

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: P170911

Luminaire Tested: **LDA4A09835D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170911
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: LDA4A09835D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 876.1 lumens
Efficiency: N/A
Efficacy: 63.3 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

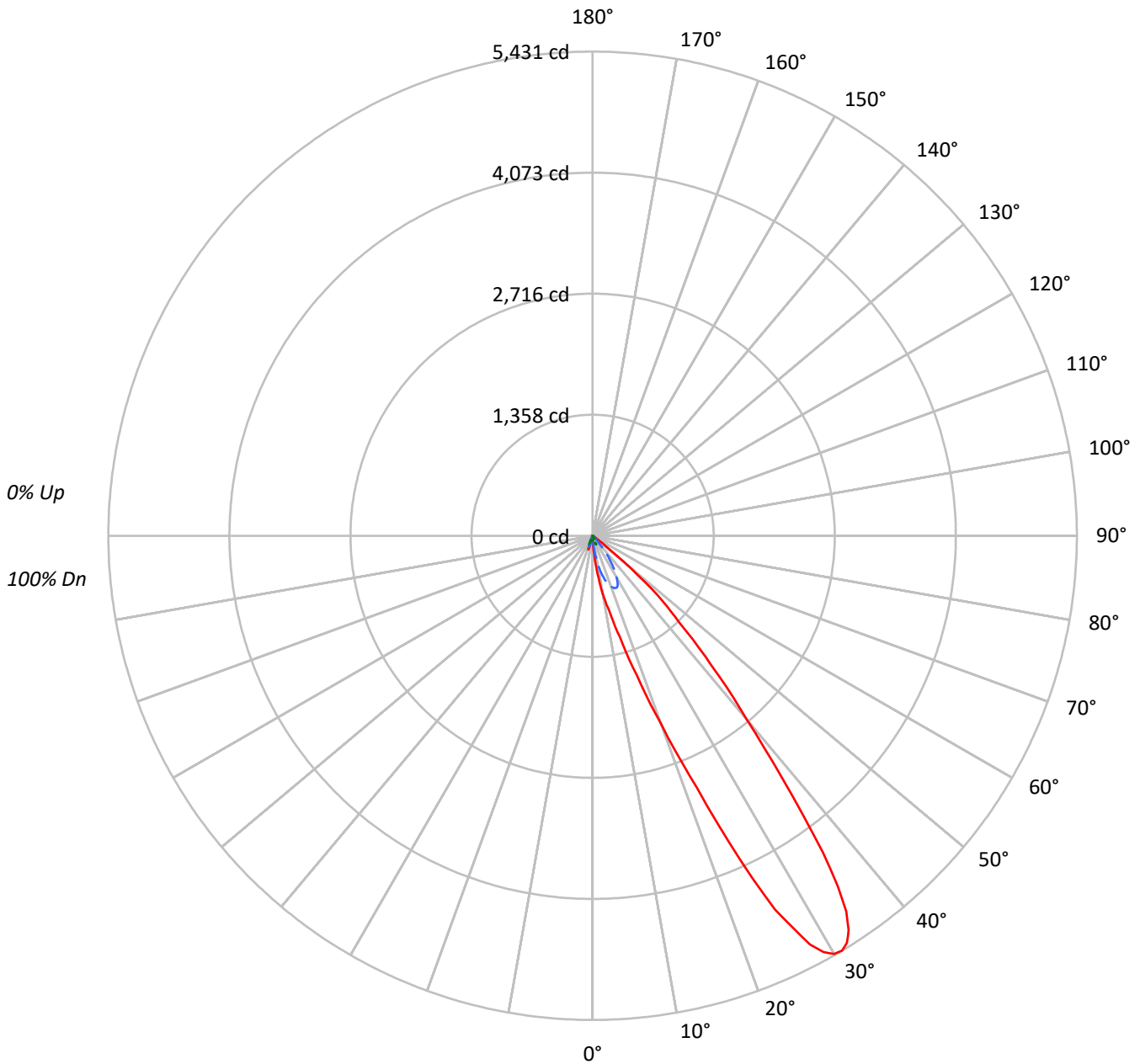
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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°	6303	6303	6303
5°	28280	5931	3838
10°	83704	5448	4910
15°	149431	6461	13817
20°	296008	12706	14846
25°	575989	8288	4219
30°	771543	3105	1467
35°	721942	1310	572
40°	432619	612	177
45°	240078	384	0
50°	88078	307	0
55°	13440	237	0
60°	2960	271	0
65°	963	321	0
70°	180	397	0
75°	0	763	0
80°	0	1137	0
85°	0	2264	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	11.2	1.3
10°-20°	94.6	10.8
20°-30°	282.5	32.2
30°-40°	334.6	38.2
40°-50°	138.8	15.8
50°-60°	10.8	1.2
60°-70°	1.5	0.2
70°-80°	1.1	0.1
80°-90°	1.0	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°	388.4	44.3
0°-40°	723.0	82.5
0°-60°	872.5	99.6
0°-90°	876.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	876.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	51	51	51	51	51	
5°	228	115	48	33	31	36
15°	1170	494	51	76	108	386
25°	4232	642	61	35	31	1933
35°	4794	358	9	5	4	2778
45°	1376	32	2	2	0	1122
55°	62	4	1	0	0	92
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°	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1
2.5°	88.6	84.3	86.5	82.7	84.8	81.0	78.3	81.0	81.0	78.8	75.6
5°	228.4	227.3	231.7	221.3	224.0	212.6	202.8	205.5	203.4	196.3	183.8
7.5°	435.0	430.7	435.6	420.9	421.4	402.4	387.7	391.0	381.2	369.2	347.5
10°	668.3	662.3	667.8	650.4	647.1	620.5	599.8	603.1	580.8	561.2	528.0
12.5°	870.6	870.0	852.6	855.9	849.4	808.6	795.6	796.6	766.2	744.4	704.7
15°	1170.2	1181.6	1184.9	1162.6	1122.4	1048.4	1015.8	1003.3	953.8	917.4	860.3
17.5°	1630.8	1646.6	1592.7	1605.8	1539.4	1423.6	1358.9	1320.3	1227.3	1158.8	1055.5
20°	2255.1	2241.5	2163.7	2153.9	2040.8	1891.8	1755.9	1683.0	1540.0	1439.9	1289.3
22.5°	3060.9	3050.6	2917.4	2858.1	2621.6	2411.7	2235.5	2052.8	1840.2	1706.4	1501.9
25°	4232.2	4184.9	3928.3	3759.7	3343.7	2987.0	2693.3	2409.5	2083.8	1938.6	1678.7
26°	4663.5	4652.0	4384.5	4162.6	3661.3	3218.6	2822.8	2538.4	2179.5	2009.8	1728.7
27°	4922.3	5013.1	4764.1	4512.8	3964.7	3434.5	2975.6	2642.2	2254.0	2059.8	1760.8
28°	5190.9	5249.7	5026.7	4711.3	4207.8	3606.4	3091.4	2712.4	2299.7	2084.3	1771.6
29°	5338.8	5395.4	5188.2	4892.4	4367.1	3717.8	3159.9	2743.4	2316.5	2083.8	1761.9
30°	5417.1	5469.9	5267.6	4980.5	4432.9	3752.6	3174.6	2730.9	2300.2	2058.8	1734.1
31°	5431.3	5475.3	5275.8	4977.8	4407.9	3709.7	3133.3	2679.2	2256.7	2012.5	1692.2
32°	5383.4	5417.7	5214.9	4897.3	4295.3	3600.9	3047.3	2599.3	2190.4	1954.9	1638.4
33°	5271.4	5332.9	5085.4	4734.7	4099.6	3440.0	2925.5	2494.9	2107.7	1879.9	1572.6
34°	5086.0	5125.1	4869.0	4480.2	3838.6	3244.2	2776.0	2373.6	2013.1	1791.2	1498.1
35°	4794.5	4829.3	4546.0	4136.5	3541.1	3023.4	2605.3	2239.8	1907.0	1691.7	1415.5
36°	4391.0	4424.2	4127.8	3754.8	3240.9	2793.4	2425.3	2094.1	1792.3	1585.1	1327.9
37°	3919.6	3948.4	3684.7	3380.1	2946.2	2560.7	2243.1	1946.2	1671.0	1476.4	1244.7
38°	3463.9	3490.0	3276.8	3028.9	2661.8	2333.4	2061.5	1792.8	1546.0	1367.1	1157.2
39°	3052.8	3075.6	2903.8	2699.3	2391.0	2115.3	1880.4	1640.6	1420.4	1257.8	1066.9
40°	2686.8	2706.4	2565.0	2397.0	2145.2	1911.4	1704.2	1493.2	1297.5	1151.7	982.6
42.5°	1972.3	1976.6	1892.4	1793.4	1597.6	1463.3	1316.0	1163.7	1020.7	920.6	813.0
45°	1376.3	1430.1	1375.2	1309.4	1169.1	1084.8	990.8	898.9	816.2	720.0	613.4
47.5°	989.7	991.9	959.2	917.9	807.0	749.3	672.1	560.6	478.5	342.0	253.9
50°	459.0	433.4	435.0	406.7	362.7	288.2	240.9	171.8	137.0	97.9	78.8
51°	273.0	253.9	256.7	236.5	207.2	161.5	137.0	109.8	95.2	74.0	60.9
52°	159.3	152.8	152.3	143.0	121.8	112.0	99.0	82.7	72.3	57.1	47.3
53°	115.8	111.5	111.5	105.5	90.8	84.3	75.0	63.6	55.5	43.5	35.9
54°	86.5	83.2	83.2	79.4	73.4	63.1	56.6	47.3	41.3	33.7	26.6
55°	62.5	60.4	60.4	57.6	53.3	45.7	40.8	34.3	30.5	24.5	19.6
57.5°	26.1	25.0	25.0	23.9	22.8	19.6	18.5	15.8	13.6	12.0	9.8
60°	12.0	11.4	12.0	11.4	10.3	10.9	9.2	8.2	7.6	6.5	5.4
61°	9.2	8.7	8.7	8.7	7.6	7.6	7.1	6.5	6.0	4.9	4.4
62°	7.1	6.5	6.5	6.5	6.0	6.0	5.4	4.9	4.9	3.8	3.3
63°	5.4	4.9	4.9	4.9	4.4	4.4	4.4	3.8	3.8	3.3	2.7
64°	3.8	3.8	3.8	3.8	3.8	3.3	3.3	3.3	2.7	2.2	2.2
65°	3.3	2.7	3.3	2.7	2.7	2.7	2.7	2.7	2.2	1.6	1.6
66°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.6	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	0.5	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°	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1	51.1
2.5°	74.0	76.1	74.5	70.1	72.3	71.2	69.1	67.4	57.6	50.0	42.4
5°	174.6	176.2	166.9	150.6	145.2	136.5	124.0	115.3	65.3	47.9	37.5
7.5°	330.1	319.2	310.5	280.0	267.0	246.9	223.0	206.1	74.5	45.1	34.8
10°	499.7	482.3	464.4	419.8	396.4	365.4	331.2	311.6	84.3	43.5	34.8
12.5°	667.8	644.4	611.8	562.8	529.6	487.8	441.0	406.2	91.4	44.6	40.2
15°	813.5	785.2	749.3	693.9	655.3	603.1	542.1	494.3	94.6	50.6	56.0
17.5°	972.3	921.2	861.9	791.2	748.8	688.4	619.9	561.7	94.6	64.2	89.7
20°	1155.0	1061.5	966.3	867.3	807.5	744.4	671.0	608.5	98.4	96.8	123.4
22.5°	1325.2	1196.3	1062.0	933.1	849.9	781.4	706.9	635.1	114.2	106.6	82.1
25°	1457.3	1293.7	1135.4	978.8	884.7	808.6	728.7	642.2	104.4	60.9	44.6
26°	1491.6	1314.9	1150.1	984.2	886.4	808.1	726.5	634.6	87.5	48.4	35.9
27°	1509.5	1321.9	1151.2	979.3	879.8	798.8	714.5	618.8	70.1	39.2	29.4
28°	1509.5	1313.8	1139.8	965.8	863.0	781.4	693.9	593.8	57.1	32.1	23.4
29°	1494.3	1292.6	1116.9	945.1	840.1	756.9	665.6	564.4	48.4	26.6	19.0
30°	1464.9	1261.6	1086.5	918.4	810.8	729.2	634.6	534.0	41.9	21.8	15.2
31°	1423.6	1226.8	1049.0	889.6	783.6	703.7	606.3	503.0	36.4	17.4	12.5
32°	1374.1	1183.3	1010.3	859.7	761.3	679.7	577.0	470.4	31.5	14.7	10.9
33°	1317.0	1134.3	970.1	830.4	739.5	652.5	544.9	435.0	27.2	12.0	9.2
34°	1254.0	1080.5	928.8	798.8	712.9	618.3	507.3	397.5	23.4	10.3	7.6
35°	1185.4	1020.1	886.4	766.7	683.0	580.2	467.1	357.8	20.1	8.7	6.5
36°	1111.5	963.6	845.0	734.6	646.0	538.9	423.1	317.0	17.4	7.1	6.0
37°	1037.5	910.3	804.3	700.4	603.1	492.1	376.8	274.6	15.2	6.0	4.9
38°	967.4	858.6	764.0	660.7	553.0	440.5	329.0	232.2	13.1	5.4	4.4
39°	901.6	808.6	722.7	613.4	501.4	390.4	282.8	188.1	11.4	4.9	3.8
40°	842.3	761.3	677.6	560.6	448.1	339.3	236.0	140.3	9.8	3.8	3.3
42.5°	717.2	631.3	520.9	391.0	302.9	196.8	109.8	52.2	7.1	2.7	2.7
45°	473.6	364.3	247.4	147.4	99.5	59.8	44.6	31.5	5.4	2.2	2.2
47.5°	158.2	100.6	73.4	52.7	45.1	35.9	28.8	19.6	3.8	1.6	1.6
50°	60.4	48.9	40.2	30.5	27.2	21.8	17.4	11.4	2.7	1.6	1.6
51°	47.3	38.6	31.5	23.9	21.8	17.4	14.1	9.8	2.2	1.6	1.6
52°	36.4	29.9	24.5	18.5	17.4	14.1	12.0	8.2	2.2	1.1	1.6
53°	27.7	22.8	18.5	14.1	13.6	11.4	9.8	6.5	1.6	1.1	1.6
54°	20.7	17.4	14.7	11.4	11.4	9.8	8.2	5.4	1.6	1.1	1.6
55°	15.8	13.1	11.4	8.7	9.2	8.2	7.1	4.4	1.6	1.1	1.6
57.5°	8.2	7.6	6.5	5.4	6.0	5.4	4.9	2.7	1.6	1.1	1.6
60°	4.9	4.4	3.8	3.3	3.8	3.8	3.8	1.6	1.6	1.1	1.6
61°	3.8	3.3	2.7	2.7	3.3	3.3	3.3	1.6	1.6	1.1	1.6
62°	2.7	2.7	2.2	2.2	3.3	2.7	2.7	1.6	1.6	1.1	1.6
63°	2.2	2.2	2.2	1.6	2.7	2.7	2.7	1.6	1.6	1.1	1.6
64°	1.6	1.6	1.6	1.6	2.2	2.7	2.7	1.1	1.6	1.1	1.6
65°	1.6	1.6	1.1	1.1	2.2	2.2	2.2	1.1	1.6	1.1	1.6
66°	1.1	1.1	1.1	1.1	2.2	2.2	2.2	1.1	1.6	1.1	1.6



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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°	0.5	0.5	0.5	0.5	1.6	1.6	2.2	1.1	1.6	1.6	1.6
75°	0.5	0.5	0.5	0.5	1.6	1.6	2.2	1.1	1.6	1.6	1.6
77.5°	0.5	0.5	0.5	0.5	1.6	1.6	2.2	1.1	1.6	1.6	2.2
80°	0.5	0.5	0.5	0.5	1.6	1.6	2.2	1.1	1.6	1.6	2.2
82.5°	0.5	0.5	0.5	0.5	1.6	1.6	2.2	1.1	1.6	1.6	2.2
85°	0.5	0.5	0.5	0.5	1.6	1.6	2.2	1.1	1.6	1.6	2.2
87.5°	0.5	0.5	0.5	0.5	1.6	1.6	2.2	1.1	1.6	1.6	1.6
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):

	135°	157.5°	180°
0°	51.1	51.1	51.1
2.5°	38.6	37.0	35.9
5°	33.2	31.5	31.0
7.5°	31.0	30.5	31.0
10°	34.3	36.4	39.2
12.5°	45.7	53.8	58.2
15°	75.6	98.4	108.2
17.5°	133.2	151.7	162.6
20°	117.5	107.1	113.1
22.5°	63.6	55.5	57.1
25°	35.3	30.5	31.0
26°	28.3	24.5	24.5
27°	22.8	19.6	19.6
28°	18.5	15.8	15.8
29°	14.7	12.5	12.5
30°	12.0	10.3	10.3
31°	9.8	8.2	8.2
32°	8.2	7.1	6.5
33°	7.1	6.0	5.4
34°	6.0	4.9	4.4
35°	4.9	3.8	3.8
36°	4.4	3.3	3.3
37°	3.8	2.7	2.7
38°	3.3	2.2	2.2
39°	2.7	2.2	1.6
40°	2.2	1.6	1.1
42.5°	1.6	1.1	0.5
45°	1.6	0.5	0.0
47.5°	1.1	0.5	0.0
50°	1.1	0.0	0.0
51°	1.1	0.0	0.0
52°	1.1	0.0	0.0
53°	0.5	0.0	0.0
54°	1.1	0.0	0.0
55°	0.5	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	0.5	0.0
65°	1.1	0.5	0.0
66°	1.1	0.5	0.0



TEST NUMBER: P170911

CATALOG NUMBER: LDA4A09835D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.1	0.5	0.0
75°	1.1	0.5	0.0
77.5°	1.1	0.5	0.0
80°	1.1	0.5	0.0
82.5°	1.1	0.5	0.0
85°	1.1	0.5	0.0
87.5°	1.1	0.5	0.0
90°	0.0	0.0	0.0



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







67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.1	1.1
70°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.1	1.1	0.5	0.5





67.5°	1.1	0.5	1.1	1.1	1.6	2.2	2.2	1.1	1.6	1.1	1.6
70°	0.5	0.5	0.5	0.5	1.6	1.6	2.2	1.1	1.6	1.1	1.6





67.5°	1.1	0.5	0.0
70°	1.1	0.5	0.0



(END OF REPORT)