

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: P170917

Luminaire Tested: **LDA4A13827D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170917
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: LDA4A13827D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1142.5 lumens
Efficiency: N/A
Efficacy: 51.3 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

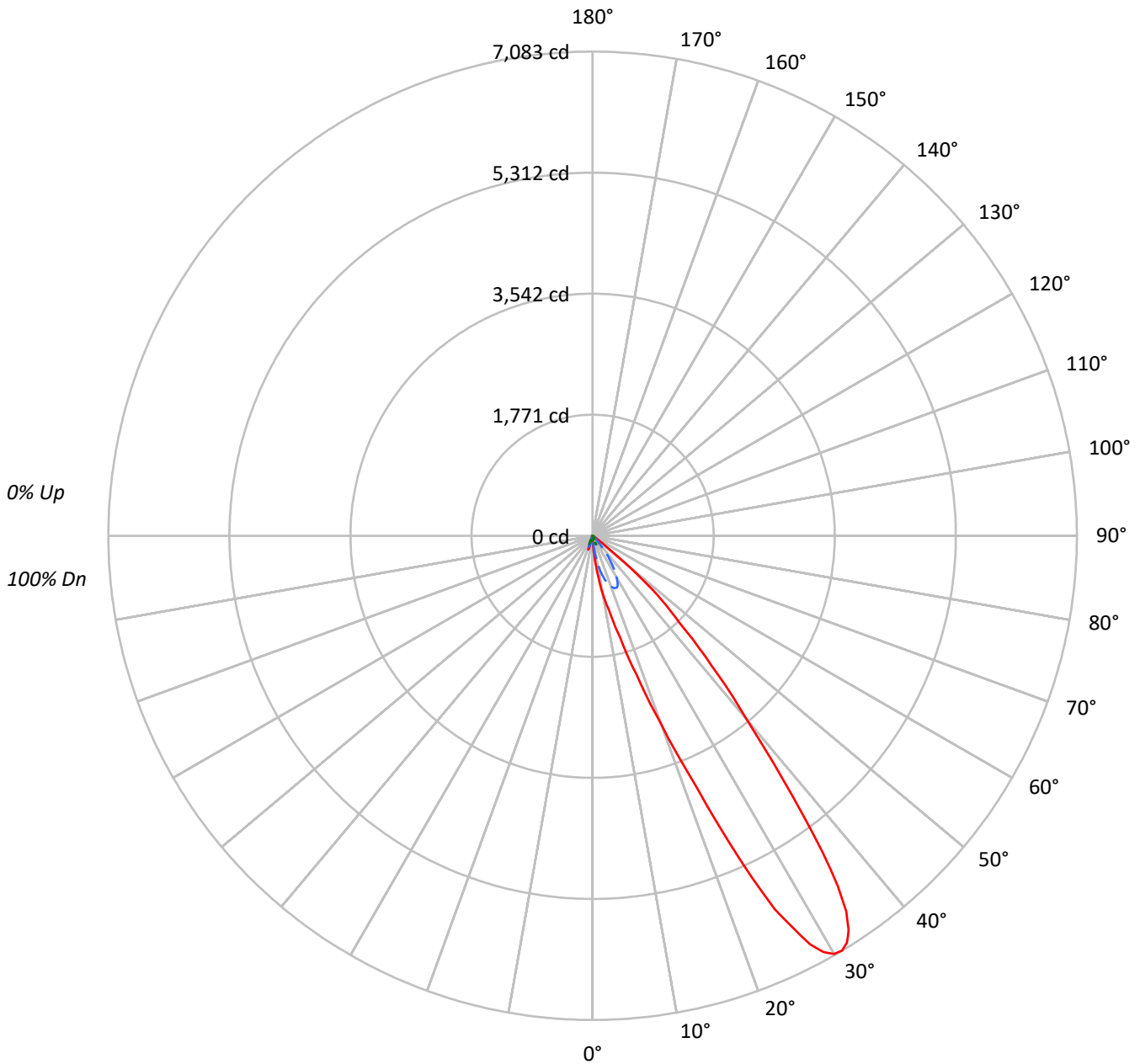
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	8227	8227	8227
5°	36873	7726	5002
10°	109154	7102	6400
15°	194865	8415	18018
20°	386001	16565	19361
25°	751118	10806	5498
30°	1006135	4045	1923
35°	941439	1702	753
40°	564153	805	225
45°	313080	488	0
50°	114847	403	0
55°	17526	301	0
60°	3848	345	0
65°	1255	409	0
70°	252	505	0
75°	0	1001	0
80°	0	1492	0
85°	0	2972	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	14.6	1.3
10°-20°	123.4	10.8
20°-30°	368.4	32.2
30°-40°	436.3	38.2
40°-50°	181.0	15.8
50°-60°	14.1	1.2
60°-70°	1.9	0.2
70°-80°	1.5	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°	506.5	44.3
0°-40°	942.8	82.5
0°-60°	1137.8	99.6
0°-90°	1142.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1142.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	67	67	67	67	67	
5°	298	150	62	43	40	47
15°	1526	645	66	99	141	504
25°	5519	838	79	46	40	2521
35°	6252	467	11	6	5	3623
45°	1795	41	3	2	0	1463
55°	82	6	1	1	0	119
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°	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7
2.5°	115.6	109.9	112.7	107.8	110.6	105.7	102.1	105.7	105.7	102.8	98.6
5°	297.8	296.4	302.1	288.6	292.2	277.3	264.5	268.0	265.2	256.0	239.7
7.5°	567.3	561.6	568.0	548.9	549.6	524.7	505.6	509.9	497.1	481.5	453.1
10°	871.5	863.7	870.8	848.1	843.8	809.1	782.1	786.4	757.3	731.8	688.5
12.5°	1135.3	1134.6	1111.9	1116.1	1107.6	1054.4	1037.4	1038.8	999.1	970.8	919.0
15°	1526.0	1540.9	1545.2	1516.1	1463.6	1367.2	1324.6	1308.3	1243.8	1196.3	1121.8
17.5°	2126.6	2147.2	2077.0	2094.0	2007.5	1856.5	1772.1	1721.7	1600.5	1511.1	1376.4
20°	2940.7	2923.0	2821.6	2808.8	2661.3	2467.0	2289.7	2194.7	2008.2	1877.7	1681.3
22.5°	3991.6	3978.1	3804.4	3727.1	3418.6	3144.9	2915.2	2676.9	2399.6	2225.2	1958.6
25°	5519.0	5457.3	5122.6	4902.8	4360.3	3895.1	3512.2	3142.1	2717.3	2528.0	2189.0
26°	6081.3	6066.4	5717.6	5428.2	4774.4	4197.2	3681.0	3310.1	2842.1	2620.9	2254.3
27°	6418.9	6537.3	6212.5	5884.9	5170.1	4478.7	3880.3	3445.6	2939.3	2686.1	2296.1
28°	6769.2	6845.8	6555.0	6143.7	5487.1	4702.8	4031.3	3537.0	2998.8	2718.0	2310.3
29°	6962.0	7035.8	6765.6	6379.9	5694.9	4848.2	4120.6	3577.5	3020.8	2717.3	2297.5
30°	7064.2	7132.9	6869.2	6494.7	5780.7	4893.6	4139.8	3561.2	2999.5	2684.7	2261.4
31°	7082.6	7140.0	6879.8	6491.2	5748.0	4837.6	4085.9	3493.8	2942.8	2624.4	2206.8
32°	7020.2	7064.9	6800.4	6386.2	5601.3	4695.7	3973.9	3389.5	2856.3	2549.3	2136.5
33°	6874.1	6954.2	6631.6	6174.2	5346.0	4485.8	3815.0	3253.4	2748.5	2451.4	2050.7
34°	6632.3	6683.4	6349.4	5842.4	5005.6	4230.6	3620.0	3095.3	2625.1	2335.8	1953.6
35°	6252.2	6297.6	5928.2	5394.2	4617.7	3942.7	3397.3	2920.8	2486.9	2206.0	1845.8
36°	5726.1	5769.3	5382.9	4896.4	4226.3	3642.7	3162.6	2730.8	2337.2	2067.1	1731.6
37°	5111.3	5148.9	4804.9	4407.8	3842.0	3339.2	2925.1	2537.9	2179.1	1925.2	1623.2
38°	4517.0	4551.1	4273.1	3949.7	3471.1	3042.8	2688.2	2337.9	2016.0	1782.7	1509.0
39°	3980.9	4010.7	3786.6	3520.0	3118.0	2758.4	2452.1	2139.4	1852.2	1640.2	1391.3
40°	3503.7	3529.2	3344.9	3125.8	2797.4	2492.5	2222.4	1947.2	1691.9	1501.9	1281.4
42.5°	2571.9	2577.6	2467.7	2338.6	2083.4	1908.2	1716.0	1517.5	1331.0	1200.5	1060.1
45°	1794.8	1865.0	1793.3	1707.5	1524.6	1414.7	1292.0	1172.2	1064.4	938.9	799.9
47.5°	1290.6	1293.4	1250.9	1197.0	1052.3	977.2	876.5	731.1	624.0	446.0	331.2
50°	598.5	565.2	567.3	530.4	473.0	375.8	314.1	224.1	178.7	127.6	102.8
51°	356.0	331.2	334.7	308.5	270.2	210.6	178.7	143.2	124.1	96.4	79.4
52°	207.8	199.3	198.6	186.5	158.8	146.1	129.1	107.8	94.3	74.5	61.7
53°	151.0	145.4	145.4	137.6	118.4	109.9	97.9	83.0	72.3	56.7	46.8
54°	112.7	108.5	108.5	103.5	95.7	82.3	73.7	61.7	53.9	44.0	34.7
55°	81.5	78.7	78.7	75.2	69.5	59.6	53.2	44.7	39.7	31.9	25.5
57.5°	34.0	32.6	32.6	31.2	29.8	25.5	24.1	20.6	17.7	15.6	12.8
60°	15.6	14.9	15.6	14.9	13.5	14.2	12.1	10.6	9.9	8.5	7.1
61°	12.1	11.3	11.3	11.3	9.9	9.9	9.2	8.5	7.8	6.4	5.7
62°	9.2	8.5	8.5	8.5	7.8	7.8	7.1	6.4	6.4	5.0	4.3
63°	7.1	6.4	6.4	6.4	5.7	5.7	5.7	5.0	5.0	4.3	3.5
64°	5.0	5.0	5.0	5.0	5.0	4.3	4.3	4.3	3.5	2.8	2.8
65°	4.3	3.5	4.3	3.5	3.5	3.5	3.5	3.5	2.8	2.1	2.1
66°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.1	1.4



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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°	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7
2.5°	96.4	99.3	97.1	91.5	94.3	92.9	90.1	87.9	75.2	65.2	55.3
5°	227.6	229.8	217.7	196.4	189.3	178.0	161.7	150.3	85.1	62.4	48.9
7.5°	430.4	416.2	404.9	365.2	348.2	321.9	290.7	268.8	97.1	58.9	45.4
10°	651.7	629.0	605.6	547.4	516.9	476.5	431.8	406.3	109.9	56.7	45.4
12.5°	870.8	840.3	797.7	733.9	690.7	636.1	575.1	529.7	119.1	58.1	52.5
15°	1060.8	1024.0	977.2	904.8	854.5	786.4	707.0	644.6	123.4	65.9	73.0
17.5°	1267.9	1201.2	1123.9	1031.8	976.4	897.7	808.4	732.5	123.4	83.7	117.0
20°	1506.2	1384.2	1260.1	1131.0	1053.0	970.8	875.0	793.5	128.3	126.2	161.0
22.5°	1728.1	1560.0	1384.9	1216.8	1108.3	1019.0	921.8	828.2	148.9	139.0	107.1
25°	1900.4	1687.0	1480.6	1276.4	1153.7	1054.4	950.2	837.5	136.1	79.4	58.1
26°	1945.1	1714.6	1499.8	1283.5	1155.8	1053.7	947.4	827.5	114.2	63.1	46.8
27°	1968.5	1723.8	1501.2	1277.1	1147.3	1041.7	931.8	807.0	91.5	51.1	38.3
28°	1968.5	1713.2	1486.3	1259.4	1125.4	1019.0	904.8	774.3	74.5	41.8	30.5
29°	1948.6	1685.6	1456.5	1232.4	1095.6	987.1	868.0	736.1	63.1	34.7	24.8
30°	1910.3	1645.1	1416.8	1197.7	1057.3	950.9	827.5	696.3	54.6	28.4	19.9
31°	1856.5	1599.8	1367.9	1160.1	1021.8	917.6	790.7	655.9	47.5	22.7	16.3
32°	1791.9	1543.0	1317.5	1121.1	992.8	886.4	752.4	613.4	41.1	19.1	14.2
33°	1717.5	1479.2	1265.1	1082.8	964.4	850.9	710.5	567.3	35.5	15.6	12.1
34°	1635.2	1409.0	1211.2	1041.7	929.6	806.3	661.6	518.4	30.5	13.5	9.9
35°	1545.9	1330.3	1155.8	999.8	890.6	756.6	609.1	466.6	26.2	11.3	8.5
36°	1449.4	1256.5	1102.0	958.0	842.4	702.7	551.7	413.4	22.7	9.2	7.8
37°	1353.0	1187.1	1048.8	913.3	786.4	641.7	491.4	358.1	19.9	7.8	6.4
38°	1261.5	1119.7	996.3	861.6	721.2	574.4	429.0	302.8	17.0	7.1	5.7
39°	1175.7	1054.4	942.4	799.9	653.8	509.1	368.7	245.4	14.9	6.4	5.0
40°	1098.4	992.8	883.6	731.1	584.3	442.5	307.8	183.0	12.8	5.0	4.3
42.5°	935.3	823.3	679.3	509.9	395.0	256.7	143.2	68.1	9.2	3.5	3.5
45°	617.6	475.1	322.6	192.2	129.8	78.0	58.1	41.1	7.1	2.8	2.8
47.5°	206.4	131.2	95.7	68.8	58.9	46.8	37.6	25.5	5.0	2.1	2.1
50°	78.7	63.8	52.5	39.7	35.5	28.4	22.7	14.9	3.5	2.1	2.1
51°	61.7	50.3	41.1	31.2	28.4	22.7	18.4	12.8	2.8	2.1	2.1
52°	47.5	39.0	31.9	24.1	22.7	18.4	15.6	10.6	2.8	1.4	2.1
53°	36.2	29.8	24.1	18.4	17.7	14.9	12.8	8.5	2.1	1.4	2.1
54°	26.9	22.7	19.1	14.9	14.9	12.8	10.6	7.1	2.1	1.4	2.1
55°	20.6	17.0	14.9	11.3	12.1	10.6	9.2	5.7	2.1	1.4	2.1
57.5°	10.6	9.9	8.5	7.1	7.8	7.1	6.4	3.5	2.1	1.4	2.1
60°	6.4	5.7	5.0	4.3	5.0	5.0	5.0	2.1	2.1	1.4	2.1
61°	5.0	4.3	3.5	3.5	4.3	4.3	4.3	2.1	2.1	1.4	2.1
62°	3.5	3.5	2.8	2.8	4.3	3.5	3.5	2.1	2.1	1.4	2.1
63°	2.8	2.8	2.8	2.1	3.5	3.5	3.5	2.1	2.1	1.4	2.1
64°	2.1	2.1	2.1	2.1	2.8	3.5	3.5	1.4	2.1	1.4	2.1
65°	2.1	2.1	1.4	1.4	2.8	2.8	2.8	1.4	2.1	1.4	2.1
66°	1.4	1.4	1.4	1.4	2.8	2.8	2.8	1.4	2.1	1.4	2.1



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CATALOG NUMBER: LDA4A13827D010TE 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	2.1	2.1	2.8	1.4	2.1	2.1	2.1
75°	0.7	0.7	0.7	0.7	2.1	2.1	2.8	1.4	2.1	2.1	2.1
77.5°	0.7	0.7	0.7	0.7	2.1	2.1	2.8	1.4	2.1	2.1	2.8
80°	0.7	0.7	0.7	0.7	2.1	2.1	2.8	1.4	2.1	2.1	2.8
82.5°	0.7	0.7	0.7	0.7	2.1	2.1	2.8	1.4	2.1	2.1	2.8
85°	0.7	0.7	0.7	0.7	2.1	2.1	2.8	1.4	2.1	2.1	2.8
87.5°	0.7	0.7	0.7	0.7	2.1	2.1	2.8	1.4	2.1	2.1	2.1
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: LDA4A13827D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	66.7	66.7	66.7
2.5°	50.3	48.2	46.8
5°	43.3	41.1	40.4
7.5°	40.4	39.7	40.4
10°	44.7	47.5	51.1
12.5°	59.6	70.2	75.9
15°	98.6	128.3	141.1
17.5°	173.7	197.8	212.0
20°	153.2	139.7	147.5
22.5°	83.0	72.3	74.5
25°	46.1	39.7	40.4
26°	36.9	31.9	31.9
27°	29.8	25.5	25.5
28°	24.1	20.6	20.6
29°	19.1	16.3	16.3
30°	15.6	13.5	13.5
31°	12.8	10.6	10.6
32°	10.6	9.2	8.5
33°	9.2	7.8	7.1
34°	7.8	6.4	5.7
35°	6.4	5.0	5.0
36°	5.7	4.3	4.3
37°	5.0	3.5	3.5
38°	4.3	2.8	2.8
39°	3.5	2.8	2.1
40°	2.8	2.1	1.4
42.5°	2.1	1.4	0.7
45°	2.1	0.7	0.0
47.5°	1.4	0.7	0.0
50°	1.4	0.0	0.0
51°	1.4	0.0	0.0
52°	1.4	0.0	0.0
53°	0.7	0.0	0.0
54°	1.4	0.0	0.0
55°	0.7	0.0	0.0
57.5°	1.4	0.0	0.0
60°	1.4	0.0	0.0
61°	1.4	0.0	0.0
62°	1.4	0.0	0.0
63°	1.4	0.0	0.0
64°	1.4	0.7	0.0
65°	1.4	0.7	0.0
66°	1.4	0.7	0.0



TEST NUMBER: P170917

CATALOG NUMBER: LDA4A13827D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.4	0.7	0.0
75°	1.4	0.7	0.0
77.5°	1.4	0.7	0.0
80°	1.4	0.7	0.0
82.5°	1.4	0.7	0.0
85°	1.4	0.7	0.0
87.5°	1.4	0.7	0.0
90°	0.0	0.0	0.0



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







67.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.4	1.4
70°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.4	1.4	0.7	0.7





67.5°	1.4	0.7	1.4	1.4	2.1	2.8	2.8	1.4	2.1	1.4	2.1
70°	0.7	0.7	0.7	0.7	2.1	2.1	2.8	1.4	2.1	1.4	2.1





67.5°	1.4	0.7	0.0
70°	1.4	0.7	0.0



(END OF REPORT)