

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: P175441

Luminaire Tested: **LDA6A20835D010TE LARL15SP 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175441
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26267)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A20835D010TE LARL15SP 6LAL1 30° Tilt
Description: PORTFOLIO 6" Lensed Adjustable, Self-flange 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: 1419.1 lumens
Efficiency: N/A
Efficacy: 48.7 lumens/watt
Spacing Criteria (0/90/45): 2.44 / 0.33 / 1.32
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

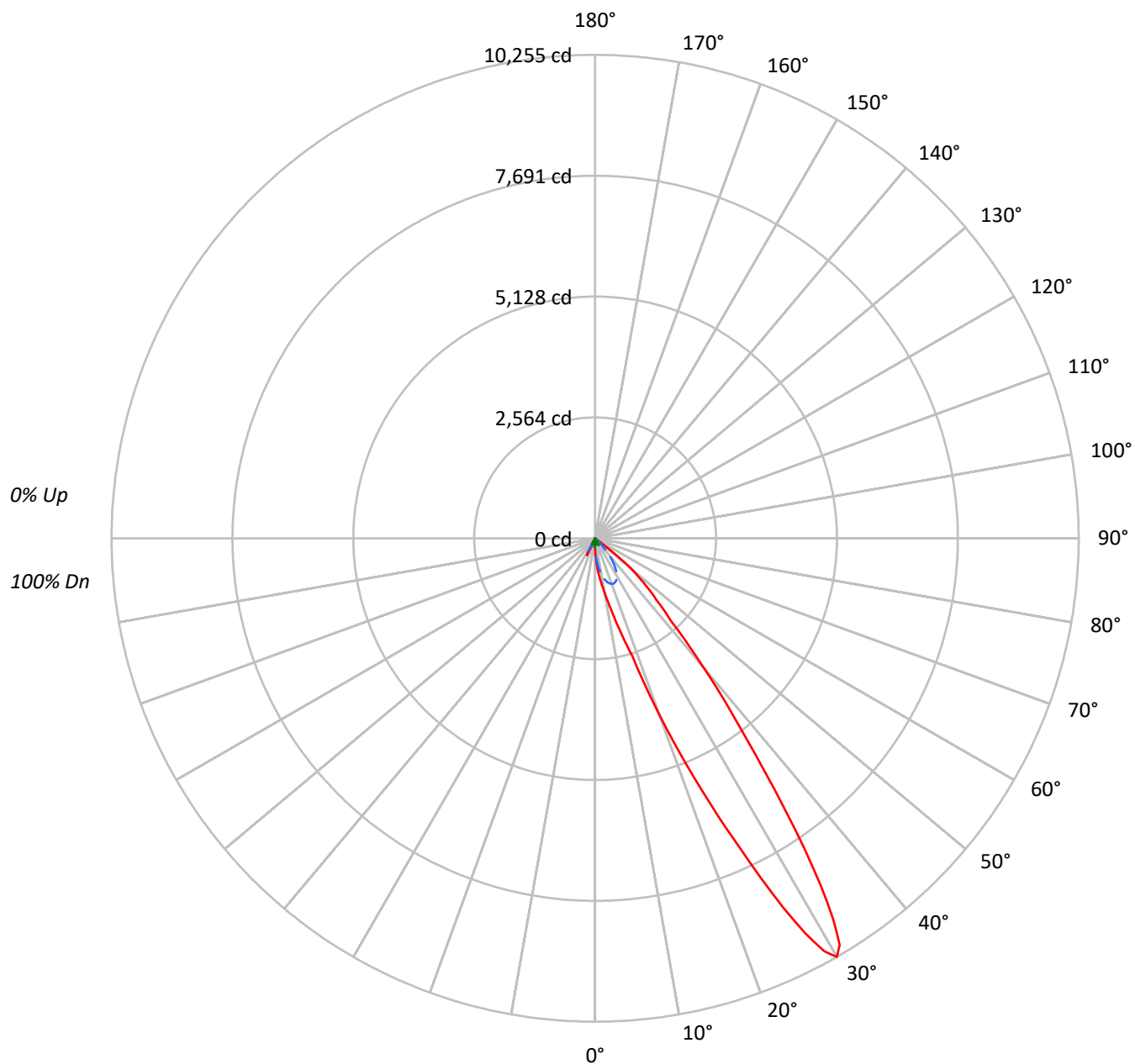
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P175441

CATALOG NUMBER: LDA6A20835D010TE LARL15SP 6LAL1 30° Tilt

Luminous Intensity Polar Plot





TEST NUMBER: P175441

CATALOG NUMBER: LDA6A20835D010TE LARL15SP 6LAL1 30° Tilt

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		
1	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91		
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83		
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75		
4	93	84	77	72	91	82	76	72	80	75	71	78	74	70	76	72	69	67		
5	87	77	70	64	85	76	69	64	74	68	64	72	67	63	70	66	62	61		
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55		
7	75	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49		
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45		
9	66	55	47	43	65	54	47	43	53	47	42	52	46	42	51	46	42	41		
10	62	50	43	39	61	50	43	39	49	43	39	48	42	38	47	42	38	37		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	11452	11452	11452
5°	39159	9735	1299
10°	65535	5405	640
15°	113837	1992	545
20°	232584	1307	933
25°	436586	2553	16501
30°	649132	4450	2671
35°	468461	341	214
40°	254448	136	0
45°	141247	147	0
50°	82650	162	0
55°	2628	124	0
60°	910	208	0
65°	415	246	0
70°	305	305	0
75°	127	551	0
80°	0	821	0
85°	0	1635	0



TEST NUMBER: P175441

CATALOG NUMBER: LDA6A20835D010TE LARL15SP 6LAL1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	29.3	2.1
10°-20°	151.9	10.7
20°-30°	489.0	34.5
30°-40°	509.1	35.9
40°-50°	216.9	15.3
50°-60°	18.0	1.3
60°-70°	1.9	0.1
70°-80°	1.6	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°	670.2	47.2
0°-40°	1179.3	83.1
0°-60°	1414.2	99.6
0°-90°	1419.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1419.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	209	209	209	209	209	
5°	712	519	177	32	24	81
15°	2006	955	35	12	10	656
25°	7218	1017	42	127	273	3466
35°	7000	726	5	4	3	4333
45°	1822	125	2	1	0	1498
55°	28	4	1	1	0	172
65°	3	2	2	1	0	4
75°	1	2	3	2	0	1
85°	0	2	3	2	0	0
90°	0	0	0	0	0	



TEST NUMBER: P175441

CATALOG NUMBER: LDA6A20835D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	208.9	208.9	208.9	208.9	208.9	208.9	208.9	208.9	208.9	208.9	208.9
2.5°	463.8	439.5	458.0	447.2	440.1	438.2	449.1	436.9	424.2	423.5	419.7
5°	711.6	688.6	707.8	691.2	683.5	677.1	682.2	662.4	641.4	642.0	632.4
7.5°	927.5	914.8	927.5	909.7	903.9	897.5	895.6	876.4	851.5	853.4	838.7
10°	1177.3	1140.3	1160.7	1121.7	1112.2	1094.9	1089.2	1057.9	1018.2	1016.3	995.3
12.5°	1521.6	1506.9	1527.4	1472.4	1460.9	1431.6	1415.6	1365.8	1300.6	1284.0	1235.4
15°	2005.8	1958.6	1979.0	1901.7	1880.0	1828.9	1793.8	1716.5	1654.5	1584.2	1510.1
17.5°	2621.0	2594.2	2620.4	2468.3	2412.1	2312.5	2230.1	2101.0	1969.4	1906.2	1802.1
20°	3986.8	3859.0	3873.1	3590.7	3410.6	3142.3	2927.6	2642.7	2381.5	2231.3	2059.5
22.5°	5502.6	5357.0	5321.2	4958.4	4653.0	4249.9	3873.1	3396.5	2933.4	2598.0	2306.7
25°	7217.8	7123.3	6936.1	6342.0	5816.9	5242.0	4687.5	4064.1	3463.6	2950.0	2513.0
26°	8032.3	7956.3	7675.2	6932.3	6252.6	5564.6	4930.9	4261.4	3613.7	3050.3	2561.6
27°	8805.9	8744.6	8379.2	7514.2	6664.6	5836.7	5107.9	4402.0	3721.7	3114.8	2596.1
28°	9487.5	9424.9	8952.8	8007.4	6991.0	6033.5	5219.0	4489.5	3783.6	3130.1	2594.2
29°	10017.7	9938.5	9329.1	8323.6	7182.7	6128.0	5241.4	4500.4	3774.7	3094.4	2558.4
30°	10254.7	10156.3	9436.4	8391.3	7185.9	6092.2	5178.1	4442.2	3701.9	3010.0	2492.0
31°	10068.8	9985.1	9241.5	8195.8	6991.0	5928.7	5021.0	4308.1	3563.9	2888.0	2403.8
32°	9527.1	9450.4	8765.0	7766.5	6622.5	5652.1	4792.9	4116.4	3380.5	2740.5	2301.6
33°	8784.2	8724.7	8110.2	7176.9	6149.1	5311.6	4520.2	3876.2	3160.2	2575.0	2177.0
34°	7936.5	7889.8	7329.0	6510.7	5632.3	4933.5	4209.1	3530.7	2919.3	2408.3	2083.8
35°	7000.0	6968.0	6510.7	5826.5	5118.1	4540.6	3863.5	3225.3	2676.6	2247.9	1983.5
36°	6110.1	6083.9	5735.2	5199.2	4628.8	4133.0	3489.1	2907.2	2444.1	2103.6	1889.6
37°	5350.0	5330.8	5072.7	4640.9	4158.6	3709.5	3107.8	2609.5	2241.6	1977.7	1793.1
38°	4717.5	4702.2	4492.7	4110.0	3674.4	3271.3	2739.8	2346.3	2069.1	1868.5	1683.9
39°	4127.9	4108.1	3919.7	3573.5	3192.1	2844.6	2495.8	2129.8	1933.7	1754.8	1566.3
40°	3555.6	3530.0	3364.6	3070.1	2752.0	2482.4	2169.4	1996.9	1823.8	1622.6	1446.2
42.5°	2385.9	2371.9	2281.8	2148.9	2014.1	1915.8	1816.8	1662.8	1480.1	1314.0	1183.7
45°	1821.9	1818.7	1774.6	1705.0	1615.5	1532.5	1400.3	1311.5	1188.2	1048.3	955.0
47.5°	1397.7	1398.3	1357.5	1305.1	1243.7	1190.1	1093.6	1022.7	934.6	854.7	782.5
50°	969.1	928.2	933.9	892.4	842.6	811.3	721.8	667.5	542.3	415.9	325.1
51°	726.3	672.7	679.7	633.1	581.3	553.8	470.2	415.2	297.7	195.5	127.8
52°	443.3	401.2	400.5	364.8	320.0	295.8	229.3	178.9	101.6	53.7	37.1
53°	198.7	170.6	164.2	139.9	109.9	95.2	65.2	47.9	35.8	27.5	21.1
54°	52.4	46.6	44.7	40.9	37.1	35.8	31.3	26.2	20.4	16.0	13.4
55°	27.5	25.6	24.9	23.6	21.7	21.1	18.5	16.0	12.8	11.5	10.2
57.5°	12.8	12.8	12.1	11.5	10.9	10.9	9.6	8.9	8.3	8.3	7.0
60°	8.3	8.3	8.3	7.7	7.7	7.0	6.4	5.7	5.1	5.7	5.1
61°	7.0	7.0	7.0	6.4	5.7	5.1	5.1	5.1	4.5	4.5	3.8
62°	5.1	5.1	4.5	4.5	3.8	3.8	3.8	3.8	3.2	3.8	3.8
63°	3.8	3.8	3.2	3.2	3.2	3.2	2.6	2.6	2.6	3.8	3.8
64°	3.2	3.2	3.2	2.6	2.6	2.6	2.6	2.6	2.6	3.2	2.6
65°	3.2	2.6	2.6	2.6	2.6	2.6	2.6	2.6	1.9	2.6	2.6
66°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	1.9	1.9	2.6	2.6



TEST NUMBER: P175441

CATALOG NUMBER: LDA6A20835D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
72.5°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6
75°	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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



TEST NUMBER: P175441

CATALOG NUMBER: LDA6A20835D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	208.9	208.9	208.9	208.9	208.9	208.9	208.9	208.9	208.9	208.9	208.9
2.5°	419.7	412.0	396.1	392.9	377.5	368.6	371.1	366.0	284.3	200.6	125.2
5°	625.4	608.1	584.5	576.2	550.0	536.0	531.5	518.7	352.0	176.9	58.8
7.5°	826.6	804.3	775.5	762.1	726.3	702.7	687.4	668.2	398.6	140.5	32.6
10°	976.1	950.5	920.5	903.3	863.0	839.4	814.5	793.4	423.5	97.1	24.3
12.5°	1175.4	1124.9	1062.3	1024.6	965.2	932.7	903.9	883.5	433.1	58.1	18.5
15°	1441.1	1360.0	1271.2	1202.9	1101.9	1040.6	992.1	955.0	425.4	35.1	16.0
17.5°	1698.6	1583.6	1467.3	1374.7	1259.1	1167.7	1074.5	1001.6	392.9	28.1	14.7
20°	1912.6	1777.8	1629.6	1499.9	1366.4	1257.8	1133.9	1031.0	340.5	22.4	16.0
22.5°	2077.4	1905.5	1737.5	1576.6	1417.5	1292.9	1156.9	1037.4	274.0	23.0	22.4
25°	2196.2	1970.7	1791.8	1608.5	1435.4	1298.7	1144.7	1017.0	201.9	42.2	75.4
26°	2220.5	1984.1	1798.9	1605.3	1429.0	1289.1	1130.7	1004.2	182.1	83.7	166.1
27°	2233.9	1982.2	1793.8	1592.5	1415.6	1275.0	1114.7	992.7	178.9	143.1	247.9
28°	2221.8	1966.2	1772.0	1569.5	1393.9	1256.5	1096.2	979.3	176.9	175.7	235.1
29°	2188.5	1938.1	1739.5	1533.8	1360.6	1227.1	1068.1	960.1	158.4	139.9	141.8
30°	2138.1	1898.5	1692.2	1485.9	1318.5	1185.0	1027.8	929.5	104.8	70.3	60.0
31°	2075.5	1847.4	1634.1	1430.3	1270.6	1133.9	985.7	889.9	54.3	30.0	28.1
32°	2006.5	1786.1	1571.5	1374.1	1222.0	1084.7	950.5	854.7	35.8	16.6	16.0
33°	1933.7	1714.5	1502.5	1315.9	1167.7	1029.7	914.1	817.0	26.8	10.2	9.6
34°	1862.1	1637.9	1432.8	1253.3	1109.0	980.6	880.9	773.6	21.7	7.7	6.4
35°	1781.0	1554.8	1361.3	1186.9	1045.7	938.4	847.7	726.3	17.2	5.1	5.1
36°	1686.4	1466.7	1287.2	1117.3	985.7	899.4	811.3	674.6	13.4	3.8	4.5
37°	1586.1	1379.2	1212.4	1048.3	936.5	863.7	767.2	621.6	11.5	3.2	3.8
38°	1482.7	1292.3	1132.0	981.8	893.7	824.7	717.4	566.6	9.6	2.6	3.2
39°	1381.1	1203.5	1051.5	928.2	853.4	778.7	660.5	510.4	8.3	2.6	3.2
40°	1282.1	1114.1	979.9	881.5	808.7	722.5	601.8	451.6	5.7	1.9	3.2
42.5°	1047.0	928.8	843.9	745.5	663.1	566.0	442.7	293.2	4.5	1.9	2.6
45°	876.4	779.3	680.3	569.2	488.0	388.4	261.9	124.6	4.5	1.9	2.6
47.5°	693.1	578.8	433.1	292.6	191.0	98.4	30.7	17.2	3.2	1.9	2.6
50°	201.9	116.9	43.4	26.2	19.8	12.1	7.7	7.0	2.6	1.9	2.6
51°	58.1	34.5	23.0	15.3	11.5	7.0	5.7	6.4	2.6	1.9	1.9
52°	27.5	19.8	13.4	10.2	7.7	5.7	5.1	5.7	2.6	1.9	1.9
53°	16.0	12.1	9.6	8.3	5.7	5.1	3.8	5.1	2.6	1.9	1.9
54°	10.9	9.6	8.3	7.0	5.1	3.8	3.8	5.1	2.6	1.9	1.9
55°	9.6	8.3	7.0	6.4	4.5	3.8	3.8	3.8	1.9	1.3	1.9
57.5°	6.4	6.4	5.1	5.1	3.8	2.6	1.3	3.2	2.6	1.9	1.9
60°	4.5	4.5	4.5	3.2	1.3	1.3	0.6	2.6	2.6	1.9	2.6
61°	4.5	4.5	3.2	2.6	1.3	1.3	0.6	2.6	2.6	1.9	2.6
62°	3.8	3.2	2.6	2.6	1.3	1.3	0.6	2.6	2.6	1.9	2.6
63°	3.2	2.6	2.6	2.6	1.3	0.6	0.6	2.6	2.6	1.9	2.6
64°	2.6	2.6	2.6	2.6	0.6	0.6	0.6	2.6	2.6	1.9	2.6
65°	2.6	2.6	2.6	1.9	0.6	0.6	0.6	1.9	2.6	1.9	2.6
66°	2.6	2.6	1.9	1.9	0.6	0.6	0.6	1.9	2.6	1.9	2.6



TEST NUMBER: P175441

CATALOG NUMBER: LDA6A20835D010TE LARL15SP 6LAL1 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	1.3	1.3	1.3	0.0	0.0	0.0	1.9	2.6	1.9	2.6
75°	0.6	0.6	1.3	1.3	0.0	0.0	0.0	1.9	2.6	2.6	2.6
77.5°	0.6	0.6	1.3	1.3	0.0	0.0	0.0	1.9	2.6	2.6	3.2
80°	0.6	0.6	1.3	1.3	0.0	0.0	0.0	1.9	2.6	2.6	3.2
82.5°	0.6	0.6	1.3	1.3	0.0	0.0	0.0	1.9	2.6	2.6	3.2
85°	0.6	0.6	1.3	1.3	0.0	0.0	0.0	1.9	2.6	2.6	3.2
87.5°	0.6	0.6	1.3	1.3	0.0	0.0	0.0	1.9	2.6	2.6	3.2
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: P175441

CATALOG NUMBER: LDA6A20835D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	208.9	208.9	208.9
2.5°	79.9	57.5	52.4
5°	31.9	26.2	23.6
7.5°	19.8	16.6	15.3
10°	16.0	12.1	11.5
12.5°	12.8	10.9	10.2
15°	12.1	10.2	9.6
17.5°	12.1	11.5	10.9
20°	15.3	15.3	16.0
22.5°	26.2	30.7	34.5
25°	127.1	205.7	272.8
26°	266.4	375.6	401.8
27°	330.3	341.8	328.3
28°	254.2	228.1	214.6
29°	136.1	113.7	104.1
30°	54.3	44.7	42.2
31°	26.2	22.4	21.7
32°	14.7	12.1	12.1
33°	8.9	7.7	7.0
34°	6.4	5.1	4.5
35°	4.5	3.8	3.2
36°	3.8	2.6	1.9
37°	3.2	1.9	1.9
38°	2.6	1.9	1.3
39°	1.9	1.3	0.6
40°	1.9	0.6	0.0
42.5°	1.3	0.6	0.0
45°	1.3	0.0	0.0
47.5°	1.9	1.3	0.6
50°	1.3	0.6	0.0
51°	1.3	0.0	0.0
52°	1.3	0.0	0.0
53°	1.3	0.0	0.0
54°	1.3	0.0	0.0
55°	1.3	0.0	0.0
57.5°	1.3	0.0	0.0
60°	1.3	0.0	0.0
61°	1.3	0.0	0.0
62°	1.3	0.0	0.0
63°	1.3	0.6	0.0
64°	1.3	0.6	0.0
65°	1.3	0.6	0.0
66°	1.3	0.6	0.0



TEST NUMBER: P175441

CATALOG NUMBER: LDA6A20835D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.9	0.6	0.0
75°	1.9	0.6	0.0
77.5°	1.9	0.6	0.0
80°	1.9	0.6	0.0
82.5°	1.9	0.6	0.0
85°	1.9	0.6	0.0
87.5°	1.9	0.6	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	2.6	1.9	1.9	1.9	1.9	1.9	1.9	1.3	1.3	1.9	1.9
70°	1.9	1.9	1.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3





67.5°	1.9	1.9	1.9	1.9	0.6	0.0	0.0	1.9	2.6	1.9	2.6
70°	1.3	1.3	1.3	1.3	0.0	0.0	0.0	1.9	2.6	1.9	2.6





67.5°	1.9	0.6	0.0
70°	1.9	0.6	0.0



(END OF REPORT)