

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: P170913

Luminaire Tested: **LDA4A09927D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170913
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: LDA4A09927D010TE 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: 618.4 lumens
Efficiency: N/A
Efficacy: 44.7 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

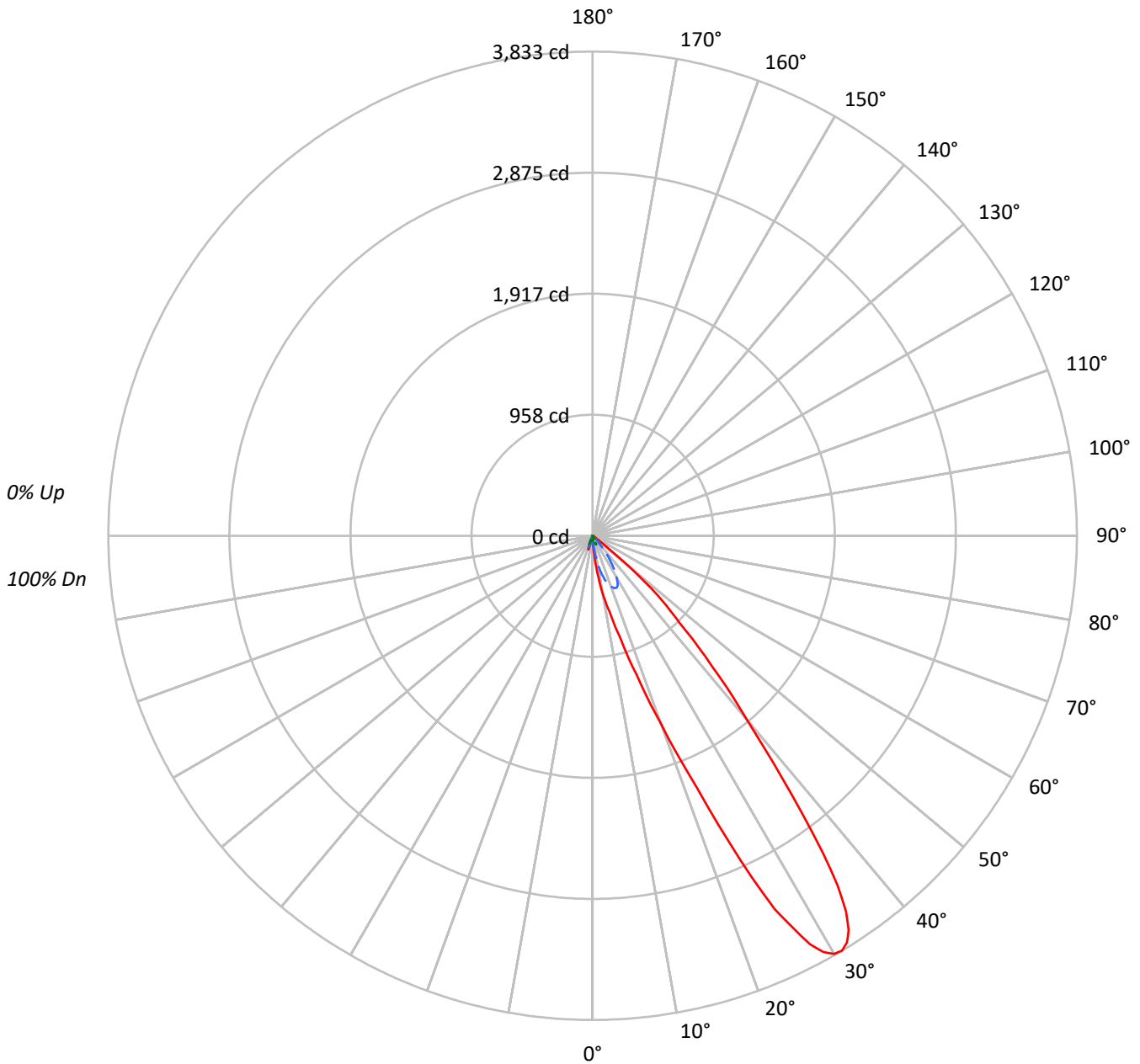
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	48																			
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°	4453	4453	4453
5°	19959	4185	2712
10°	59067	3845	3457
15°	105452	4559	9756
20°	208877	8965	10475
25°	406453	5852	2981
30°	544442	2179	1040
35°	509448	919	407
40°	305287	435	129
45°	169413	262	0
50°	62154	230	0
55°	9484	172	0
60°	2072	197	0
65°	671	233	0
70°	144	289	0
75°	0	572	0
80°	0	852	0
85°	0	1698	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	7.9	1.3
10°-20°	66.8	10.8
20°-30°	199.4	32.2
30°-40°	236.1	38.2
40°-50°	98.0	15.8
50°-60°	7.6	1.2
60°-70°	1.1	0.2
70°-80°	0.8	0.1
80°-90°	0.8	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°	274.1	44.3
0°-40°	510.2	82.5
0°-60°	615.7	99.6
0°-90°	618.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	618.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	36	36	36	36	36	
5°	161	81	34	23	22	26
15°	826	349	36	53	76	273
25°	2986	453	43	25	22	1364
35°	3383	252	6	4	3	1961
45°	971	22	2	1	0	792
55°	44	3	1	0	0	65
65°	2	1	1	1	0	3
75°	0	1	1	1	0	0
85°	0	1	1	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°	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1
2.5°	62.5	59.5	61.0	58.3	59.9	57.2	55.3	57.2	57.2	55.6	53.3
5°	161.2	160.4	163.5	156.2	158.1	150.0	143.1	145.0	143.5	138.5	129.7
7.5°	307.0	303.9	307.4	297.0	297.4	284.0	273.6	275.9	269.0	260.5	245.2
10°	471.6	467.4	471.2	458.9	456.6	437.8	423.2	425.5	409.8	396.0	372.6
12.5°	614.3	614.0	601.7	604.0	599.4	570.6	561.4	562.2	540.7	525.3	497.3
15°	825.8	833.8	836.1	820.4	792.0	739.8	716.8	708.0	673.0	647.3	607.0
17.5°	1150.8	1161.9	1123.9	1133.1	1086.3	1004.6	958.9	931.7	866.1	817.7	744.8
20°	1591.3	1581.7	1526.8	1519.9	1440.1	1335.0	1239.0	1187.6	1086.7	1016.1	909.8
22.5°	2160.0	2152.7	2058.7	2016.8	1849.9	1701.8	1577.5	1448.6	1298.5	1204.1	1059.8
25°	2986.5	2953.1	2772.0	2653.1	2359.5	2107.8	1900.6	1700.3	1470.4	1368.0	1184.5
26°	3290.8	3282.7	3093.9	2937.4	2583.6	2271.2	1991.9	1791.2	1538.0	1418.2	1219.9
27°	3473.5	3537.5	3361.8	3184.5	2797.7	2423.6	2099.7	1864.5	1590.5	1453.5	1242.5
28°	3663.0	3704.5	3547.1	3324.6	2969.2	2544.8	2181.5	1914.0	1622.8	1470.8	1250.2
29°	3767.4	3807.3	3661.1	3452.3	3081.7	2623.5	2229.8	1935.9	1634.7	1470.4	1243.3
30°	3822.6	3859.9	3717.1	3514.5	3128.1	2648.1	2240.2	1927.1	1623.1	1452.8	1223.7
31°	3832.6	3863.7	3722.9	3512.6	3110.4	2617.8	2211.0	1890.6	1592.4	1420.2	1194.1
32°	3798.8	3823.0	3679.9	3455.8	3031.0	2541.0	2150.4	1834.2	1545.6	1379.5	1156.2
33°	3719.8	3763.2	3588.6	3341.1	2892.9	2427.4	2064.4	1760.5	1487.3	1326.5	1109.7
34°	3589.0	3616.6	3435.8	3161.5	2708.7	2289.3	1958.9	1674.9	1420.5	1264.0	1057.2
35°	3383.3	3407.8	3207.9	2919.0	2498.8	2133.5	1838.4	1580.6	1345.7	1193.8	998.8
36°	3098.6	3122.0	2912.8	2649.6	2287.0	1971.2	1711.4	1477.7	1264.7	1118.5	937.0
37°	2765.9	2786.2	2600.1	2385.2	2079.0	1806.9	1582.9	1373.3	1179.2	1041.8	878.3
38°	2444.3	2462.7	2312.3	2137.3	1878.3	1646.6	1454.7	1265.1	1090.9	964.7	816.6
39°	2154.2	2170.3	2049.1	1904.8	1687.2	1492.7	1326.9	1157.7	1002.3	887.5	752.9
40°	1896.0	1909.8	1810.0	1691.4	1513.8	1348.8	1202.6	1053.7	915.6	812.7	693.4
42.5°	1391.8	1394.8	1335.4	1265.5	1127.4	1032.6	928.6	821.2	720.2	649.6	573.7
45°	971.2	1009.2	970.4	924.0	825.0	765.5	699.1	634.3	576.0	508.0	432.8
47.5°	698.4	699.9	676.9	647.7	569.4	528.8	474.3	395.6	337.7	241.4	179.2
50°	323.9	305.8	307.0	287.0	255.9	203.4	170.0	121.3	96.7	69.1	55.6
51°	192.6	179.2	181.1	166.9	146.2	114.0	96.7	77.5	67.2	52.2	43.0
52°	112.4	107.8	107.4	100.9	86.0	79.0	69.8	58.3	51.0	40.3	33.4
53°	81.7	78.7	78.7	74.4	64.1	59.5	53.0	44.9	39.1	30.7	25.3
54°	61.0	58.7	58.7	56.0	51.8	44.5	39.9	33.4	29.2	23.8	18.8
55°	44.1	42.6	42.6	40.7	37.6	32.2	28.8	24.2	21.5	17.3	13.8
57.5°	18.4	17.7	17.7	16.9	16.1	13.8	13.0	11.1	9.6	8.4	6.9
60°	8.4	8.1	8.4	8.1	7.3	7.7	6.5	5.8	5.4	4.6	3.8
61°	6.5	6.1	6.1	6.1	5.4	5.4	5.0	4.6	4.2	3.5	3.1
62°	5.0	4.6	4.6	4.6	4.2	4.2	3.8	3.5	3.5	2.7	2.3
63°	3.8	3.5	3.5	3.5	3.1	3.1	3.1	2.7	2.7	2.3	1.9
64°	2.7	2.7	2.7	2.7	2.7	2.3	2.3	2.3	1.9	1.5	1.5
65°	2.3	1.9	2.3	1.9	1.9	1.9	1.9	1.9	1.5	1.2	1.2
66°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.2	0.8



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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	0.4	0.4	0.4	0.4	0.4	0.4	0.4
75°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4
85°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4
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):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1
2.5°	52.2	53.7	52.6	49.5	51.0	50.3	48.7	47.6	40.7	35.3	29.9
5°	123.2	124.3	117.8	106.3	102.5	96.3	87.5	81.3	46.0	33.8	26.5
7.5°	232.9	225.2	219.1	197.6	188.4	174.2	157.3	145.4	52.6	31.8	24.6
10°	352.6	340.4	327.7	296.2	279.7	257.9	233.7	219.9	59.5	30.7	24.6
12.5°	471.2	454.7	431.7	397.2	373.7	344.2	311.2	286.6	64.5	31.5	28.4
15°	574.0	554.1	528.8	489.6	462.4	425.5	382.6	348.8	66.8	35.7	39.5
17.5°	686.1	650.0	608.2	558.3	528.4	485.8	437.4	396.4	66.8	45.3	63.3
20°	815.0	749.0	681.9	612.0	569.8	525.3	473.5	429.4	69.5	68.3	87.1
22.5°	935.1	844.2	749.4	658.5	599.8	551.4	498.8	448.2	80.6	75.2	57.9
25°	1028.4	912.9	801.2	690.7	624.3	570.6	514.2	453.2	73.7	43.0	31.5
26°	1052.5	927.8	811.6	694.5	625.5	570.2	512.7	447.8	61.8	34.2	25.3
27°	1065.2	932.8	812.3	691.1	620.9	563.7	504.2	436.7	49.5	27.6	20.7
28°	1065.2	927.1	804.3	681.5	609.0	551.4	489.6	419.0	40.3	22.6	16.5
29°	1054.5	912.1	788.2	666.9	592.9	534.1	469.7	398.3	34.2	18.8	13.4
30°	1033.7	890.2	766.7	648.1	572.1	514.6	447.8	376.8	29.5	15.3	10.7
31°	1004.6	865.7	740.2	627.8	552.9	496.5	427.8	354.9	25.7	12.3	8.8
32°	969.7	835.0	713.0	606.7	537.2	479.7	407.1	331.9	22.3	10.4	7.7
33°	929.4	800.4	684.6	585.9	521.9	460.5	384.5	307.0	19.2	8.4	6.5
34°	884.9	762.5	655.4	563.7	503.1	436.3	358.0	280.5	16.5	7.3	5.4
35°	836.5	719.9	625.5	541.0	482.0	409.4	329.6	252.5	14.2	6.1	4.6
36°	784.3	680.0	596.3	518.4	455.9	380.3	298.5	223.7	12.3	5.0	4.2
37°	732.1	642.4	567.5	494.2	425.5	347.3	265.9	193.8	10.7	4.2	3.5
38°	682.6	605.9	539.1	466.2	390.2	310.8	232.2	163.8	9.2	3.8	3.1
39°	636.2	570.6	510.0	432.8	353.8	275.5	199.5	132.8	8.1	3.5	2.7
40°	594.4	537.2	478.1	395.6	316.2	239.4	166.5	99.0	6.9	2.7	2.3
42.5°	506.1	445.5	367.6	275.9	213.7	138.9	77.5	36.8	5.0	1.9	1.9
45°	334.2	257.1	174.6	104.0	70.2	42.2	31.5	22.3	3.8	1.5	1.5
47.5°	111.7	71.0	51.8	37.2	31.8	25.3	20.3	13.8	2.7	1.2	1.2
50°	42.6	34.5	28.4	21.5	19.2	15.3	12.3	8.1	1.9	1.2	1.2
51°	33.4	27.2	22.3	16.9	15.3	12.3	10.0	6.9	1.5	1.2	1.2
52°	25.7	21.1	17.3	13.0	12.3	10.0	8.4	5.8	1.5	0.8	1.2
53°	19.6	16.1	13.0	10.0	9.6	8.1	6.9	4.6	1.2	0.8	1.2
54°	14.6	12.3	10.4	8.1	8.1	6.9	5.8	3.8	1.2	0.8	1.2
55°	11.1	9.2	8.1	6.1	6.5	5.8	5.0	3.1	1.2	0.8	1.2
57.5°	5.8	5.4	4.6	3.8	4.2	3.8	3.5	1.9	1.2	0.8	1.2
60°	3.5	3.1	2.7	2.3	2.7	2.7	2.7	1.2	1.2	0.8	1.2
61°	2.7	2.3	1.9	1.9	2.3	2.3	2.3	1.2	1.2	0.8	1.2
62°	1.9	1.9	1.5	1.5	2.3	1.9	1.9	1.2	1.2	0.8	1.2
63°	1.5	1.5	1.5	1.2	1.9	1.9	1.9	1.2	1.2	0.8	1.2
64°	1.2	1.2	1.2	1.2	1.5	1.9	1.9	0.8	1.2	0.8	1.2
65°	1.2	1.2	0.8	0.8	1.5	1.5	1.5	0.8	1.2	0.8	1.2
66°	0.8	0.8	0.8	0.8	1.5	1.5	1.5	0.8	1.2	0.8	1.2



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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°	0.4	0.4	0.4	0.4	1.2	1.2	1.5	0.8	1.2	1.2	1.2
75°	0.4	0.4	0.4	0.4	1.2	1.2	1.5	0.8	1.2	1.2	1.2
77.5°	0.4	0.4	0.4	0.4	1.2	1.2	1.5	0.8	1.2	1.2	1.5
80°	0.4	0.4	0.4	0.4	1.2	1.2	1.5	0.8	1.2	1.2	1.5
82.5°	0.4	0.4	0.4	0.4	1.2	1.2	1.5	0.8	1.2	1.2	1.5
85°	0.4	0.4	0.4	0.4	1.2	1.2	1.5	0.8	1.2	1.2	1.5
87.5°	0.4	0.4	0.4	0.4	1.2	1.2	1.5	0.8	1.2	1.2	1.2
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: LDA4A09927D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	36.1	36.1	36.1
2.5°	27.2	26.1	25.3
5°	23.4	22.3	21.9
7.5°	21.9	21.5	21.9
10°	24.2	25.7	27.6
12.5°	32.2	38.0	41.1
15°	53.3	69.5	76.4
17.5°	94.0	107.1	114.7
20°	82.9	75.6	79.8
22.5°	44.9	39.1	40.3
25°	24.9	21.5	21.9
26°	20.0	17.3	17.3
27°	16.1	13.8	13.8
28°	13.0	11.1	11.1
29°	10.4	8.8	8.8
30°	8.4	7.3	7.3
31°	6.9	5.8	5.8
32°	5.8	5.0	4.6
33°	5.0	4.2	3.8
34°	4.2	3.5	3.1
35°	3.5	2.7	2.7
36°	3.1	2.3	2.3
37°	2.7	1.9	1.9
38°	2.3	1.5	1.5
39°	1.9	1.5	1.2
40°	1.5	1.2	0.8
42.5°	1.2	0.8	0.4
45°	1.2	0.4	0.0
47.5°	0.8	0.4	0.0
50°	0.8	0.0	0.0
51°	0.8	0.0	0.0
52°	0.8	0.0	0.0
53°	0.4	0.0	0.0
54°	0.8	0.0	0.0
55°	0.4	0.0	0.0
57.5°	0.8	0.0	0.0
60°	0.8	0.0	0.0
61°	0.8	0.0	0.0
62°	0.8	0.0	0.0
63°	0.8	0.0	0.0
64°	0.8	0.4	0.0
65°	0.8	0.4	0.0
66°	0.8	0.4	0.0



TEST NUMBER: P170913

CATALOG NUMBER: LDA4A09927D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	0.8	0.4	0.0
75°	0.8	0.4	0.0
77.5°	0.8	0.4	0.0
80°	0.8	0.4	0.0
82.5°	0.8	0.4	0.0
85°	0.8	0.4	0.0
87.5°	0.8	0.4	0.0
90°	0.0	0.0	0.0



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







67.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.8	0.8
70°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	0.8	0.4	0.4





67.5°	0.8	0.4	0.8	0.8	1.2	1.5	1.5	0.8	1.2	0.8	1.2
70°	0.4	0.4	0.4	0.4	1.2	1.2	1.5	0.8	1.2	0.8	1.2





67.5°	0.8	0.4	0.0
70°	0.8	0.4	0.0



(END OF REPORT)