

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: P170921

Luminaire Tested: **LDA4A13927D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170921
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: LDA4A13927D010TE 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: 917.6 lumens
Efficiency: N/A
Efficacy: 41.2 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

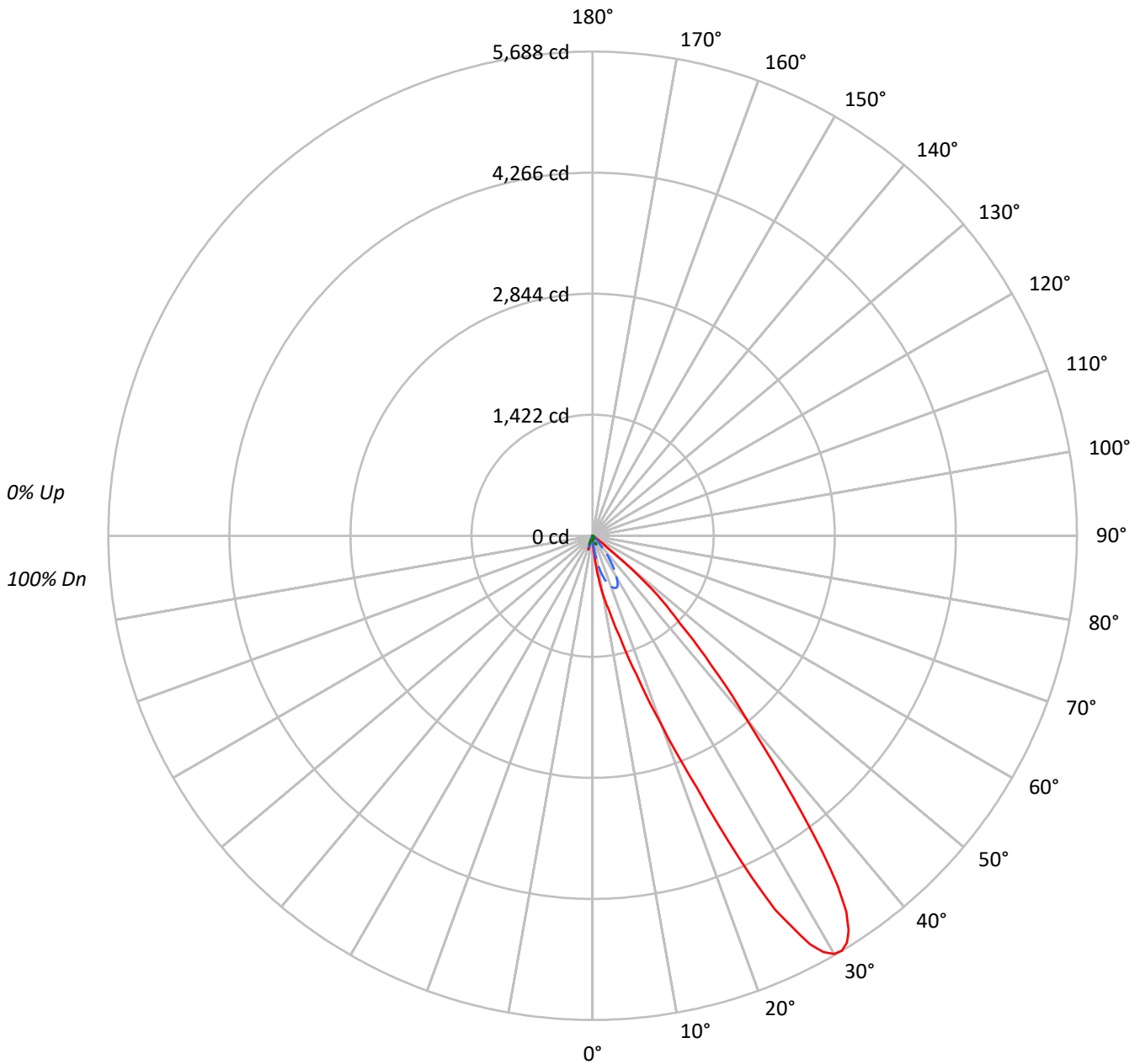
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
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°	6599	6599	6599
5°	29617	6203	4024
10°	87661	5711	5135
15°	156492	6768	14468
20°	309988	13310	15555
25°	603208	8683	4423
30°	808004	3247	1538
35°	756048	1370	602
40°	453068	644	177
45°	251416	401	0
50°	92223	326	0
55°	14086	237	0
60°	3084	271	0
65°	992	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°	11.8	1.3
10°-20°	99.1	10.8
20°-30°	295.9	32.2
30°-40°	350.4	38.2
40°-50°	145.4	15.8
50°-60°	11.3	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°	406.7	44.3
0°-40°	757.1	82.5
0°-60°	913.8	99.6
0°-90°	917.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	917.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	54	54	54	54	54	
5°	239	121	50	35	32	38
15°	1226	518	53	79	113	405
25°	4432	672	64	37	32	2024
35°	5021	375	9	5	4	2910
45°	1441	33	2	2	0	1175
55°	66	5	1	1	0	96
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°	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5
2.5°	92.8	88.3	90.5	86.6	88.8	84.9	82.0	84.9	84.9	82.6	79.2
5°	239.2	238.0	242.6	231.8	234.6	222.7	212.4	215.3	213.0	205.6	192.5
7.5°	455.6	451.0	456.1	440.8	441.3	421.4	406.0	409.5	399.2	386.7	363.9
10°	699.9	693.6	699.3	681.1	677.7	649.8	628.1	631.5	608.2	587.7	553.0
12.5°	911.7	911.2	892.9	896.3	889.5	846.8	833.1	834.3	802.4	779.6	738.0
15°	1225.5	1237.5	1240.9	1217.5	1175.4	1097.9	1063.8	1050.7	998.9	960.7	900.9
17.5°	1707.8	1724.4	1668.0	1681.7	1612.2	1490.9	1423.1	1382.7	1285.3	1213.5	1105.3
20°	2361.6	2347.4	2265.9	2255.7	2137.2	1981.2	1838.8	1762.5	1612.7	1508.0	1350.2
22.5°	3205.6	3194.7	3055.2	2993.1	2745.4	2525.6	2341.1	2149.8	1927.1	1787.0	1572.9
25°	4432.2	4382.7	4113.9	3937.3	3501.7	3128.1	2820.6	2523.3	2182.2	2030.2	1758.0
26°	4883.8	4871.8	4591.7	4359.3	3834.3	3370.7	2956.1	2658.3	2282.4	2104.8	1810.4
27°	5154.9	5250.0	4989.1	4726.1	4152.0	3596.8	3116.2	2767.1	2360.5	2157.2	1844.0
28°	5436.2	5497.7	5264.2	4933.9	4406.6	3776.7	3237.5	2840.5	2408.3	2182.8	1855.3
29°	5591.1	5650.3	5433.3	5123.5	4573.4	3893.5	3309.2	2873.0	2426.0	2182.2	1845.1
30°	5673.1	5728.3	5516.5	5215.8	4642.3	3929.9	3324.6	2859.9	2408.9	2156.0	1816.0
31°	5687.9	5734.0	5525.0	5213.0	4616.1	3884.9	3281.3	2805.8	2363.3	2107.6	1772.2
32°	5637.8	5673.7	5461.2	5128.7	4498.3	3771.0	3191.3	2722.1	2293.8	2047.3	1715.8
33°	5520.5	5584.8	5325.7	4958.4	4293.3	3602.5	3063.8	2612.7	2207.3	1968.7	1646.9
34°	5326.3	5367.3	5099.1	4691.9	4019.9	3397.5	2907.2	2485.7	2108.2	1875.8	1568.9
35°	5021.0	5057.5	4760.8	4332.0	3708.4	3166.3	2728.3	2345.7	1997.1	1771.6	1482.3
36°	4598.5	4633.2	4322.9	3932.2	3394.1	2925.4	2539.8	2193.0	1877.0	1660.0	1390.7
37°	4104.8	4134.9	3858.7	3539.8	3085.4	2681.6	2349.1	2038.1	1750.0	1546.1	1303.5
38°	3627.5	3654.9	3431.6	3172.0	2787.6	2443.6	2158.9	1877.6	1619.0	1431.7	1211.8
39°	3197.0	3220.9	3041.0	2826.9	2504.0	2215.2	1969.2	1718.1	1487.5	1317.2	1117.3
40°	2813.8	2834.3	2686.2	2510.2	2246.6	2001.7	1784.7	1563.8	1358.8	1206.1	1029.0
42.5°	2065.5	2070.0	1981.8	1878.1	1673.1	1532.5	1378.1	1218.7	1068.9	964.1	851.4
45°	1441.3	1497.7	1440.2	1371.3	1224.4	1136.1	1037.6	941.3	854.8	754.0	642.4
47.5°	1036.4	1038.7	1004.5	961.3	845.1	784.7	703.9	587.1	501.1	358.2	265.9
50°	480.6	453.9	455.6	426.0	379.8	301.8	252.3	180.0	143.5	102.5	82.6
51°	285.9	265.9	268.8	247.7	217.0	169.1	143.5	115.0	99.7	77.4	63.8
52°	166.9	160.0	159.5	149.8	127.6	117.3	103.6	86.6	75.7	59.8	49.5
53°	121.3	116.7	116.7	110.5	95.1	88.3	78.6	66.6	58.1	45.6	37.6
54°	90.5	87.1	87.1	83.1	76.9	66.1	59.2	49.5	43.3	35.3	27.9
55°	65.5	63.2	63.2	60.4	55.8	47.8	42.7	35.9	31.9	25.6	20.5
57.5°	27.3	26.2	26.2	25.1	23.9	20.5	19.4	16.5	14.2	12.5	10.3
60°	12.5	12.0	12.5	12.0	10.8	11.4	9.7	8.5	8.0	6.8	5.7
61°	9.7	9.1	9.1	9.1	8.0	8.0	7.4	6.8	6.3	5.1	4.6
62°	7.4	6.8	6.8	6.8	6.3	6.3	5.7	5.1	5.1	4.0	3.4
63°	5.7	5.1	5.1	5.1	4.6	4.6	4.6	4.0	4.0	3.4	2.8
64°	4.0	4.0	4.0	4.0	4.0	4.0	3.4	3.4	2.8	2.3	2.3
65°	3.4	2.8	3.4	2.8	2.8	2.8	2.8	2.8	2.3	1.7	1.7
66°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	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°	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5
2.5°	77.4	79.7	78.0	73.5	75.7	74.6	72.3	70.6	60.4	52.4	44.4
5°	182.8	184.5	174.8	157.7	152.0	142.9	129.8	120.7	68.3	50.1	39.3
7.5°	345.7	334.3	325.2	293.3	279.6	258.5	233.5	215.8	78.0	47.3	36.4
10°	523.3	505.1	486.3	439.6	415.1	382.7	346.8	326.3	88.3	45.6	36.4
12.5°	699.3	674.8	640.7	589.4	554.7	510.8	461.8	425.4	95.7	46.7	42.1
15°	851.9	822.3	784.7	726.6	686.2	631.5	567.8	517.7	99.1	53.0	58.7
17.5°	1018.2	964.7	902.6	828.6	784.2	721.0	649.2	588.3	99.1	67.2	94.0
20°	1209.6	1111.6	1012.0	908.3	845.7	779.6	702.7	637.2	103.1	101.4	129.3
22.5°	1387.8	1252.8	1112.2	977.2	890.1	818.3	740.3	665.1	119.6	111.6	86.0
25°	1526.2	1354.8	1189.1	1025.1	926.5	846.8	763.1	672.5	109.3	63.8	46.7
26°	1562.1	1377.0	1204.4	1030.7	928.2	846.2	760.8	664.6	91.7	50.7	37.6
27°	1580.9	1384.4	1205.6	1025.6	921.4	836.6	748.3	648.1	73.5	41.0	30.8
28°	1580.9	1375.8	1193.6	1011.4	903.8	818.3	726.6	621.9	59.8	33.6	24.5
29°	1564.9	1353.6	1169.7	989.7	879.8	792.7	697.0	591.1	50.7	27.9	19.9
30°	1534.2	1321.2	1137.8	961.8	849.1	763.7	664.6	559.2	43.8	22.8	15.9
31°	1490.9	1284.7	1098.5	931.7	820.6	736.9	635.0	526.8	38.2	18.2	13.1
32°	1439.1	1239.2	1058.1	900.3	797.3	711.8	604.2	492.6	33.0	15.4	11.4
33°	1379.3	1187.9	1015.9	869.6	774.5	683.4	570.6	455.6	28.5	12.5	9.7
34°	1313.2	1131.5	972.7	836.6	746.6	647.5	531.3	416.3	24.5	10.8	8.0
35°	1241.5	1068.3	928.2	803.0	715.3	607.6	489.2	374.7	21.1	9.1	6.8
36°	1164.0	1009.1	885.0	769.4	676.5	564.3	443.0	332.0	18.2	7.4	6.3
37°	1086.6	953.3	842.2	733.5	631.5	515.4	394.6	287.6	15.9	6.3	5.1
38°	1013.1	899.2	800.1	691.9	579.2	461.3	344.5	243.2	13.7	5.7	4.6
39°	944.2	846.8	756.8	642.4	525.1	408.9	296.1	197.0	12.0	5.1	4.0
40°	882.1	797.3	709.6	587.1	469.2	355.4	247.2	146.9	10.3	4.0	3.4
42.5°	751.1	661.2	545.6	409.5	317.2	206.1	115.0	54.7	7.4	2.8	2.8
45°	496.0	381.5	259.1	154.3	104.2	62.6	46.7	33.0	5.7	2.3	2.3
47.5°	165.7	105.4	76.9	55.2	47.3	37.6	30.2	20.5	4.0	1.7	1.7
50°	63.2	51.3	42.1	31.9	28.5	22.8	18.2	12.0	2.8	1.7	1.7
51°	49.5	40.4	33.0	25.1	22.8	18.2	14.8	10.3	2.3	1.7	1.7
52°	38.2	31.3	25.6	19.4	18.2	14.8	12.5	8.5	2.3	1.1	1.7
53°	29.0	23.9	19.4	14.8	14.2	12.0	10.3	6.8	1.7	1.1	1.7
54°	21.6	18.2	15.4	12.0	12.0	10.3	8.5	5.7	1.7	1.1	1.7
55°	16.5	13.7	12.0	9.1	9.7	8.5	7.4	4.6	1.7	1.1	1.7
57.5°	8.5	8.0	6.8	5.7	6.3	5.7	5.1	2.8	1.7	1.1	1.7
60°	5.1	4.6	4.0	3.4	4.0	4.0	4.0	1.7	1.7	1.1	1.7
61°	4.0	3.4	2.8	2.8	3.4	3.4	3.4	1.7	1.7	1.1	1.7
62°	2.8	2.8	2.3	2.3	3.4	2.8	2.8	1.7	1.7	1.1	1.7
63°	2.3	2.3	2.3	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	2.3	2.8	2.8	1.1	1.7	1.1	1.7
65°	1.7	1.7	1.1	1.1	2.3	2.3	2.3	1.1	1.7	1.1	1.7
66°	1.1	1.1	1.1	1.1	2.3	2.3	2.3	1.1	1.7	1.1	1.7



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CATALOG NUMBER: LDA4A13927D010TE 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	2.3	1.1	1.7	1.7	1.7
75°	0.6	0.6	0.6	0.6	1.7	1.7	2.3	1.1	1.7	1.7	1.7
77.5°	0.6	0.6	0.6	0.6	1.7	1.7	2.3	1.1	1.7	1.7	2.3
80°	0.6	0.6	0.6	0.6	1.7	1.7	2.3	1.1	1.7	1.7	2.3
82.5°	0.6	0.6	0.6	0.6	1.7	1.7	2.3	1.1	1.7	1.7	2.3
85°	0.6	0.6	0.6	0.6	1.7	1.7	2.3	1.1	1.7	1.7	2.3
87.5°	0.6	0.6	0.6	0.6	1.7	1.7	2.3	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: LDA4A13927D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	53.5	53.5	53.5
2.5°	40.4	38.7	37.6
5°	34.7	33.0	32.5
7.5°	32.5	31.9	32.5
10°	35.9	38.2	41.0
12.5°	47.8	56.4	60.9
15°	79.2	103.1	113.3
17.5°	139.5	158.9	170.3
20°	123.0	112.2	118.5
22.5°	66.6	58.1	59.8
25°	37.0	31.9	32.5
26°	29.6	25.6	25.6
27°	23.9	20.5	20.5
28°	19.4	16.5	16.5
29°	15.4	13.1	13.1
30°	12.5	10.8	10.8
31°	10.3	8.5	8.5
32°	8.5	7.4	6.8
33°	7.4	6.3	5.7
34°	6.3	5.1	4.6
35°	5.1	4.0	4.0
36°	4.6	3.4	3.4
37°	4.0	2.8	2.8
38°	3.4	2.3	2.3
39°	2.8	2.3	1.7
40°	2.3	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: P170921

CATALOG NUMBER: LDA4A13927D010TE 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	2.3	2.3	1.1	1.7	1.1	1.7
70°	0.6	0.6	0.6	0.6	1.7	1.7	2.3	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)