

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: P170930

Luminaire Tested: **LDA4A28930D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170930
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: LDA4A28930D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2051.9 lumens
Efficiency: N/A
Efficacy: 46.1 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

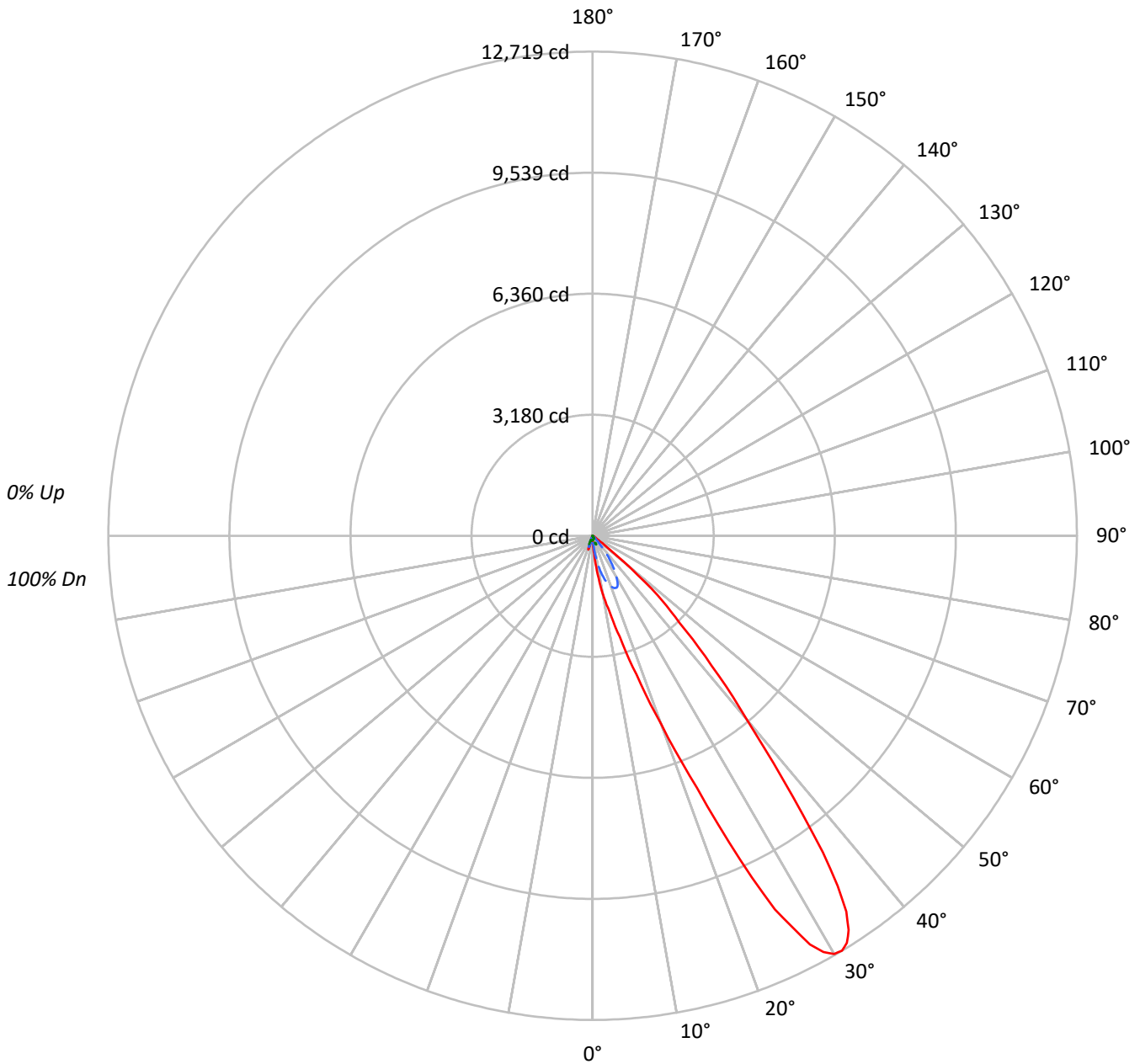
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	14764	14764	14764
5°	66230	13880	8989
10°	196026	12763	11485
15°	349953	15119	32358
20°	693206	29757	34771
25°	1348910	19407	9881
30°	1806861	7250	3447
35°	1690696	3072	1340
40°	1013147	1433	403
45°	562228	890	0
50°	206245	729	0
55°	31483	538	0
60°	6907	617	0
65°	2218	730	0
70°	469	902	0
75°	0	1811	0
80°	0	2699	0
85°	0	5378	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	26.3	1.3
10°-20°	221.6	10.8
20°-30°	661.6	32.2
30°-40°	783.5	38.2
40°-50°	325.0	15.8
50°-60°	25.3	1.2
60°-70°	3.4	0.2
70°-80°	2.6	0.1
80°-90°	2.4	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°	909.5	44.3
0°-40°	1693.1	82.5
0°-60°	2043.4	99.6
0°-90°	2051.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2051.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	120	120	120	120	120	
5°	535	270	112	78	73	85
15°	2740	1158	118	177	253	905
25°	9911	1504	143	83	73	4527
35°	11228	838	20	12	9	6507
45°	3223	74	5	4	0	2628
55°	146	10	2	1	0	215
65°	8	2	2	2	0	9
75°	0	2	4	2	0	0
85°	0	2	4	2	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°	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7
2.5°	207.6	197.4	202.5	193.6	198.7	189.7	183.4	189.7	189.7	184.7	177.0
5°	534.9	532.3	542.5	518.3	524.7	497.9	475.0	481.4	476.3	459.7	430.4
7.5°	1018.8	1008.6	1020.0	985.7	986.9	942.4	908.0	915.6	892.7	864.7	813.7
10°	1565.1	1551.1	1563.8	1523.1	1515.4	1453.0	1404.6	1412.3	1360.1	1314.2	1236.5
12.5°	2038.8	2037.5	1996.8	2004.4	1989.2	1893.6	1863.1	1865.6	1794.3	1743.4	1650.4
15°	2740.5	2767.2	2774.9	2722.7	2628.4	2455.2	2378.8	2349.5	2233.7	2148.3	2014.6
17.5°	3819.1	3856.0	3730.0	3760.5	3605.2	3333.9	3182.4	3092.0	2874.2	2713.8	2471.8
20°	5281.1	5249.2	5067.1	5044.2	4779.3	4430.4	4112.0	3941.4	3606.4	3372.1	3019.4
22.5°	7168.3	7144.1	6832.1	6693.3	6139.4	5647.8	5235.2	4807.3	4309.4	3996.1	3517.3
25°	9911.4	9800.6	9199.5	8804.7	7830.5	6995.1	6307.5	5642.7	4879.9	4539.9	3931.2
26°	10921.2	10894.5	10267.9	9748.4	8574.2	7537.6	6610.6	5944.5	5104.0	4706.7	4048.3
27°	11527.4	11740.1	11156.8	10568.5	9284.8	8043.2	6968.4	6187.8	5278.5	4823.9	4123.5
28°	12156.5	12294.0	11771.9	11033.3	9854.1	8445.6	7239.6	6352.0	5385.5	4881.2	4148.9
29°	12502.9	12635.3	12150.1	11457.4	10227.2	8706.7	7400.1	6424.6	5425.0	4879.9	4126.0
30°	12686.2	12809.8	12336.0	11663.7	10381.3	8788.2	7434.5	6395.3	5386.8	4821.3	4061.1
31°	12719.4	12822.5	12355.1	11657.3	10322.7	8687.6	7337.7	6274.4	5284.9	4713.1	3963.0
32°	12607.3	12687.5	12212.5	11468.8	10059.1	8432.9	7136.5	6087.2	5129.5	4578.1	3836.9
33°	12345.0	12488.9	11909.4	11088.0	9600.6	8055.9	6851.2	5842.7	4935.9	4402.4	3682.9
34°	11910.7	12002.4	11402.6	10492.1	8989.4	7597.5	6501.0	5558.7	4714.4	4194.8	3508.4
35°	11228.1	11309.6	10646.2	9687.2	8292.8	7080.5	6101.2	5245.4	4466.0	3961.7	3314.8
36°	10283.2	10360.9	9666.9	8793.3	7589.8	6541.8	5679.6	4904.1	4197.3	3712.1	3109.8
37°	9179.1	9246.6	8629.0	7915.9	6899.6	5996.7	5253.0	4557.7	3913.4	3457.5	2915.0
38°	8112.0	8173.1	7673.9	7093.2	6233.6	5464.4	4827.7	4198.6	3620.5	3201.5	2709.9
39°	7149.2	7202.7	6800.3	6321.5	5599.4	4953.8	4403.6	3842.0	3326.3	2945.5	2498.5
40°	6292.2	6338.0	6006.9	5613.4	5023.8	4476.2	3991.0	3496.9	3038.5	2697.2	2301.1
42.5°	4618.9	4629.0	4431.7	4199.9	3741.4	3426.9	3081.8	2725.2	2390.3	2156.0	1903.8
45°	3223.1	3349.2	3220.6	3066.5	2737.9	2540.6	2320.3	2105.0	1911.5	1686.1	1436.5
47.5°	2317.7	2322.8	2246.4	2149.6	1889.8	1754.8	1574.0	1312.9	1120.6	801.0	594.7
50°	1074.8	1015.0	1018.8	952.6	849.4	674.9	564.1	402.4	320.9	229.2	184.7
51°	639.3	594.7	601.1	554.0	485.2	378.2	320.9	257.2	222.9	173.2	142.6
52°	373.1	357.8	356.6	334.9	285.3	262.3	231.8	193.6	169.4	133.7	110.8
53°	271.2	261.1	261.1	247.1	212.7	197.4	175.7	149.0	129.9	101.9	84.0
54°	202.5	194.8	194.8	185.9	171.9	147.7	132.4	110.8	96.8	79.0	62.4
55°	146.4	141.4	141.4	135.0	124.8	107.0	95.5	80.2	71.3	57.3	45.8
57.5°	61.1	58.6	58.6	56.0	53.5	45.8	43.3	36.9	31.8	28.0	22.9
60°	28.0	26.7	28.0	26.7	24.2	25.5	21.6	19.1	17.8	15.3	12.7
61°	21.6	20.4	20.4	20.4	17.8	17.8	16.6	15.3	14.0	11.5	10.2
62°	16.6	15.3	15.3	15.3	14.0	14.0	12.7	11.5	11.5	8.9	7.6
63°	12.7	11.5	11.5	11.5	10.2	10.2	10.2	8.9	8.9	7.6	6.4
64°	8.9	8.9	8.9	8.9	8.9	7.6	7.6	7.6	6.4	5.1	5.1
65°	7.6	6.4	7.6	6.4	6.4	6.4	6.4	6.4	5.1	3.8	3.8
66°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	3.8	2.5



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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	1.3	1.3	1.3	1.3	1.3	1.3	1.3
75°	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3
80°	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3
85°	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	1.3
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3
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°	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7
2.5°	173.2	178.3	174.5	164.3	169.4	166.8	161.7	157.9	135.0	117.2	99.3
5°	408.8	412.6	391.0	352.7	340.0	319.6	290.3	270.0	152.8	112.1	87.9
7.5°	773.0	747.5	727.1	655.8	625.3	578.2	522.1	482.6	174.5	105.7	81.5
10°	1170.3	1129.6	1087.5	983.1	928.4	855.8	775.5	729.7	197.4	101.9	81.5
12.5°	1563.8	1509.1	1432.6	1318.0	1240.4	1142.3	1032.8	951.3	213.9	104.4	94.2
15°	1905.1	1838.9	1754.8	1624.9	1534.5	1412.3	1269.6	1157.6	221.6	118.4	131.2
17.5°	2277.0	2157.2	2018.4	1852.9	1753.6	1612.2	1451.7	1315.5	221.6	150.3	210.1
20°	2704.8	2485.8	2262.9	2031.2	1891.1	1743.4	1571.5	1425.0	230.5	226.7	289.1
22.5°	3103.4	2801.6	2487.1	2185.3	1990.4	1830.0	1655.5	1487.4	267.4	249.6	192.3
25°	3412.9	3029.6	2659.0	2292.2	2071.9	1893.6	1706.4	1504.0	244.5	142.6	104.4
26°	3493.1	3079.2	2693.4	2305.0	2075.7	1892.4	1701.3	1486.1	205.0	113.3	84.0
27°	3535.1	3095.8	2695.9	2293.5	2060.5	1870.7	1673.3	1449.2	164.3	91.7	68.8
28°	3535.1	3076.7	2669.2	2261.7	2021.0	1830.0	1624.9	1390.6	133.7	75.1	54.8
29°	3499.5	3027.0	2615.7	2213.3	1967.5	1772.7	1558.7	1321.9	113.3	62.4	44.6
30°	3430.7	2954.4	2544.4	2150.9	1898.7	1707.7	1486.1	1250.5	98.1	50.9	35.7
31°	3333.9	2872.9	2456.5	2083.4	1835.1	1647.9	1419.9	1178.0	85.3	40.8	29.3
32°	3218.0	2771.1	2366.1	2013.3	1782.8	1591.8	1351.1	1101.5	73.9	34.4	25.5
33°	3084.3	2656.4	2271.9	1944.6	1731.9	1528.2	1276.0	1018.8	63.7	28.0	21.6
34°	2936.6	2530.4	2175.1	1870.7	1669.5	1447.9	1188.1	930.9	54.8	24.2	17.8
35°	2776.2	2389.0	2075.7	1795.6	1599.5	1358.8	1093.9	837.9	47.1	20.4	15.3
36°	2603.0	2256.6	1979.0	1720.4	1512.9	1262.0	990.8	742.4	40.8	16.6	14.0
37°	2429.8	2131.8	1883.5	1640.2	1412.3	1152.5	882.5	643.1	35.7	14.0	11.5
38°	2265.5	2010.8	1789.2	1547.3	1295.1	1031.5	770.4	543.8	30.6	12.7	10.2
39°	2111.4	1893.6	1692.4	1436.5	1174.1	914.3	662.2	440.6	26.7	11.5	8.9
40°	1972.6	1782.8	1586.7	1312.9	1049.3	794.6	552.7	328.6	22.9	8.9	7.6
42.5°	1679.7	1478.5	1220.0	915.6	709.3	461.0	257.2	122.3	16.6	6.4	6.4
45°	1109.2	853.2	579.4	345.1	233.0	140.1	104.4	73.9	12.7	5.1	5.1
47.5°	370.6	235.6	171.9	123.5	105.7	84.0	67.5	45.8	8.9	3.8	3.8
50°	141.4	114.6	94.2	71.3	63.7	50.9	40.8	26.7	6.4	3.8	3.8
51°	110.8	90.4	73.9	56.0	50.9	40.8	33.1	22.9	5.1	3.8	3.8
52°	85.3	70.0	57.3	43.3	40.8	33.1	28.0	19.1	5.1	2.5	3.8
53°	64.9	53.5	43.3	33.1	31.8	26.7	22.9	15.3	3.8	2.5	3.8
54°	48.4	40.8	34.4	26.7	26.7	22.9	19.1	12.7	3.8	2.5	3.8
55°	36.9	30.6	26.7	20.4	21.6	19.1	16.6	10.2	3.8	2.5	3.8
57.5°	19.1	17.8	15.3	12.7	14.0	12.7	11.5	6.4	3.8	2.5	3.8
60°	11.5	10.2	8.9	7.6	8.9	8.9	8.9	3.8	3.8	2.5	3.8
61°	8.9	7.6	6.4	6.4	7.6	7.6	7.6	3.8	3.8	2.5	3.8
62°	6.4	6.4	5.1	5.1	7.6	6.4	6.4	3.8	3.8	2.5	3.8
63°	5.1	5.1	5.1	3.8	6.4	6.4	6.4	3.8	3.8	2.5	3.8
64°	3.8	3.8	3.8	3.8	5.1	6.4	6.4	2.5	3.8	2.5	3.8
65°	3.8	3.8	2.5	2.5	5.1	5.1	5.1	2.5	3.8	2.5	3.8
66°	2.5	2.5	2.5	2.5	5.1	5.1	5.1	2.5	3.8	2.5	3.8



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CATALOG NUMBER: LDA4A28930D010TE 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°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.5	3.8	3.8	3.8
75°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.5	3.8	3.8	3.8
77.5°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.5	3.8	3.8	5.1
80°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.5	3.8	3.8	5.1
82.5°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.5	3.8	3.8	5.1
85°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.5	3.8	3.8	5.1
87.5°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.5	3.8	3.8	3.8
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: P170930

CATALOG NUMBER: LDA4A28930D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	119.7	119.7	119.7
2.5°	90.4	86.6	84.0
5°	77.7	73.9	72.6
7.5°	72.6	71.3	72.6
10°	80.2	85.3	91.7
12.5°	107.0	126.1	136.3
15°	177.0	230.5	253.4
17.5°	312.0	355.3	380.8
20°	275.1	250.9	264.9
22.5°	149.0	129.9	133.7
25°	82.8	71.3	72.6
26°	66.2	57.3	57.3
27°	53.5	45.8	45.8
28°	43.3	36.9	36.9
29°	34.4	29.3	29.3
30°	28.0	24.2	24.2
31°	22.9	19.1	19.1
32°	19.1	16.6	15.3
33°	16.6	14.0	12.7
34°	14.0	11.5	10.2
35°	11.5	8.9	8.9
36°	10.2	7.6	7.6
37°	8.9	6.4	6.4
38°	7.6	5.1	5.1
39°	6.4	5.1	3.8
40°	5.1	3.8	2.5
42.5°	3.8	2.5	1.3
45°	3.8	1.3	0.0
47.5°	2.5	1.3	0.0
50°	2.5	0.0	0.0
51°	2.5	0.0	0.0
52°	2.5	0.0	0.0
53°	1.3	0.0	0.0
54°	2.5	0.0	0.0
55°	1.3	0.0	0.0
57.5°	2.5	0.0	0.0
60°	2.5	0.0	0.0
61°	2.5	0.0	0.0
62°	2.5	0.0	0.0
63°	2.5	0.0	0.0
64°	2.5	1.3	0.0
65°	2.5	1.3	0.0
66°	2.5	1.3	0.0



TEST NUMBER: P170930

CATALOG NUMBER: LDA4A28930D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	2.5	1.3	0.0
75°	2.5	1.3	0.0
77.5°	2.5	1.3	0.0
80°	2.5	1.3	0.0
82.5°	2.5	1.3	0.0
85°	2.5	1.3	0.0
87.5°	2.5	1.3	0.0
90°	0.0	0.0	0.0



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







67.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	2.5	2.5
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.5	2.5	1.3	1.3





67.5°	2.5	1.3	2.5	2.5	3.8	5.1	5.1	2.5	3.8	2.5	3.8
70°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.5	3.8	2.5	3.8





67.5°	2.5	1.3	0.0
70°	2.5	1.3	0.0



(END OF REPORT)