

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: P170906

Luminaire Tested: **LDA4A18930D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170906
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: LDA4A18930D010TE 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: 1310.4 lumens
Efficiency: N/A
Efficacy: 45.0 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

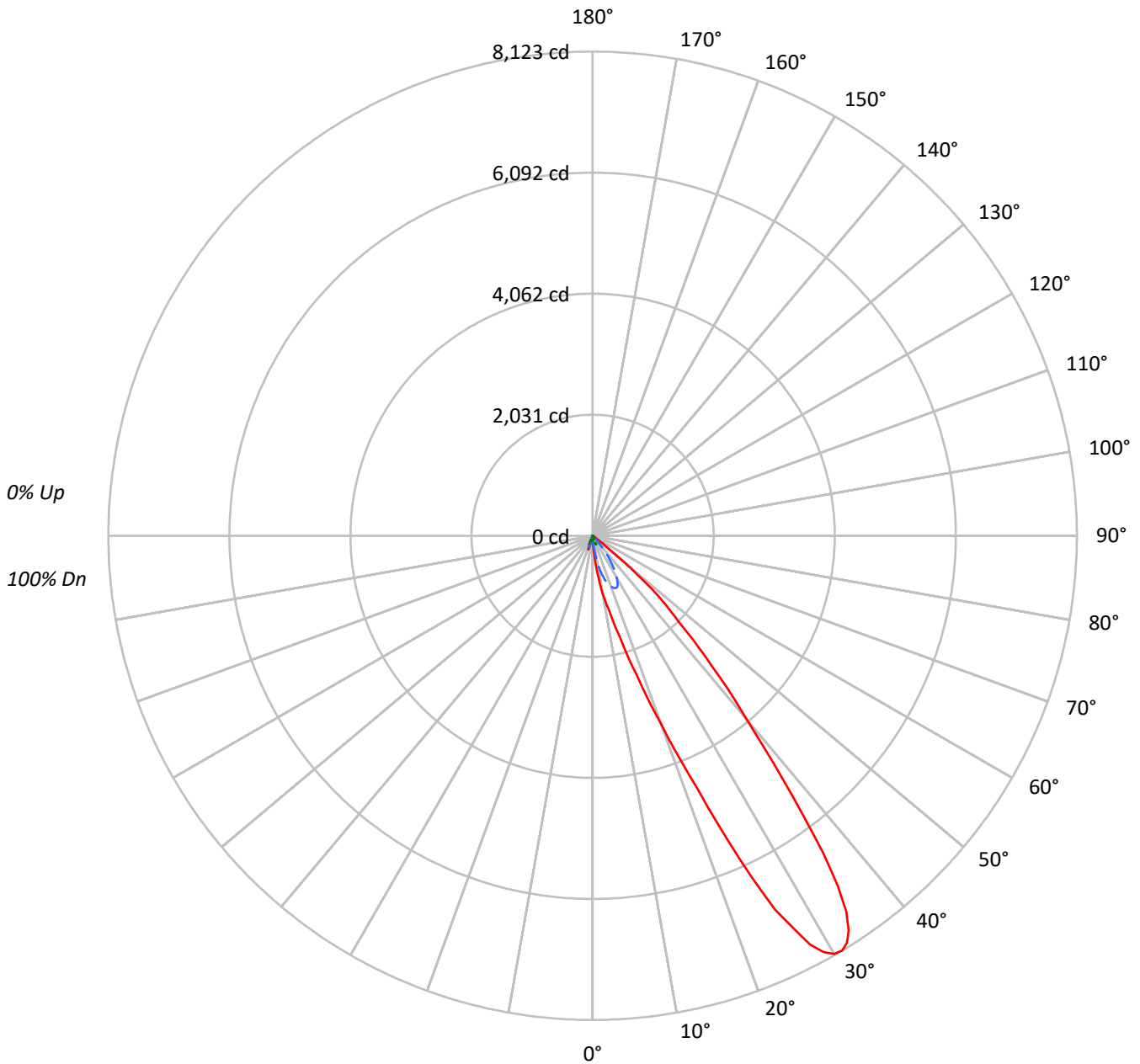
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P170906

CATALOG NUMBER: LDA4A18930D010TE LAR15SP 4LA1 30° Tilt

Luminous Intensity Polar Plot





TEST NUMBER: P170906

CATALOG NUMBER: LDA4A18930D010TE LAR15SP 4LA1 30° Tilt

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°	9424	9424	9424
5°	42296	8865	5745
10°	125186	8154	7340
15°	223495	9654	20661
20°	442706	19007	22209
25°	861466	12398	6315
30°	1153946	4629	2208
35°	1079759	1958	858
40°	647044	918	258
45°	359061	576	0
50°	131714	461	0
55°	20107	344	0
60°	4416	395	0
65°	1430	467	0
70°	289	577	0
75°	0	1144	0
80°	0	1705	0
85°	0	3397	0



TEST NUMBER: P170906

CATALOG NUMBER: LDA4A18930D010TE LAR15SP 4LA1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	16.8	1.3
10°-20°	141.6	10.8
20°-30°	422.5	32.2
30°-40°	500.4	38.2
40°-50°	207.6	15.8
50°-60°	16.1	1.2
60°-70°	2.2	0.2
70°-80°	1.7	0.1
80°-90°	1.5	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°	580.9	44.3
0°-40°	1081.3	82.5
0°-60°	1305.0	99.6
0°-90°	1310.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1310.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	76	76	76	76	76	
5°	342	172	72	50	46	54
15°	1750	739	76	113	162	578
25°	6330	960	91	53	46	2891
35°	7171	535	13	7	6	4156
45°	2058	47	3	2	0	1678
55°	94	6	2	1	0	137
65°	5	2	2	2	0	6
75°	0	2	2	2	0	0
85°	0	2	2	2	0	0
90°	0	0	0	0	0	



TEST NUMBER: P170906

CATALOG NUMBER: LDA4A18930D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	76.4	76.4	76.4	76.4	76.4	76.4	76.4	76.4	76.4	76.4	76.4
2.5°	132.6	126.1	129.3	123.6	126.9	121.2	117.1	121.2	121.2	117.9	113.0
5°	341.6	340.0	346.5	331.0	335.1	318.0	303.4	307.4	304.2	293.6	274.9
7.5°	650.6	644.1	651.4	629.5	630.3	601.8	579.9	584.8	570.1	552.2	519.7
10°	999.5	990.6	998.7	972.7	967.8	928.0	897.1	901.9	868.6	839.3	789.7
12.5°	1302.1	1301.3	1275.2	1280.1	1270.4	1209.4	1189.8	1191.5	1145.9	1113.4	1054.0
15°	1750.2	1767.3	1772.2	1738.8	1678.6	1568.0	1519.2	1500.5	1426.5	1372.0	1286.6
17.5°	2439.1	2462.6	2382.1	2401.6	2302.4	2129.2	2032.4	1974.7	1835.6	1733.1	1578.6
20°	3372.7	3352.4	3236.1	3221.4	3052.3	2829.4	2626.1	2517.1	2303.2	2153.6	1928.3
22.5°	4578.0	4562.6	4363.3	4274.6	3920.9	3606.9	3343.4	3070.2	2752.2	2552.1	2246.3
25°	6329.8	6259.1	5875.2	5623.1	5000.9	4467.4	4028.2	3603.7	3116.5	2899.4	2510.6
26°	6974.8	6957.7	6557.5	6225.7	5475.9	4813.9	4221.8	3796.4	3259.7	3005.9	2585.4
27°	7361.9	7497.7	7125.2	6749.5	5929.7	5136.7	4450.3	3951.8	3371.1	3080.7	2633.4
28°	7763.7	7851.5	7518.0	7046.3	6293.2	5393.7	4623.5	4056.7	3439.4	3117.3	2649.7
29°	7984.9	8069.5	7759.6	7317.2	6531.5	5560.5	4726.0	4103.0	3464.6	3116.5	2635.1
30°	8102.0	8180.9	7878.3	7448.9	6629.9	5612.5	4748.0	4084.3	3440.2	3079.1	2593.6
31°	8123.1	8189.0	7890.5	7444.8	6592.5	5548.3	4686.2	4007.1	3375.1	3010.0	2531.0
32°	8051.6	8102.8	7799.4	7324.5	6424.2	5385.6	4557.7	3887.5	3275.9	2923.8	2450.4
33°	7884.0	7975.9	7605.9	7081.3	6131.4	5144.9	4375.5	3731.4	3152.3	2811.5	2352.0
34°	7606.7	7665.2	7282.2	6700.7	5741.0	4852.1	4151.8	3550.0	3010.8	2679.0	2240.6
35°	7170.8	7222.8	6799.1	6186.7	5296.1	4521.9	3896.5	3349.9	2852.2	2530.1	2117.0
36°	6567.3	6616.9	6173.7	5615.8	4847.2	4177.9	3627.3	3132.0	2680.6	2370.7	1986.1
37°	5862.2	5905.3	5510.8	5055.4	4406.4	3829.8	3354.8	2910.8	2499.2	2208.1	1861.6
38°	5180.6	5219.7	4900.9	4530.0	3981.0	3489.8	3083.2	2681.4	2312.2	2044.6	1730.7
39°	4565.8	4600.0	4343.0	4037.2	3576.0	3163.7	2812.4	2453.7	2124.3	1881.1	1595.7
40°	4018.5	4047.7	3836.3	3585.0	3208.4	2858.7	2548.8	2233.3	1940.5	1722.5	1469.6
42.5°	2949.8	2956.3	2830.2	2682.2	2389.4	2188.6	1968.2	1740.4	1526.5	1376.9	1215.9
45°	2058.4	2138.9	2056.8	1958.4	1748.6	1622.5	1481.8	1344.4	1220.7	1076.8	917.4
47.5°	1480.2	1483.4	1434.6	1372.8	1206.9	1120.7	1005.2	838.5	715.7	511.6	379.8
50°	686.4	648.2	650.6	608.3	542.5	431.0	360.3	257.0	204.9	146.4	117.9
51°	408.3	379.8	383.9	353.8	309.9	241.5	204.9	164.3	142.3	110.6	91.1
52°	238.3	228.5	227.7	213.9	182.2	167.5	148.0	123.6	108.2	85.4	70.8
53°	173.2	166.7	166.7	157.8	135.8	126.1	112.2	95.2	83.0	65.1	53.7
54°	129.3	124.4	124.4	118.7	109.8	94.3	84.6	70.8	61.8	50.4	39.9
55°	93.5	90.3	90.3	86.2	79.7	68.3	61.0	51.2	45.5	36.6	29.3
57.5°	39.0	37.4	37.4	35.8	34.2	29.3	27.7	23.6	20.3	17.9	14.6
60°	17.9	17.1	17.9	17.1	15.5	16.3	13.8	12.2	11.4	9.8	8.1
61°	13.8	13.0	13.0	13.0	11.4	11.4	10.6	9.8	8.9	7.3	6.5
62°	10.6	9.8	9.8	9.8	8.9	8.9	8.1	7.3	7.3	5.7	4.9
63°	8.1	7.3	7.3	7.3	6.5	6.5	6.5	5.7	5.7	4.9	4.1
64°	5.7	5.7	5.7	5.7	5.7	4.9	4.9	4.9	4.1	3.3	3.3
65°	4.9	4.1	4.9	4.1	4.1	4.1	4.1	4.1	3.3	2.4	2.4
66°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.4	1.6



TEST NUMBER: P170906

CATALOG NUMBER: LDA4A18930D010TE 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	0.8	0.8	0.8	0.8	0.8	0.8	0.8
75°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
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: P170906

CATALOG NUMBER: LDA4A18930D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	76.4	76.4	76.4	76.4	76.4	76.4	76.4	76.4	76.4	76.4	76.4
2.5°	110.6	113.9	111.4	104.9	108.2	106.5	103.3	100.8	86.2	74.8	63.4
5°	261.1	263.5	249.7	225.3	217.1	204.1	185.4	172.4	97.6	71.6	56.1
7.5°	493.7	477.4	464.4	418.8	399.3	369.2	333.4	308.2	111.4	67.5	52.1
10°	747.4	721.4	694.5	627.9	592.9	546.5	495.3	466.0	126.1	65.1	52.1
12.5°	998.7	963.7	914.9	841.8	792.1	729.5	659.6	607.5	136.6	66.7	60.2
15°	1216.7	1174.4	1120.7	1037.8	980.0	901.9	810.8	739.3	141.5	75.6	83.8
17.5°	1454.2	1377.7	1289.1	1183.3	1119.9	1029.6	927.1	840.1	141.5	96.0	134.2
20°	1727.4	1587.5	1445.2	1297.2	1207.7	1113.4	1003.6	910.1	147.2	144.8	184.6
22.5°	1982.0	1789.2	1588.4	1395.6	1271.2	1168.7	1057.3	949.9	170.8	159.4	122.8
25°	2179.6	1934.8	1698.1	1463.9	1323.2	1209.4	1089.8	960.5	156.2	91.1	66.7
26°	2230.9	1966.5	1720.1	1472.1	1325.7	1208.5	1086.6	949.1	130.9	72.4	53.7
27°	2257.7	1977.1	1721.7	1464.7	1315.9	1194.7	1068.7	925.5	104.9	58.6	43.9
28°	2257.7	1964.9	1704.7	1444.4	1290.7	1168.7	1037.8	888.1	85.4	48.0	35.0
29°	2234.9	1933.2	1670.5	1413.5	1256.5	1132.1	995.5	844.2	72.4	39.9	28.5
30°	2191.0	1886.8	1625.0	1373.6	1212.6	1090.6	949.1	798.6	62.6	32.5	22.8
31°	2129.2	1834.8	1568.8	1330.5	1171.9	1052.4	906.8	752.3	54.5	26.0	18.7
32°	2055.2	1769.7	1511.1	1285.8	1138.6	1016.6	862.9	703.5	47.2	22.0	16.3
33°	1969.8	1696.5	1450.9	1241.9	1106.1	975.9	814.9	650.6	40.7	17.9	13.8
34°	1875.4	1616.0	1389.1	1194.7	1066.2	924.7	758.8	594.5	35.0	15.5	11.4
35°	1773.0	1525.7	1325.7	1146.7	1021.5	867.8	698.6	535.1	30.1	13.0	9.8
36°	1662.4	1441.1	1263.9	1098.8	966.2	806.0	632.7	474.1	26.0	10.6	8.9
37°	1551.8	1361.4	1202.9	1047.5	901.9	736.0	563.6	410.7	22.8	8.9	7.3
38°	1446.8	1284.2	1142.7	988.1	827.1	658.8	492.0	347.3	19.5	8.1	6.5
39°	1348.4	1209.4	1080.9	917.4	749.9	583.9	422.9	281.4	17.1	7.3	5.7
40°	1259.8	1138.6	1013.4	838.5	670.1	507.5	353.0	209.8	14.6	5.7	4.9
42.5°	1072.7	944.2	779.1	584.8	453.0	294.4	164.3	78.1	10.6	4.1	4.1
45°	708.4	544.9	370.0	220.4	148.8	89.5	66.7	47.2	8.1	3.3	3.3
47.5°	236.7	150.5	109.8	78.9	67.5	53.7	43.1	29.3	5.7	2.4	2.4
50°	90.3	73.2	60.2	45.5	40.7	32.5	26.0	17.1	4.1	2.4	2.4
51°	70.8	57.7	47.2	35.8	32.5	26.0	21.1	14.6	3.3	2.4	2.4
52°	54.5	44.7	36.6	27.7	26.0	21.1	17.9	12.2	3.3	1.6	2.4
53°	41.5	34.2	27.7	21.1	20.3	17.1	14.6	9.8	2.4	1.6	2.4
54°	30.9	26.0	22.0	17.1	17.1	14.6	12.2	8.1	2.4	1.6	2.4
55°	23.6	19.5	17.1	13.0	13.8	12.2	10.6	6.5	2.4	1.6	2.4
57.5°	12.2	11.4	9.8	8.1	8.9	8.1	7.3	4.1	2.4	1.6	2.4
60°	7.3	6.5	5.7	4.9	5.7	5.7	5.7	2.4	2.4	1.6	2.4
61°	5.7	4.9	4.1	4.1	4.9	4.9	4.9	2.4	2.4	1.6	2.4
62°	4.1	4.1	3.3	3.3	4.9	4.1	4.1	2.4	2.4	1.6	2.4
63°	3.3	3.3	3.3	2.4	4.1	4.1	4.1	2.4	2.4	1.6	2.4
64°	2.4	2.4	2.4	2.4	3.3	4.1	4.1	1.6	2.4	1.6	2.4
65°	2.4	2.4	1.6	1.6	3.3	3.3	3.3	1.6	2.4	1.6	2.4
66°	1.6	1.6	1.6	1.6	3.3	3.3	3.3	1.6	2.4	1.6	2.4



TEST NUMBER: P170906

CATALOG NUMBER: LDA4A18930D010TE 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°	0.8	0.8	0.8	0.8	2.4	2.4	3.3	1.6	2.4	2.4	2.4
75°	0.8	0.8	0.8	0.8	2.4	2.4	3.3	1.6	2.4	2.4	2.4
77.5°	0.8	0.8	0.8	0.8	2.4	2.4	3.3	1.6	2.4	2.4	3.3
80°	0.8	0.8	0.8	0.8	2.4	2.4	3.3	1.6	2.4	2.4	3.3
82.5°	0.8	0.8	0.8	0.8	2.4	2.4	3.3	1.6	2.4	2.4	3.3
85°	0.8	0.8	0.8	0.8	2.4	2.4	3.3	1.6	2.4	2.4	3.3
87.5°	0.8	0.8	0.8	0.8	2.4	2.4	3.3	1.6	2.4	2.4	2.4
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: P170906

CATALOG NUMBER: LDA4A18930D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	76.4	76.4	76.4
2.5°	57.7	55.3	53.7
5°	49.6	47.2	46.4
7.5°	46.4	45.5	46.4
10°	51.2	54.5	58.6
12.5°	68.3	80.5	87.0
15°	113.0	147.2	161.8
17.5°	199.3	226.9	243.2
20°	175.7	160.2	169.2
22.5°	95.2	83.0	85.4
25°	52.9	45.5	46.4
26°	42.3	36.6	36.6
27°	34.2	29.3	29.3
28°	27.7	23.6	23.6
29°	22.0	18.7	18.7
30°	17.9	15.5	15.5
31°	14.6	12.2	12.2
32°	12.2	10.6	9.8
33°	10.6	8.9	8.1
34°	8.9	7.3	6.5
35°	7.3	5.7	5.7
36°	6.5	4.9	4.9
37°	5.7	4.1	4.1
38°	4.9	3.3	3.3
39°	4.1	3.3	2.4
40°	3.3	2.4	1.6
42.5°	2.4	1.6	0.8
45°	2.4	0.8	0.0
47.5°	1.6	0.8	0.0
50°	1.6	0.0	0.0
51°	1.6	0.0	0.0
52°	1.6	0.0	0.0
53°	0.8	0.0	0.0
54°	1.6	0.0	0.0
55°	0.8	0.0	0.0
57.5°	1.6	0.0	0.0
60°	1.6	0.0	0.0
61°	1.6	0.0	0.0
62°	1.6	0.0	0.0
63°	1.6	0.0	0.0
64°	1.6	0.8	0.0
65°	1.6	0.8	0.0
66°	1.6	0.8	0.0



TEST NUMBER: P170906

CATALOG NUMBER: LDA4A18930D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.6	0.8	0.0
75°	1.6	0.8	0.0
77.5°	1.6	0.8	0.0
80°	1.6	0.8	0.0
82.5°	1.6	0.8	0.0
85°	1.6	0.8	0.0
87.5°	1.6	0.8	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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







67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
70°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	0.8	0.8





67.5°	1.6	0.8	1.6	1.6	2.4	3.3	3.3	1.6	2.4	1.6	2.4
70°	0.8	0.8	0.8	0.8	2.4	2.4	3.3	1.6	2.4	1.6	2.4





67.5°	1.6	0.8	0.0
70°	1.6	0.8	0.0



(END OF REPORT)