

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: P170916

Luminaire Tested: **LDA4A09940D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170916
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: LDA4A09940D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 771.2 lumens
Efficiency: N/A
Efficacy: 55.7 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

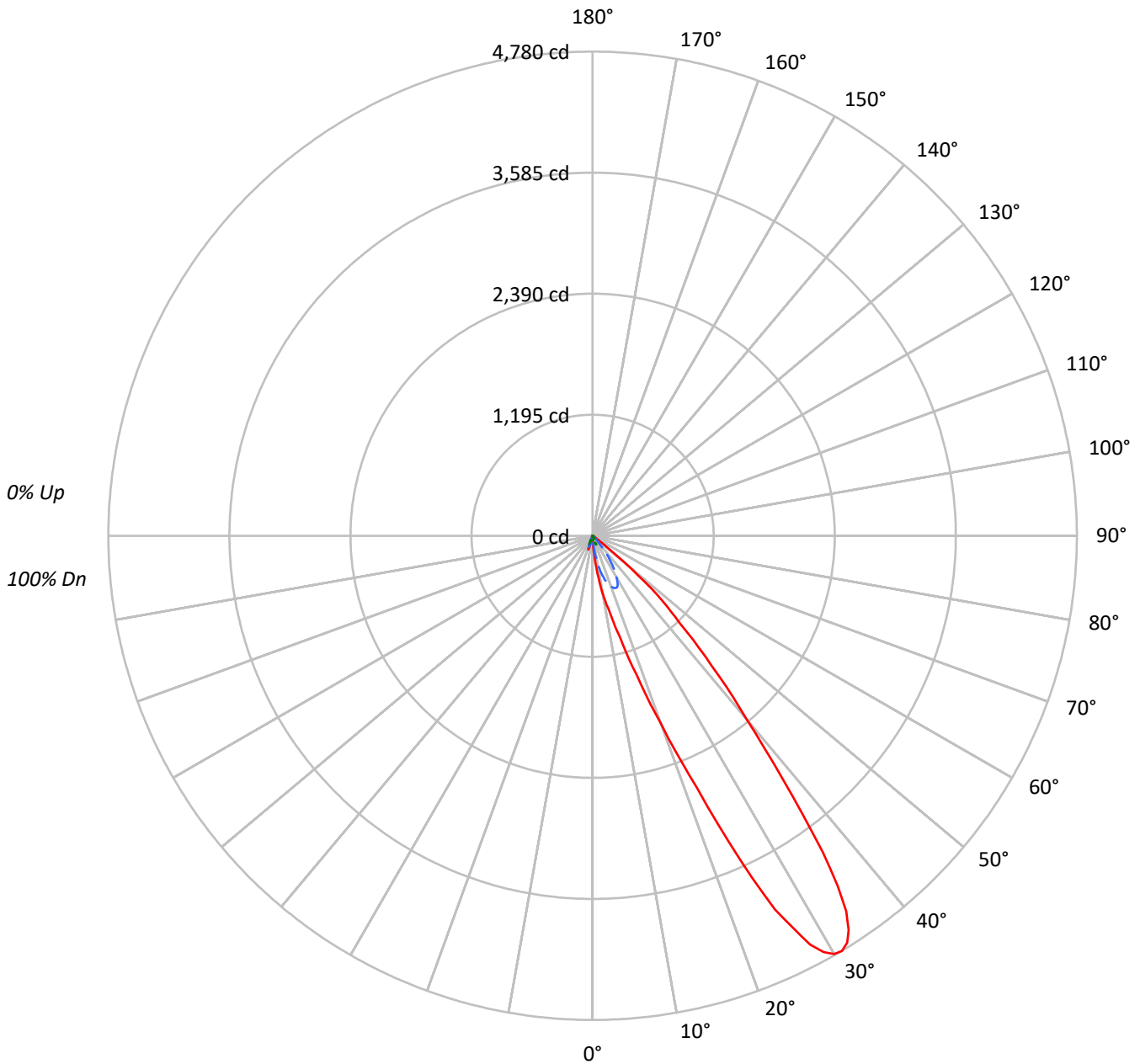
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					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	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°	5551	5551	5551
5°	24887	5213	3380
10°	73671	4797	4321
15°	131515	5683	12157
20°	260528	11183	13061
25°	506961	7295	3715
30°	679065	2720	1296
35°	635406	1159	512
40°	380771	547	161
45°	211296	331	0
50°	77505	269	0
55°	11828	215	0
60°	2590	247	0
65°	846	292	0
70°	180	361	0
75°	0	667	0
80°	0	994	0
85°	0	1981	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	9.9	1.3
10°-20°	83.3	10.8
20°-30°	248.6	32.2
30°-40°	294.5	38.2
40°-50°	122.2	15.8
50°-60°	9.5	1.2
60°-70°	1.3	0.2
70°-80°	1.0	0.1
80°-90°	0.9	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°	341.8	44.3
0°-40°	636.3	82.5
0°-60°	768.0	99.6
0°-90°	771.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	771.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	45	45	45	45	45	
5°	201	102	42	29	27	32
15°	1030	435	44	66	95	340
25°	3725	565	54	31	27	1701
35°	4220	315	8	4	3	2445
45°	1211	28	2	1	0	988
55°	55	4	1	0	0	81
65°	3	1	1	1	0	4
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°	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
2.5°	78.0	74.2	76.1	72.7	74.7	71.3	68.9	71.3	71.3	69.4	66.5
5°	201.0	200.1	203.9	194.8	197.2	187.1	178.5	180.9	179.0	172.8	161.8
7.5°	382.9	379.1	383.4	370.4	370.9	354.2	341.2	344.1	335.5	325.0	305.8
10°	588.2	582.9	587.7	572.4	569.5	546.1	527.9	530.8	511.1	493.9	464.7
12.5°	766.2	765.8	750.4	753.3	747.6	711.7	700.2	701.2	674.3	655.2	620.3
15°	1029.9	1040.0	1042.9	1023.2	987.8	922.7	894.0	883.0	839.5	807.4	757.1
17.5°	1435.3	1449.2	1401.8	1413.3	1354.9	1253.0	1196.0	1162.0	1080.2	1019.9	929.0
20°	1984.8	1972.8	1904.4	1895.7	1796.2	1665.1	1545.4	1481.3	1355.4	1267.3	1134.8
22.5°	2694.0	2685.0	2567.7	2515.5	2307.3	2122.6	1967.5	1806.7	1619.6	1501.9	1321.9
25°	3725.0	3683.3	3457.4	3309.0	2942.9	2629.0	2370.5	2120.7	1834.0	1706.2	1477.4
26°	4104.5	4094.4	3859.0	3663.7	3222.4	2832.8	2484.4	2234.1	1918.2	1768.9	1521.5
27°	4332.3	4412.2	4193.0	3971.9	3489.5	3022.8	2618.9	2325.5	1983.8	1812.9	1549.7
28°	4568.7	4620.4	4424.2	4146.6	3703.4	3174.1	2720.8	2387.3	2024.0	1834.5	1559.3
29°	4698.9	4748.7	4566.3	4306.0	3843.6	3272.2	2781.2	2414.5	2038.8	1834.0	1550.7
30°	4767.8	4814.2	4636.2	4383.5	3901.6	3302.8	2794.1	2403.5	2024.5	1812.0	1526.3
31°	4780.3	4819.0	4643.4	4381.1	3879.5	3265.0	2757.7	2358.1	1986.2	1771.3	1489.4
32°	4738.2	4768.3	4589.8	4310.3	3780.5	3169.3	2682.1	2287.7	1927.8	1720.6	1442.0
33°	4639.6	4693.6	4475.9	4167.2	3608.2	3027.6	2574.9	2195.8	1855.1	1654.5	1384.1
34°	4476.4	4510.8	4285.4	3943.2	3378.4	2855.3	2443.3	2089.1	1771.8	1576.5	1318.5
35°	4219.8	4250.5	4001.1	3640.7	3116.7	2661.0	2293.0	1971.4	1678.5	1488.9	1245.8
36°	3864.7	3893.9	3633.1	3304.7	2852.5	2458.6	2134.6	1843.1	1577.5	1395.1	1168.7
37°	3449.8	3475.1	3243.0	2975.0	2593.1	2253.7	1974.2	1712.9	1470.7	1299.4	1095.5
38°	3048.7	3071.7	2884.0	2665.8	2342.8	2053.7	1814.4	1577.9	1360.7	1203.2	1018.5
39°	2686.9	2707.0	2555.7	2375.8	2104.4	1861.8	1655.0	1443.9	1250.1	1107.0	939.0
40°	2364.8	2382.0	2257.6	2109.7	1888.1	1682.3	1499.9	1314.2	1141.9	1013.7	864.8
42.5°	1735.9	1739.7	1665.5	1578.4	1406.1	1287.9	1158.2	1024.2	898.3	810.3	715.5
45°	1211.3	1258.7	1210.4	1152.5	1029.0	954.8	872.0	791.1	718.4	633.7	539.9
47.5°	871.1	873.0	844.3	807.9	710.2	659.5	591.6	493.4	421.2	301.0	223.5
50°	403.9	381.4	382.9	358.0	319.2	253.7	212.0	151.2	120.6	86.1	69.4
51°	240.3	223.5	225.9	208.2	182.3	142.1	120.6	96.7	83.8	65.1	53.6
52°	140.2	134.5	134.0	125.9	107.2	98.6	87.1	72.7	63.7	50.3	41.6
53°	101.9	98.1	98.1	92.8	79.9	74.2	66.0	56.0	48.8	38.3	31.6
54°	76.1	73.2	73.2	69.9	64.6	55.5	49.8	41.6	36.4	29.7	23.5
55°	55.0	53.1	53.1	50.7	46.9	40.2	35.9	30.2	26.8	21.5	17.2
57.5°	23.0	22.0	22.0	21.1	20.1	17.2	16.3	13.9	12.0	10.5	8.6
60°	10.5	10.1	10.5	10.1	9.1	9.6	8.1	7.2	6.7	5.7	4.8
61°	8.1	7.7	7.7	7.7	6.7	6.7	6.2	5.7	5.3	4.3	3.8
62°	6.2	5.7	5.7	5.7	5.3	5.3	4.8	4.3	4.3	3.4	2.9
63°	4.8	4.3	4.3	4.3	3.8	3.8	3.8	3.4	3.4	2.9	2.4
64°	3.4	3.4	3.4	3.4	3.4	2.9	2.9	2.9	2.4	1.9	1.9
65°	2.9	2.4	2.9	2.4	2.4	2.4	2.4	2.4	1.9	1.4	1.4
66°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.0



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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	0.5	0.5	0.5	0.5	0.5	0.5	0.5
75°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5
85°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5
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):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
2.5°	65.1	67.0	65.6	61.7	63.7	62.7	60.8	59.3	50.7	44.0	37.3
5°	153.6	155.1	146.9	132.6	127.8	120.1	109.1	101.5	57.4	42.1	33.0
7.5°	290.5	280.9	273.3	246.5	235.0	217.3	196.2	181.4	65.6	39.7	30.6
10°	439.8	424.5	408.7	369.5	348.9	321.6	291.5	274.2	74.2	38.3	30.6
12.5°	587.7	567.1	538.4	495.4	466.2	429.3	388.1	357.5	80.4	39.2	35.4
15°	716.0	691.1	659.5	610.7	576.7	530.8	477.2	435.0	83.3	44.5	49.3
17.5°	855.7	810.8	758.6	696.4	659.0	605.9	545.6	494.4	83.3	56.5	79.0
20°	1016.5	934.2	850.5	763.4	710.7	655.2	590.6	535.6	86.6	85.2	108.6
22.5°	1166.4	1052.9	934.7	821.3	748.1	687.7	622.2	559.0	100.5	93.8	72.3
25°	1282.7	1138.6	999.3	861.5	778.7	711.7	641.3	565.2	91.9	53.6	39.2
26°	1312.8	1157.3	1012.2	866.3	780.1	711.2	639.4	558.5	77.1	42.6	31.6
27°	1328.6	1163.5	1013.2	862.0	774.4	703.1	628.9	544.6	61.7	34.5	25.8
28°	1328.6	1156.3	1003.1	850.0	759.5	687.7	610.7	522.6	50.3	28.2	20.6
29°	1315.2	1137.6	983.0	831.8	739.4	666.2	585.8	496.8	42.6	23.5	16.8
30°	1289.4	1110.4	956.2	808.4	713.6	641.8	558.5	470.0	36.9	19.1	13.4
31°	1253.0	1079.7	923.2	783.0	689.7	619.3	533.6	442.7	32.1	15.3	11.0
32°	1209.4	1041.4	889.2	756.7	670.0	598.3	507.8	414.0	27.8	12.9	9.6
33°	1159.2	998.4	853.8	730.8	650.9	574.3	479.6	382.9	23.9	10.5	8.1
34°	1103.7	951.0	817.5	703.1	627.4	544.2	446.5	349.9	20.6	9.1	6.7
35°	1043.4	897.9	780.1	674.8	601.1	510.7	411.1	314.9	17.7	7.7	5.7
36°	978.3	848.1	743.7	646.6	568.6	474.3	372.4	279.0	15.3	6.2	5.3
37°	913.2	801.2	707.9	616.4	530.8	433.1	331.7	241.7	13.4	5.3	4.3
38°	851.4	755.7	672.4	581.5	486.7	387.7	289.6	204.4	11.5	4.8	3.8
39°	793.5	711.7	636.1	539.9	441.3	343.6	248.9	165.6	10.1	4.3	3.4
40°	741.4	670.0	596.3	493.4	394.4	298.6	207.7	123.5	8.6	3.4	2.9
42.5°	631.3	555.7	458.5	344.1	266.6	173.3	96.7	45.9	6.2	2.4	2.4
45°	416.9	320.7	217.8	129.7	87.6	52.6	39.2	27.8	4.8	1.9	1.9
47.5°	139.3	88.5	64.6	46.4	39.7	31.6	25.4	17.2	3.4	1.4	1.4
50°	53.1	43.1	35.4	26.8	23.9	19.1	15.3	10.1	2.4	1.4	1.4
51°	41.6	34.0	27.8	21.1	19.1	15.3	12.4	8.6	1.9	1.4	1.4
52°	32.1	26.3	21.5	16.3	15.3	12.4	10.5	7.2	1.9	1.0	1.4
53°	24.4	20.1	16.3	12.4	12.0	10.1	8.6	5.7	1.4	1.0	1.4
54°	18.2	15.3	12.9	10.1	10.1	8.6	7.2	4.8	1.4	1.0	1.4
55°	13.9	11.5	10.1	7.7	8.1	7.2	6.2	3.8	1.4	1.0	1.4
57.5°	7.2	6.7	5.7	4.8	5.3	4.8	4.3	2.4	1.4	1.0	1.4
60°	4.3	3.8	3.4	2.9	3.4	3.4	3.4	1.4	1.4	1.0	1.4
61°	3.4	2.9	2.4	2.4	2.9	2.9	2.9	1.4	1.4	1.0	1.4
62°	2.4	2.4	1.9	1.9	2.9	2.4	2.4	1.4	1.4	1.0	1.4
63°	1.9	1.9	1.9	1.4	2.4	2.4	2.4	1.4	1.4	1.0	1.4
64°	1.4	1.4	1.4	1.4	1.9	2.4	2.4	1.0	1.4	1.0	1.4
65°	1.4	1.4	1.0	1.0	1.9	1.9	1.9	1.0	1.4	1.0	1.4
66°	1.0	1.0	1.0	1.0	1.9	1.9	1.9	1.0	1.4	1.0	1.4



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CATALOG NUMBER: LDA4A09940D010TE 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°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.4
75°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.4
77.5°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.9
80°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.9
82.5°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.9
85°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.9
87.5°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.4
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):

	135°	157.5°	180°
0°	45.0	45.0	45.0
2.5°	34.0	32.5	31.6
5°	29.2	27.8	27.3
7.5°	27.3	26.8	27.3
10°	30.2	32.1	34.5
12.5°	40.2	47.4	51.2
15°	66.5	86.6	95.2
17.5°	117.3	133.5	143.1
20°	103.4	94.3	99.5
22.5°	56.0	48.8	50.3
25°	31.1	26.8	27.3
26°	24.9	21.5	21.5
27°	20.1	17.2	17.2
28°	16.3	13.9	13.9
29°	12.9	11.0	11.0
30°	10.5	9.1	9.1
31°	8.6	7.2	7.2
32°	7.2	6.2	5.7
33°	6.2	5.3	4.8
34°	5.3	4.3	3.8
35°	4.3	3.4	3.4
36°	3.8	2.9	2.9
37°	3.4	2.4	2.4
38°	2.9	1.9	1.9
39°	2.4	1.9	1.4
40°	1.9	1.4	1.0
42.5°	1.4	1.0	0.5
45°	1.4	0.5	0.0
47.5°	1.0	0.5	0.0
50°	1.0	0.0	0.0
51°	1.0	0.0	0.0
52°	1.0	0.0	0.0
53°	0.5	0.0	0.0
54°	1.0	0.0	0.0
55°	0.5	0.0	0.0
57.5°	1.0	0.0	0.0
60°	1.0	0.0	0.0
61°	1.0	0.0	0.0
62°	1.0	0.0	0.0
63°	1.0	0.0	0.0
64°	1.0	0.5	0.0
65°	1.0	0.5	0.0
66°	1.0	0.5	0.0



TEST NUMBER: P170916

CATALOG NUMBER: LDA4A09940D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.0	0.5	0.0
75°	1.0	0.5	0.0
77.5°	1.0	0.5	0.0
80°	1.0	0.5	0.0
82.5°	1.0	0.5	0.0
85°	1.0	0.5	0.0
87.5°	1.0	0.5	0.0
90°	0.0	0.0	0.0



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







67.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.0	1.0
70°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0	0.5	0.5





67.5°	1.0	0.5	1.0	1.0	1.4	1.9	1.9	1.0	1.4	1.0	1.4
70°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.0	1.4





67.5°	1.0	0.5	0.0
70°	1.0	0.5	0.0



(END OF REPORT)