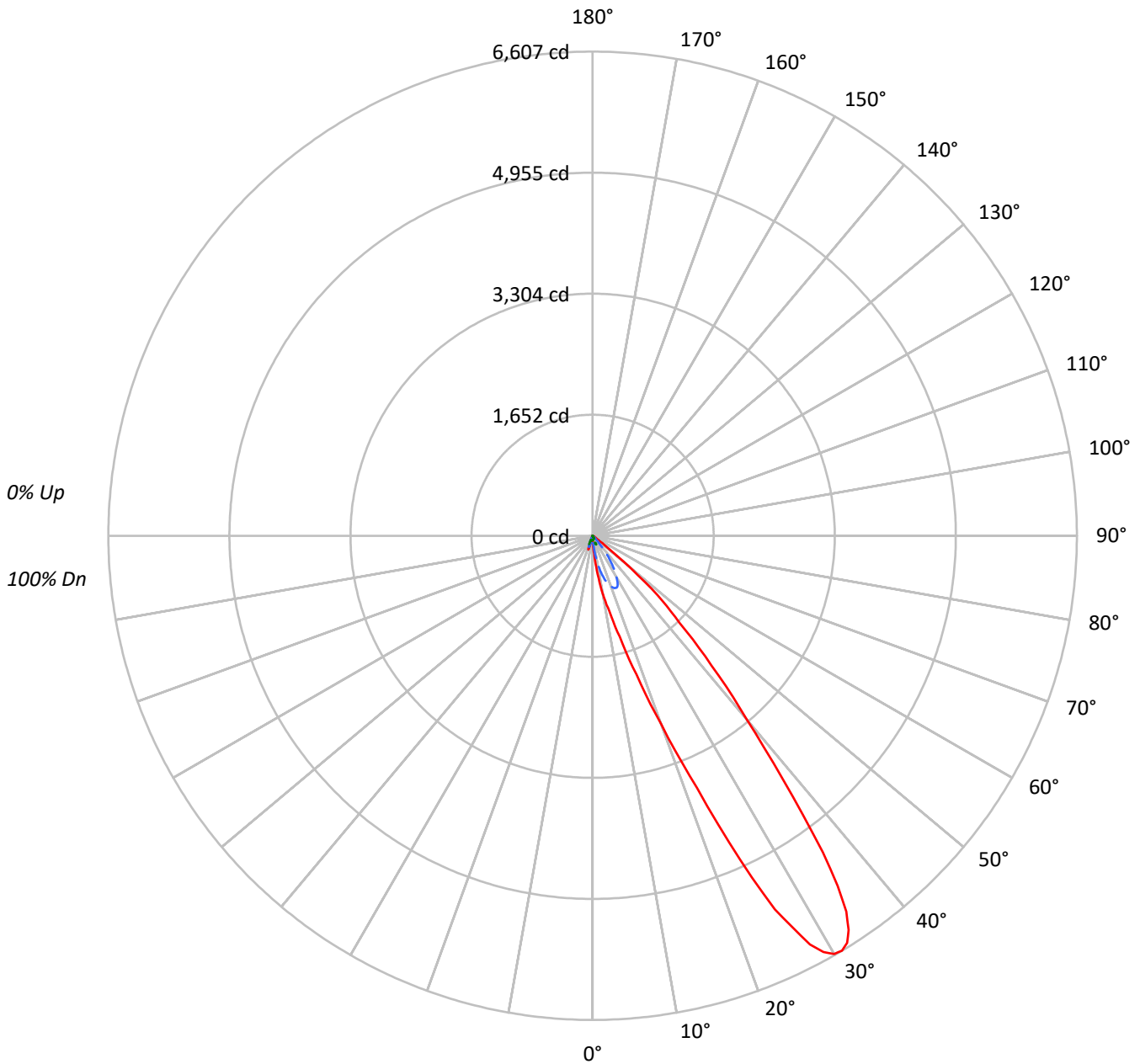
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	7672	7672	7672
5°	34396	7206	4668
10°	101827	6626	5962
15°	181789	7853	16805
20°	360090	15463	18062
25°	700708	10085	5131
30°	938610	3774	1795
35°	878272	1596	693
40°	526298	741	209
45°	292060	454	0
50°	107133	384	0
55°	16365	280	0
60°	3602	321	0
65°	1167	379	0
70°	252	469	0
75°	0	953	0
80°	0	1421	0
85°	0	2830	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	13.7	1.3
10°-20°	115.1	10.8
20°-30°	343.7	32.2
30°-40°	407.0	38.2
40°-50°	168.9	15.8
50°-60°	13.1	1.2
60°-70°	1.8	0.2
70°-80°	1.4	0.1
80°-90°	1.3	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°	472.5	44.3
0°-40°	879.5	82.5
0°-60°	1061.5	99.6
0°-90°	1065.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1065.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	62	62	62	62	62	
5°	278	140	58	40	38	44
15°	1424	601	62	92	132	470
25°	5149	781	74	43	38	2352
35°	5833	435	11	6	5	3380
45°	1674	38	3	2	0	1365
55°	76	5	1	1	0	111
65°	4	1	1	1	0	5
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°	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2
2.5°	107.8	102.5	105.2	100.6	103.2	98.6	95.3	98.6	98.6	95.9	92.0
5°	277.8	276.5	281.8	269.2	272.5	258.7	246.7	250.1	247.4	238.8	223.6
7.5°	529.2	523.9	529.9	512.0	512.7	489.5	471.7	475.6	463.7	449.2	422.7
10°	813.0	805.7	812.4	791.2	787.2	754.8	729.7	733.6	706.5	682.7	642.3
12.5°	1059.1	1058.4	1037.3	1041.2	1033.3	983.7	967.8	969.1	932.1	905.6	857.3
15°	1423.6	1437.5	1441.5	1414.3	1365.4	1275.4	1235.7	1220.5	1160.3	1116.0	1046.5
17.5°	1983.9	2003.1	1937.6	1953.5	1872.8	1731.9	1653.1	1606.2	1493.1	1409.7	1284.0
20°	2743.3	2726.8	2632.2	2620.3	2482.7	2301.4	2136.1	2047.4	1873.4	1751.7	1568.5
22.5°	3723.7	3711.2	3549.1	3477.0	3189.2	2933.9	2719.5	2497.3	2238.6	2075.9	1827.1
25°	5148.6	5091.1	4778.9	4573.8	4067.7	3633.8	3276.5	2931.2	2535.0	2358.3	2042.1
26°	5673.2	5659.3	5333.9	5064.0	4454.0	3915.6	3434.0	3088.0	2651.4	2445.0	2103.0
27°	5988.1	6098.6	5795.6	5490.0	4823.2	4178.2	3619.9	3214.3	2742.0	2505.9	2142.0
28°	6314.9	6386.4	6115.1	5731.4	5118.9	4387.2	3760.8	3299.7	2797.6	2535.6	2155.2
29°	6494.8	6563.6	6311.6	5951.7	5312.7	4522.8	3844.1	3337.4	2818.1	2535.0	2143.3
30°	6590.1	6654.3	6408.2	6058.9	5392.7	4565.2	3862.0	3322.2	2798.2	2504.5	2109.6
31°	6607.3	6660.9	6418.1	6055.6	5362.3	4512.9	3811.7	3259.3	2745.3	2448.3	2058.7
32°	6549.1	6590.8	6344.0	5957.7	5225.4	4380.6	3707.2	3162.1	2664.6	2378.2	1993.2
33°	6412.8	6487.6	6186.6	5759.9	4987.2	4184.8	3559.0	3035.1	2564.1	2286.9	1913.1
34°	6187.2	6234.9	5923.3	5450.3	4669.7	3946.7	3377.1	2887.6	2449.0	2179.1	1822.5
35°	5832.7	5875.0	5530.3	5032.2	4307.8	3678.1	3169.4	2724.8	2320.0	2058.0	1721.9
36°	5341.8	5382.2	5021.6	4567.8	3942.7	3398.3	2950.4	2547.5	2180.4	1928.3	1615.4
37°	4768.3	4803.3	4482.5	4112.0	3584.1	3115.1	2728.8	2367.6	2032.9	1796.0	1514.2
38°	4213.9	4245.7	3986.3	3684.7	3238.2	2838.6	2507.8	2181.0	1880.7	1663.1	1407.7
39°	3713.8	3741.6	3532.5	3283.8	2908.7	2573.3	2287.6	1995.8	1727.9	1530.1	1297.9
40°	3268.6	3292.4	3120.4	2916.0	2609.7	2325.3	2073.2	1816.5	1578.4	1401.1	1195.4
42.5°	2399.3	2404.6	2302.1	2181.7	1943.6	1780.2	1600.9	1415.7	1241.7	1120.0	989.0
45°	1674.3	1739.8	1673.0	1593.0	1422.3	1319.7	1205.3	1093.5	992.9	875.9	746.2
47.5°	1204.0	1206.6	1166.9	1116.7	981.7	911.6	817.6	682.0	582.1	416.1	308.9
50°	558.3	527.2	529.2	494.8	441.2	350.6	293.1	209.0	166.7	119.1	95.9
51°	332.1	308.9	312.2	287.8	252.0	196.5	166.7	133.6	115.8	90.0	74.1
52°	193.8	185.9	185.2	174.0	148.2	136.3	120.4	100.6	88.0	69.5	57.6
53°	140.9	135.6	135.6	128.3	110.5	102.5	91.3	77.4	67.5	52.9	43.7
54°	105.2	101.2	101.2	96.6	89.3	76.7	68.8	57.6	50.3	41.0	32.4
55°	76.1	73.4	73.4	70.1	64.8	55.6	49.6	41.7	37.0	29.8	23.8
57.5°	31.8	30.4	30.4	29.1	27.8	23.8	22.5	19.2	16.5	14.6	11.9
60°	14.6	13.9	14.6	13.9	12.6	13.2	11.2	9.9	9.3	7.9	6.6
61°	11.2	10.6	10.6	10.6	9.3	9.3	8.6	7.9	7.3	6.0	5.3
62°	8.6	7.9	7.9	7.9	7.3	7.3	6.6	6.0	6.0	4.6	4.0
63°	6.6	6.0	6.0	6.0	5.3	5.3	5.3	4.6	4.6	4.0	3.3
64°	4.6	4.6	4.6	4.6	4.6	4.0	4.0	4.0	3.3	2.6	2.6
65°	4.0	3.3	4.0	3.3	3.3	3.3	3.3	3.3	2.6	2.0	2.0
66°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.0	1.3



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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	0.7	0.7	0.7	0.7	0.7	0.7	0.7
75°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	0.7
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7
85°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	0.7
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7
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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CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2
2.5°	90.0	92.6	90.6	85.3	88.0	86.7	84.0	82.0	70.1	60.9	51.6
5°	212.3	214.3	203.1	183.2	176.6	166.0	150.8	140.2	79.4	58.2	45.6
7.5°	401.5	388.3	377.7	340.7	324.8	300.3	271.2	250.7	90.6	54.9	42.3
10°	607.9	586.8	564.9	510.7	482.3	444.5	402.9	379.1	102.5	52.9	42.3
12.5°	812.4	783.9	744.2	684.7	644.3	593.4	536.5	494.2	111.1	54.2	49.0
15°	989.6	955.2	911.6	844.1	797.1	733.6	659.5	601.3	115.1	61.5	68.1
17.5°	1182.8	1120.6	1048.5	962.5	910.9	837.5	754.1	683.4	115.1	78.1	109.2
20°	1405.1	1291.3	1175.5	1055.1	982.4	905.6	816.3	740.2	119.7	117.8	150.2
22.5°	1612.1	1455.4	1292.0	1135.2	1034.0	950.6	860.0	772.7	138.9	129.7	99.9
25°	1772.9	1573.8	1381.3	1190.7	1076.3	983.7	886.4	781.3	127.0	74.1	54.2
26°	1814.6	1599.6	1399.1	1197.4	1078.3	983.0	883.8	772.0	106.5	58.9	43.7
27°	1836.4	1608.2	1400.4	1191.4	1070.3	971.8	869.2	752.8	85.3	47.6	35.7
28°	1836.4	1598.2	1386.6	1174.9	1049.8	950.6	844.1	722.4	69.5	39.0	28.4
29°	1817.9	1572.4	1358.8	1149.7	1022.1	920.8	809.7	686.7	58.9	32.4	23.2
30°	1782.1	1534.7	1321.7	1117.3	986.3	887.1	772.0	649.6	50.9	26.5	18.5
31°	1731.9	1492.4	1276.1	1082.3	953.3	856.0	737.6	611.9	44.3	21.2	15.2
32°	1671.7	1439.5	1229.1	1045.9	926.1	826.9	701.9	572.2	38.4	17.9	13.2
33°	1602.2	1379.9	1180.2	1010.1	899.7	793.8	662.8	529.2	33.1	14.6	11.2
34°	1525.5	1314.4	1129.9	971.8	867.3	752.2	617.2	483.6	28.4	12.6	9.3
35°	1442.1	1241.0	1078.3	932.7	830.9	705.8	568.2	435.3	24.5	10.6	7.9
36°	1352.2	1172.2	1028.0	893.7	785.9	655.6	514.7	385.7	21.2	8.6	7.3
37°	1262.2	1107.4	978.4	852.0	733.6	598.7	458.4	334.1	18.5	7.3	6.0
38°	1176.9	1044.5	929.4	803.8	672.8	535.8	400.2	282.5	15.9	6.6	5.3
39°	1096.8	983.7	879.2	746.2	609.9	475.0	344.0	228.9	13.9	6.0	4.6
40°	1024.7	926.1	824.3	682.0	545.1	412.8	287.1	170.7	11.9	4.6	4.0
42.5°	872.6	768.0	633.7	475.6	368.5	239.5	133.6	63.5	8.6	3.3	3.3
45°	576.2	443.2	301.0	179.3	121.1	72.8	54.2	38.4	6.6	2.6	2.6
47.5°	192.5	122.4	89.3	64.2	54.9	43.7	35.1	23.8	4.6	2.0	2.0
50°	73.4	59.5	49.0	37.0	33.1	26.5	21.2	13.9	3.3	2.0	2.0
51°	57.6	47.0	38.4	29.1	26.5	21.2	17.2	11.9	2.6	2.0	2.0
52°	44.3	36.4	29.8	22.5	21.2	17.2	14.6	9.9	2.6	1.3	2.0
53°	33.7	27.8	22.5	17.2	16.5	13.9	11.9	7.9	2.0	1.3	2.0
54°	25.1	21.2	17.9	13.9	13.9	11.9	9.9	6.6	2.0	1.3	2.0
55°	19.2	15.9	13.9	10.6	11.2	9.9	8.6	5.3	2.0	1.3	2.0
57.5°	9.9	9.3	7.9	6.6	7.3	6.6	6.0	3.3	2.0	1.3	2.0
60°	6.0	5.3	4.6	4.0	4.6	4.6	4.6	2.0	2.0	1.3	2.0
61°	4.6	4.0	3.3	3.3	4.0	4.0	4.0	2.0	2.0	1.3	2.0
62°	3.3	3.3	2.6	2.6	4.0	3.3	3.3	2.0	2.0	1.3	2.0
63°	2.6	2.6	2.6	2.0	3.3	3.3	3.3	2.0	2.0	1.3	2.0
64°	2.0	2.0	2.0	2.0	2.6	3.3	3.3	1.3	2.0	1.3	2.0
65°	2.0	2.0	1.3	1.3	2.6	2.6	2.6	1.3	2.0	1.3	2.0
66°	1.3	1.3	1.3	1.3	2.6	2.6	2.6	1.3	2.0	1.3	2.0



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CATALOG NUMBER: LDA4A13935D010TE 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°	0.7	0.7	0.7	0.7	2.0	2.0	2.6	1.3	2.0	2.0	2.0
75°	0.7	0.7	0.7	0.7	2.0	2.0	2.6	1.3	2.0	2.0	2.0
77.5°	0.7	0.7	0.7	0.7	2.0	2.0	2.6	1.3	2.0	2.0	2.6
80°	0.7	0.7	0.7	0.7	2.0	2.0	2.6	1.3	2.0	2.0	2.6
82.5°	0.7	0.7	0.7	0.7	2.0	2.0	2.6	1.3	2.0	2.0	2.6
85°	0.7	0.7	0.7	0.7	2.0	2.0	2.6	1.3	2.0	2.0	2.6
87.5°	0.7	0.7	0.7	0.7	2.0	2.0	2.6	1.3	2.0	2.0	2.0
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°	62.2	62.2	62.2
2.5°	47.0	45.0	43.7
5°	40.4	38.4	37.7
7.5°	37.7	37.0	37.7
10°	41.7	44.3	47.6
12.5°	55.6	65.5	70.8
15°	92.0	119.7	131.6
17.5°	162.1	184.6	197.8
20°	142.9	130.3	137.6
22.5°	77.4	67.5	69.5
25°	43.0	37.0	37.7
26°	34.4	29.8	29.8
27°	27.8	23.8	23.8
28°	22.5	19.2	19.2
29°	17.9	15.2	15.2
30°	14.6	12.6	12.6
31°	11.9	9.9	9.9
32°	9.9	8.6	7.9
33°	8.6	7.3	6.6
34°	7.3	6.0	5.3
35°	6.0	4.6	4.6
36°	5.3	4.0	4.0
37°	4.6	3.3	3.3
38°	4.0	2.6	2.6
39°	3.3	2.6	2.0
40°	2.6	2.0	1.3
42.5°	2.0	1.3	0.7
45°	2.0	0.7	0.0
47.5°	1.3	0.7	0.0
50°	1.3	0.0	0.0
51°	1.3	0.0	0.0
52°	1.3	0.0	0.0
53°	0.7	0.0	0.0
54°	1.3	0.0	0.0
55°	0.7	0.0	0.0
57.5°	1.3	0.0	0.0
60°	1.3	0.0	0.0
61°	1.3	0.0	0.0
62°	1.3	0.0	0.0
63°	1.3	0.0	0.0
64°	1.3	0.7	0.0
65°	1.3	0.7	0.0
66°	1.3	0.7	0.0



TEST NUMBER: P170923

CATALOG NUMBER: LDA4A13935D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.3	0.7	0.0
75°	1.3	0.7	0.0
77.5°	1.3	0.7	0.0
80°	1.3	0.7	0.0
82.5°	1.3	0.7	0.0
85°	1.3	0.7	0.0
87.5°	1.3	0.7	0.0
90°	0.0	0.0	0.0



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







67.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.3	1.3
70°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	1.3	0.7	0.7





67.5°	1.3	0.7	1.3	1.3	2.0	2.6	2.6	1.3	2.0	1.3	2.0
70°	0.7	0.7	0.7	0.7	2.0	2.0	2.6	1.3	2.0	1.3	2.0





67.5°	1.3	0.7	0.0
70°	1.3	0.7	0.0



(END OF REPORT)