

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: P170910

Luminaire Tested: **LDA4A09830D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170910
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: LDA4A09830D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 833.4 lumens
Efficiency: N/A
Efficacy: 60.2 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

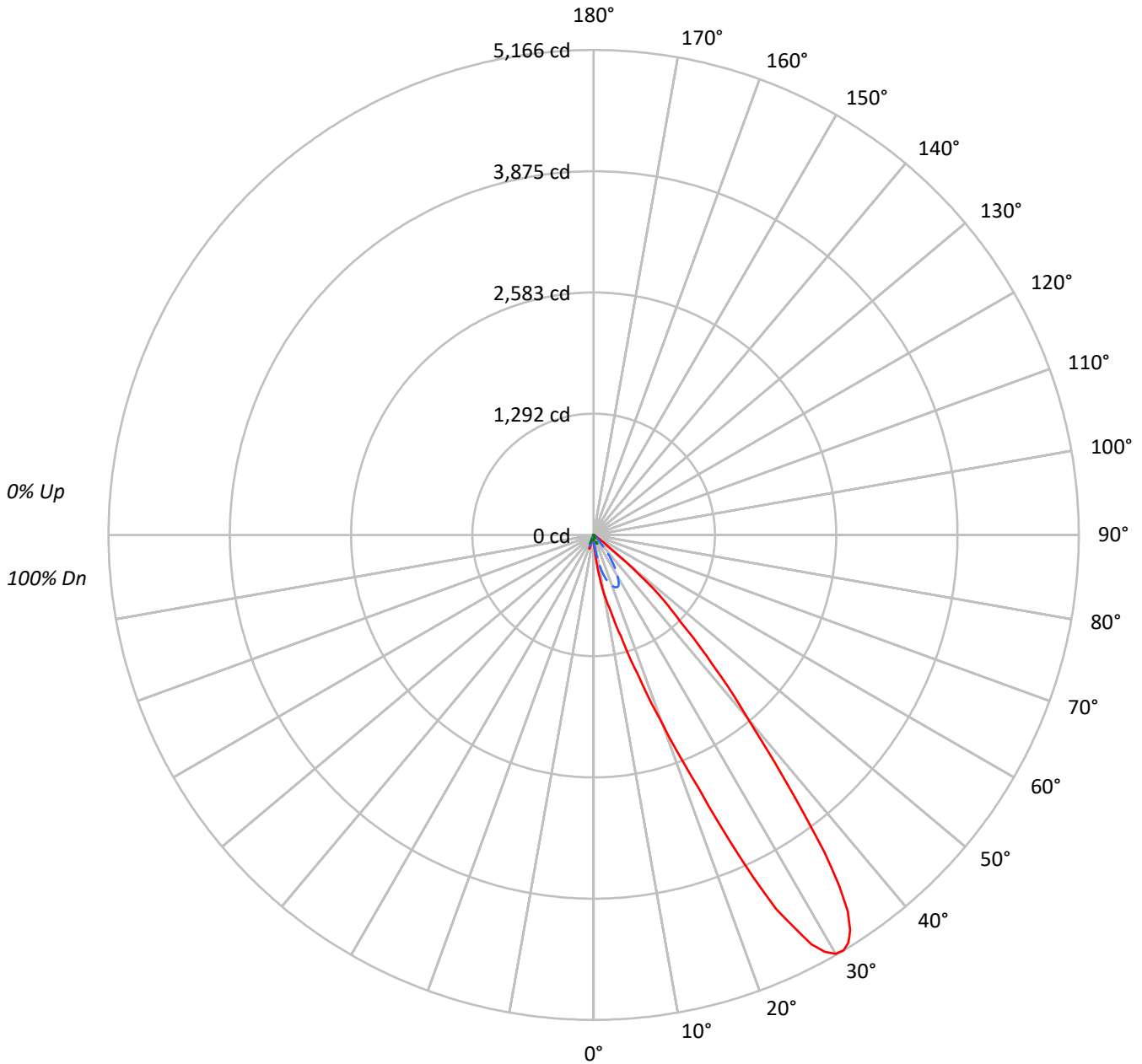
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	5995	5995	5995
5°	26893	5634	3653
10°	79620	5185	4659
15°	142139	6142	13140
20°	281556	12089	14124
25°	547871	7880	4015
30°	733885	2948	1396
35°	686707	1250	542
40°	411509	580	161
45°	228356	366	0
50°	83761	307	0
55°	12795	215	0
60°	2812	247	0
65°	905	292	0
70°	180	361	0
75°	0	763	0
80°	0	1137	0
85°	0	2264	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	10.7	1.3
10°-20°	90.0	10.8
20°-30°	268.7	32.2
30°-40°	318.2	38.2
40°-50°	132.0	15.8
50°-60°	10.3	1.2
60°-70°	1.4	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°	369.4	44.3
0°-40°	687.7	82.5
0°-60°	830.0	99.6
0°-90°	833.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	833.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	49	49	49	49	49	
5°	217	110	46	32	30	34
15°	1113	470	48	72	103	367
25°	4026	611	58	34	30	1839
35°	4560	340	8	5	4	2643
45°	1309	30	2	2	0	1067
55°	60	4	1	0	0	87
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°	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6
2.5°	84.3	80.2	82.2	78.6	80.7	77.1	74.5	77.1	77.1	75.0	71.9
5°	217.2	216.2	220.3	210.5	213.1	202.2	192.9	195.5	193.4	186.7	174.8
7.5°	413.8	409.7	414.3	400.3	400.9	382.8	368.8	371.9	362.6	351.2	330.5
10°	635.7	630.0	635.2	618.6	615.5	590.2	570.5	573.6	552.4	533.8	502.2
12.5°	828.1	827.6	811.0	814.1	807.9	769.1	756.7	757.8	728.8	708.1	670.3
15°	1113.1	1124.0	1127.1	1105.9	1067.6	997.2	966.2	954.3	907.2	872.6	818.3
17.5°	1551.2	1566.2	1515.0	1527.4	1464.3	1354.1	1292.6	1255.8	1167.4	1102.2	1004.0
20°	2145.0	2132.0	2058.1	2048.8	1941.2	1799.5	1670.2	1600.8	1464.8	1369.6	1226.4
22.5°	2911.5	2901.7	2775.0	2718.6	2493.6	2293.9	2126.4	1952.6	1750.3	1623.1	1428.6
25°	4025.6	3980.6	3736.5	3576.2	3180.5	2841.2	2561.9	2291.9	1982.0	1843.9	1596.7
26°	4435.8	4425.0	4170.5	3959.4	3482.6	3061.5	2685.0	2414.5	2073.1	1911.7	1644.3
27°	4682.0	4768.4	4531.5	4292.5	3771.2	3266.9	2830.3	2513.3	2143.9	1959.3	1674.8
28°	4937.5	4993.4	4781.3	4481.3	4002.4	3430.3	2940.5	2580.0	2187.4	1982.6	1685.2
29°	5078.2	5132.0	4934.9	4653.6	4153.9	3536.3	3005.7	2609.5	2203.4	1982.0	1675.8
30°	5152.7	5202.9	5010.5	4737.4	4216.5	3569.4	3019.6	2597.6	2187.9	1958.3	1649.5
31°	5166.2	5208.0	5018.2	4734.8	4192.7	3528.6	2980.3	2548.4	2146.5	1914.3	1609.6
32°	5120.6	5153.2	4960.3	4658.2	4085.6	3425.1	2898.6	2472.4	2083.4	1859.5	1558.4
33°	5014.1	5072.5	4837.2	4503.6	3899.4	3272.0	2782.7	2373.1	2004.8	1788.1	1495.8
34°	4837.7	4874.9	4631.3	4261.5	3651.2	3085.8	2640.5	2257.7	1914.8	1703.8	1425.0
35°	4560.5	4593.6	4324.1	3934.6	3368.2	2875.8	2478.1	2130.5	1813.9	1609.1	1346.4
36°	4176.7	4208.2	3926.3	3571.5	3082.7	2657.0	2306.9	1991.9	1704.8	1507.7	1263.1
37°	3728.2	3755.7	3504.8	3215.1	2802.4	2435.7	2133.6	1851.2	1589.5	1404.3	1184.0
38°	3294.8	3319.6	3116.9	2881.0	2531.9	2219.5	1960.8	1705.3	1470.5	1300.3	1100.7
39°	2903.8	2925.5	2762.0	2567.6	2274.3	2012.0	1788.6	1560.5	1351.0	1196.4	1014.8
40°	2555.7	2574.3	2439.8	2280.0	2040.5	1818.1	1621.0	1420.3	1234.1	1095.5	934.6
42.5°	1876.0	1880.2	1800.0	1705.8	1519.6	1391.9	1251.7	1106.9	970.9	875.7	773.3
45°	1309.1	1360.3	1308.1	1245.5	1112.1	1031.9	942.4	855.0	776.4	684.8	583.4
47.5°	941.4	943.4	912.4	873.1	767.6	712.8	639.3	533.3	455.2	325.3	241.5
50°	436.5	412.2	413.8	386.9	345.0	274.1	229.1	163.4	130.3	93.1	75.0
51°	259.7	241.5	244.1	225.0	197.1	153.6	130.3	104.5	90.5	70.3	57.9
52°	151.6	145.3	144.8	136.0	115.9	106.6	94.1	78.6	68.8	54.3	45.0
53°	110.2	106.0	106.0	100.3	86.4	80.2	71.4	60.5	52.8	41.4	34.1
54°	82.2	79.1	79.1	75.5	69.8	60.0	53.8	45.0	39.3	32.1	25.3
55°	59.5	57.4	57.4	54.8	50.7	43.4	38.8	32.6	29.0	23.3	18.6
57.5°	24.8	23.8	23.8	22.8	21.7	18.6	17.6	15.0	12.9	11.4	9.3
60°	11.4	10.9	11.4	10.9	9.8	10.3	8.8	7.8	7.2	6.2	5.2
61°	8.8	8.3	8.3	8.3	7.2	7.2	6.7	6.2	5.7	4.7	4.1
62°	6.7	6.2	6.2	6.2	5.7	5.7	5.2	4.7	4.7	3.6	3.1
63°	5.2	4.7	4.7	4.7	4.1	4.1	4.1	3.6	3.6	3.1	2.6
64°	3.6	3.6	3.6	3.6	3.6	3.1	3.1	3.1	2.6	2.1	2.1
65°	3.1	2.6	3.1	2.6	2.6	2.6	2.6	2.6	2.1	1.6	1.6
66°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.6	1.0



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CATALOG NUMBER: LDA4A09830D010TE LAR15SP 4LA1 30° Tilt

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°	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6
2.5°	70.3	72.4	70.9	66.7	68.8	67.8	65.7	64.1	54.8	47.6	40.3
5°	166.0	167.6	158.8	143.3	138.1	129.8	117.9	109.7	62.1	45.5	35.7
7.5°	314.0	303.6	295.3	266.4	254.0	234.8	212.1	196.0	70.9	42.9	33.1
10°	475.3	458.8	441.7	399.3	377.1	347.6	315.0	296.4	80.2	41.4	33.1
12.5°	635.2	612.9	581.9	535.3	503.8	464.0	419.5	386.4	86.9	42.4	38.3
15°	773.8	746.9	712.8	660.0	623.3	573.6	515.7	470.2	90.0	48.1	53.3
17.5°	924.8	876.2	819.8	752.6	712.2	654.8	589.6	534.3	90.0	61.0	85.3
20°	1098.6	1009.6	919.1	825.0	768.1	708.1	638.3	578.8	93.6	92.1	117.4
22.5°	1260.5	1137.9	1010.2	887.6	808.4	743.3	672.4	604.1	108.6	101.4	78.1
25°	1386.2	1230.5	1080.0	931.0	841.5	769.1	693.1	610.9	99.3	57.9	42.4
26°	1418.8	1250.7	1094.0	936.2	843.1	768.6	691.0	603.6	83.3	46.0	34.1
27°	1435.8	1257.4	1095.0	931.5	836.9	759.8	679.6	588.6	66.7	37.2	27.9
28°	1435.8	1249.6	1084.1	918.6	820.9	743.3	660.0	564.8	54.3	30.5	22.2
29°	1421.4	1229.5	1062.4	899.0	799.1	720.0	633.1	536.9	46.0	25.3	18.1
30°	1393.4	1200.0	1033.4	873.6	771.2	693.6	603.6	507.9	39.8	20.7	14.5
31°	1354.1	1166.9	997.7	846.2	745.3	669.3	576.7	478.4	34.7	16.6	11.9
32°	1307.1	1125.5	961.0	817.8	724.1	646.5	548.8	447.4	30.0	14.0	10.3
33°	1252.7	1079.0	922.7	789.8	703.4	620.7	518.3	413.8	25.9	11.4	8.8
34°	1192.7	1027.7	883.4	759.8	678.1	588.1	482.6	378.1	22.2	9.8	7.2
35°	1127.6	970.3	843.1	729.3	649.6	551.9	444.3	340.3	19.1	8.3	6.2
36°	1057.2	916.5	803.8	698.8	614.5	512.6	402.4	301.5	16.6	6.7	5.7
37°	986.9	865.9	765.0	666.2	573.6	468.1	358.4	261.2	14.5	5.7	4.7
38°	920.2	816.7	726.7	628.4	526.0	419.0	312.9	220.9	12.4	5.2	4.1
39°	857.6	769.1	687.4	583.4	476.9	371.4	269.0	179.0	10.9	4.7	3.6
40°	801.2	724.1	644.5	533.3	426.2	322.8	224.5	133.4	9.3	3.6	3.1
42.5°	682.2	600.5	495.5	371.9	288.1	187.2	104.5	49.7	6.7	2.6	2.6
45°	450.5	346.5	235.3	140.2	94.7	56.9	42.4	30.0	5.2	2.1	2.1
47.5°	150.5	95.7	69.8	50.2	42.9	34.1	27.4	18.6	3.6	1.6	1.6
50°	57.4	46.6	38.3	29.0	25.9	20.7	16.6	10.9	2.6	1.6	1.6
51°	45.0	36.7	30.0	22.8	20.7	16.6	13.4	9.3	2.1	1.6	1.6
52°	34.7	28.4	23.3	17.6	16.6	13.4	11.4	7.8	2.1	1.0	1.6
53°	26.4	21.7	17.6	13.4	12.9	10.9	9.3	6.2	1.6	1.0	1.6
54°	19.7	16.6	14.0	10.9	10.9	9.3	7.8	5.2	1.6	1.0	1.6
55°	15.0	12.4	10.9	8.3	8.8	7.8	6.7	4.1	1.6	1.0	1.6
57.5°	7.8	7.2	6.2	5.2	5.7	5.2	4.7	2.6	1.6	1.0	1.6
60°	4.7	4.1	3.6	3.1	3.6	3.6	3.6	1.6	1.6	1.0	1.6
61°	3.6	3.1	2.6	2.6	3.1	3.1	3.1	1.6	1.6	1.0	1.6
62°	2.6	2.6	2.1	2.1	3.1	2.6	2.6	1.6	1.6	1.0	1.6
63°	2.1	2.1	2.1	1.6	2.6	2.6	2.6	1.6	1.6	1.0	1.6
64°	1.6	1.6	1.6	1.6	2.1	2.6	2.6	1.0	1.6	1.0	1.6
65°	1.6	1.6	1.0	1.0	2.1	2.1	2.1	1.0	1.6	1.0	1.6
66°	1.0	1.0	1.0	1.0	2.1	2.1	2.1	1.0	1.6	1.0	1.6



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CATALOG NUMBER: LDA4A09830D010TE 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	1.6	1.6	2.1	1.0	1.6	1.6	1.6
75°	0.5	0.5	0.5	0.5	1.6	1.6	2.1	1.0	1.6	1.6	1.6
77.5°	0.5	0.5	0.5	0.5	1.6	1.6	2.1	1.0	1.6	1.6	2.1
80°	0.5	0.5	0.5	0.5	1.6	1.6	2.1	1.0	1.6	1.6	2.1
82.5°	0.5	0.5	0.5	0.5	1.6	1.6	2.1	1.0	1.6	1.6	2.1
85°	0.5	0.5	0.5	0.5	1.6	1.6	2.1	1.0	1.6	1.6	2.1
87.5°	0.5	0.5	0.5	0.5	1.6	1.6	2.1	1.0	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



TEST NUMBER: P170910

CATALOG NUMBER: LDA4A09830D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	48.6	48.6	48.6
2.5°	36.7	35.2	34.1
5°	31.6	30.0	29.5
7.5°	29.5	29.0	29.5
10°	32.6	34.7	37.2
12.5°	43.4	51.2	55.3
15°	71.9	93.6	102.9
17.5°	126.7	144.3	154.7
20°	111.7	101.9	107.6
22.5°	60.5	52.8	54.3
25°	33.6	29.0	29.5
26°	26.9	23.3	23.3
27°	21.7	18.6	18.6
28°	17.6	15.0	15.0
29°	14.0	11.9	11.9
30°	11.4	9.8	9.8
31°	9.3	7.8	7.8
32°	7.8	6.7	6.2
33°	6.7	5.7	5.2
34°	5.7	4.7	4.1
35°	4.7	3.6	3.6
36°	4.1	3.1	3.1
37°	3.6	2.6	2.6
38°	3.1	2.1	2.1
39°	2.6	2.1	1.6
40°	2.1	1.6	1.0
42.5°	1.6	1.0	0.5
45°	1.6	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: P170910

CATALOG NUMBER: LDA4A09830D010TE 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°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	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	1.6	2.1	2.1	1.0	1.6	1.0	1.6
70°	0.5	0.5	0.5	0.5	1.6	1.6	2.1	1.0	1.6	1.0	1.6





67.5°	1.0	0.5	0.0
70°	1.0	0.5	0.0



(END OF REPORT)