

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: P175445

Luminaire Tested: **LDA6A20935D010TE LARL15SP 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175445
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: LDA6A20935D010TE 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 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1163.2 lumens
Efficiency: N/A
Efficacy: 39.9 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

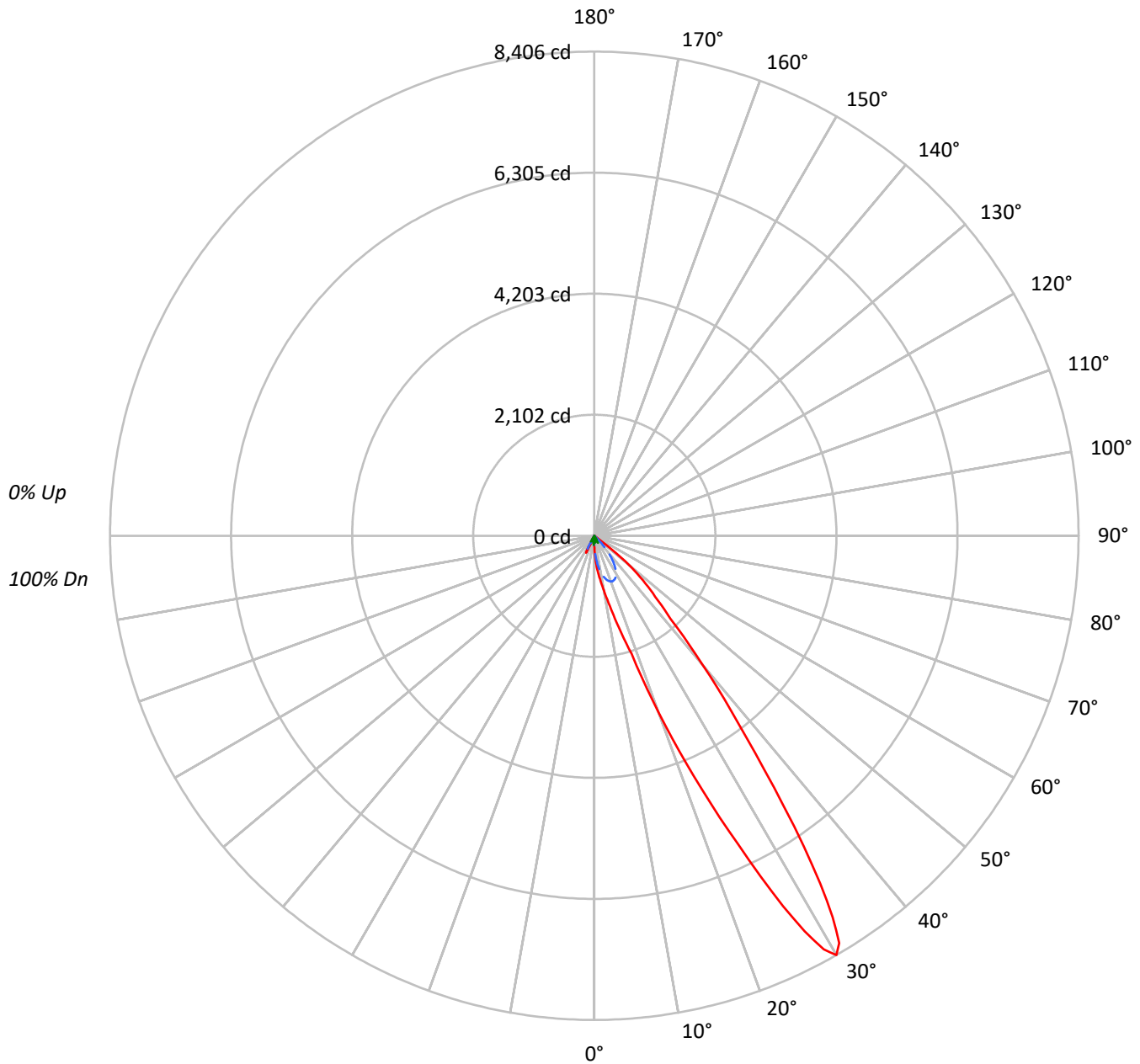
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	9385	9385	9385
5°	32099	7979	1068
10°	53718	4431	523
15°	93315	1635	448
20°	190644	1068	764
25°	357867	2093	13525
30°	532095	3646	2190
35°	383998	281	174
40°	208569	115	0
45°	115779	124	0
50°	67742	136	0
55°	2150	96	0
60°	746	175	0
65°	337	208	0
70°	256	256	0
75°	106	445	0
80°	0	663	0
85°	0	1321	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	24.0	2.1
10°-20°	124.5	10.7
20°-30°	400.8	34.5
30°-40°	417.3	35.9
40°-50°	177.8	15.3
50°-60°	14.8	1.3
60°-70°	1.5	0.1
70°-80°	1.3	0.1
80°-90°	1.2	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°	549.3	47.2
0°-40°	966.6	83.1
0°-60°	1159.2	99.7
0°-90°	1163.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1163.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	171	171	171	171	171	
5°	583	425	145	26	19	66
15°	1644	783	29	10	8	537
25°	5916	834	35	104	224	2841
35°	5738	595	4	4	3	3552
45°	1493	102	2	1	0	1228
55°	22	3	1	1	0	141
65°	3	2	2	1	0	3
75°	0	2	2	2	0	0
85°	0	2	2	2	0	0
90°	0	0	0	0	0	



TEST NUMBER: P175445

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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	171.2	171.2	171.2	171.2	171.2	171.2	171.2	171.2	171.2	171.2	171.2
2.5°	380.2	360.3	375.4	366.5	360.8	359.2	368.1	358.2	347.7	347.2	344.0
5°	583.3	564.5	580.2	566.6	560.3	555.0	559.2	543.0	525.7	526.2	518.4
7.5°	760.3	749.8	760.3	745.6	740.9	735.7	734.1	718.4	698.0	699.6	687.5
10°	965.0	934.7	951.4	919.5	911.6	897.5	892.8	867.1	834.7	833.1	815.8
12.5°	1247.3	1235.2	1252.0	1207.0	1197.5	1173.4	1160.4	1119.5	1066.1	1052.5	1012.7
15°	1644.2	1605.4	1622.2	1558.8	1541.0	1499.1	1470.3	1407.0	1356.2	1298.6	1237.8
17.5°	2148.4	2126.4	2147.9	2023.3	1977.2	1895.5	1828.0	1722.2	1614.3	1562.5	1477.1
20°	3267.9	3163.2	3174.7	2943.3	2795.6	2575.7	2399.8	2166.2	1952.1	1829.0	1688.2
22.5°	4510.5	4391.1	4361.8	4064.4	3814.1	3483.7	3174.7	2784.1	2404.5	2129.6	1890.8
25°	5916.4	5838.9	5685.5	5198.6	4768.1	4296.9	3842.4	3331.3	2839.1	2418.1	2059.9
26°	6584.1	6521.8	6291.4	5682.4	5125.2	4561.3	4041.9	3493.1	2962.1	2500.3	2099.7
27°	7218.2	7167.9	6868.4	6159.4	5463.0	4784.4	4186.9	3608.3	3050.6	2553.2	2128.0
28°	7776.9	7725.6	7338.6	6563.6	5730.6	4945.6	4278.0	3680.0	3101.4	2565.8	2126.4
29°	8211.5	8146.6	7647.0	6822.8	5887.6	5023.1	4296.3	3688.9	3094.1	2536.4	2097.1
30°	8405.8	8325.1	7735.0	6878.3	5890.3	4993.8	4244.5	3641.3	3034.4	2467.3	2042.7
31°	8253.4	8184.8	7575.3	6718.1	5730.6	4859.8	4115.7	3531.3	2921.3	2367.3	1970.4
32°	7809.3	7746.5	7184.7	6366.2	5428.4	4633.0	3928.8	3374.2	2771.0	2246.4	1886.6
33°	7200.4	7151.7	6647.9	5882.9	5040.4	4353.9	3705.2	3177.4	2590.4	2110.7	1784.5
34°	6505.5	6467.3	6007.6	5336.8	4616.8	4044.0	3450.2	2894.1	2393.0	1974.1	1708.1
35°	5737.9	5711.7	5336.8	4776.0	4195.3	3721.9	3166.9	2643.8	2194.0	1842.6	1625.9
36°	5008.5	4987.0	4701.1	4261.8	3794.2	3387.9	2860.0	2383.0	2003.4	1724.3	1548.9
37°	4385.4	4369.7	4158.1	3804.1	3408.8	3040.7	2547.4	2139.0	1837.4	1621.1	1469.8
38°	3867.0	3854.4	3682.7	3369.0	3011.9	2681.5	2245.8	1923.3	1696.0	1531.6	1380.3
39°	3383.7	3367.4	3213.0	2929.2	2616.6	2331.7	2045.8	1745.8	1585.0	1438.4	1283.9
40°	2914.5	2893.6	2757.9	2516.5	2255.8	2034.8	1778.2	1636.9	1494.9	1330.0	1185.5
42.5°	1955.7	1944.2	1870.4	1761.5	1651.0	1570.4	1489.2	1363.0	1213.2	1077.1	970.3
45°	1493.4	1490.8	1454.6	1397.6	1324.2	1256.2	1147.8	1075.0	973.9	859.3	782.8
47.5°	1145.7	1146.2	1112.7	1069.8	1019.5	975.5	896.4	838.3	766.1	700.6	641.4
50°	794.3	760.8	765.5	731.5	690.7	665.0	591.7	547.2	444.6	340.9	266.5
51°	595.4	551.4	557.1	518.9	476.5	454.0	385.4	340.4	244.0	160.2	104.7
52°	363.4	328.8	328.3	299.0	262.3	242.4	188.0	146.6	83.3	44.0	30.4
53°	162.8	139.8	134.6	114.7	90.1	78.0	53.4	39.3	29.3	22.5	17.3
54°	42.9	38.2	36.7	33.5	30.4	29.3	25.7	21.5	16.8	13.1	11.0
55°	22.5	20.9	20.4	19.4	17.8	17.3	15.2	13.1	10.5	9.4	8.4
57.5°	10.5	10.5	9.9	9.4	8.9	8.9	7.9	7.3	6.8	6.8	5.8
60°	6.8	6.8	6.8	6.3	6.3	5.8	5.2	4.7	4.2	4.7	4.2
61°	5.8	5.8	5.8	5.2	4.7	4.2	4.2	4.2	3.7	3.7	3.1
62°	4.2	4.2	3.7	3.7	3.1	3.1	3.1	3.1	2.6	3.1	3.1
63°	3.1	3.1	2.6	2.6	2.6	2.6	2.1	2.1	2.1	3.1	3.1
64°	2.6	2.6	2.6	2.1	2.1	2.1	2.1	2.1	2.1	2.6	2.1
65°	2.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.6	2.1	2.1
66°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.6	1.6	2.1	2.1



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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°	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5
75°	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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°	171.2	171.2	171.2	171.2	171.2	171.2	171.2	171.2	171.2	171.2	171.2
2.5°	344.0	337.7	324.6	322.0	309.5	302.1	304.2	300.0	233.0	164.4	102.6
5°	512.6	498.5	479.1	472.3	450.8	439.3	435.7	425.2	288.5	145.0	48.2
7.5°	677.6	659.2	635.7	624.7	595.4	576.0	563.4	547.7	326.7	115.2	26.7
10°	800.1	779.2	754.5	740.4	707.4	688.0	667.6	650.3	347.2	79.6	19.9
12.5°	963.5	922.1	870.8	839.9	791.2	764.5	740.9	724.2	355.0	47.6	15.2
15°	1181.3	1114.8	1042.0	986.0	903.3	853.0	813.2	782.8	348.7	28.8	13.1
17.5°	1392.3	1298.1	1202.8	1126.8	1032.1	957.2	880.7	821.0	322.0	23.0	12.0
20°	1567.7	1457.2	1335.8	1229.5	1120.0	1031.0	929.4	845.1	279.1	18.3	13.1
22.5°	1702.8	1562.0	1424.3	1292.3	1161.9	1059.8	948.3	850.4	224.6	18.9	18.3
25°	1800.2	1615.4	1468.8	1318.5	1176.6	1064.5	938.3	833.6	165.5	34.6	61.8
26°	1820.1	1626.4	1474.5	1315.9	1171.3	1056.7	926.8	823.1	149.2	68.6	136.1
27°	1831.1	1624.8	1470.3	1305.4	1160.4	1045.2	913.7	813.7	146.6	117.3	203.2
28°	1821.2	1611.7	1452.5	1286.5	1142.6	1030.0	898.5	802.7	145.0	144.0	192.7
29°	1793.9	1588.7	1425.8	1257.2	1115.3	1005.9	875.5	787.0	129.9	114.7	116.2
30°	1752.6	1556.2	1387.1	1218.0	1080.8	971.3	842.5	761.9	85.9	57.6	49.2
31°	1701.3	1514.3	1339.4	1172.4	1041.5	929.4	808.0	729.4	44.5	24.6	23.0
32°	1644.7	1464.1	1288.1	1126.3	1001.7	889.1	779.2	700.6	29.3	13.6	13.1
33°	1585.0	1405.4	1231.6	1078.7	957.2	844.1	749.3	669.7	22.0	8.4	7.9
34°	1526.4	1342.6	1174.5	1027.4	909.0	803.8	722.1	634.1	17.8	6.3	5.2
35°	1459.9	1274.5	1115.8	972.9	857.2	769.2	694.9	595.4	14.1	4.2	4.2
36°	1382.4	1202.2	1055.1	915.8	808.0	737.3	665.0	552.9	11.0	3.1	3.7
37°	1300.2	1130.5	993.8	859.3	767.6	707.9	628.9	509.5	9.4	2.6	3.1
38°	1215.3	1059.3	927.9	804.8	732.6	676.0	588.0	464.5	7.9	2.1	2.6
39°	1132.1	986.5	861.9	760.8	699.6	638.3	541.4	418.4	6.8	2.1	2.6
40°	1050.9	913.2	803.2	722.6	662.9	592.2	493.3	370.2	4.7	1.6	2.6
42.5°	858.2	761.4	691.7	611.1	543.5	463.9	362.9	240.3	3.7	1.6	2.1
45°	718.4	638.8	557.7	466.5	400.0	318.4	214.7	102.1	3.7	1.6	2.1
47.5°	568.1	474.4	355.0	239.8	156.6	80.6	25.1	14.1	2.6	1.6	2.1
50°	165.5	95.8	35.6	21.5	16.2	9.9	6.3	5.8	2.1	1.6	2.1
51°	47.6	28.3	18.9	12.6	9.4	5.8	4.7	5.2	2.1	1.6	1.6
52°	22.5	16.2	11.0	8.4	6.3	4.7	4.2	4.7	2.1	1.6	1.6
53°	13.1	9.9	7.9	6.8	4.7	4.2	3.1	4.2	2.1	1.6	1.6
54°	8.9	7.9	6.8	5.8	4.2	3.1	3.1	4.2	2.1	1.6	1.6
55°	7.9	6.8	5.8	5.2	3.7	3.1	3.1	3.1	1.6	1.0	1.6
57.5°	5.2	5.2	4.2	4.2	3.1	2.1	1.0	2.6	2.1	1.6	1.6
60°	3.7	3.7	3.7	2.6	1.0	1.0	0.5	2.1	2.1	1.6	2.1
61°	3.7	3.7	2.6	2.1	1.0	1.0	0.5	2.1	2.1	1.6	2.1
62°	3.1	2.6	2.1	2.1	1.0	1.0	0.5	2.1	2.1	1.6	2.1
63°	2.6	2.1	2.1	2.1	1.0	0.5	0.5	2.1	2.1	1.6	2.1
64°	2.1	2.1	2.1	2.1	0.5	0.5	0.5	2.1	2.1	1.6	2.1
65°	2.1	2.1	2.1	1.6	0.5	0.5	0.5	1.6	2.1	1.6	2.1
66°	2.1	2.1	1.6	1.6	0.5	0.5	0.5	1.6	2.1	1.6	2.1



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CATALOG NUMBER: LDA6A20935D010TE 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°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	1.6	2.1	1.6	2.1
75°	0.5	0.5	1.0	1.0	0.0	0.0	0.0	1.6	2.1	2.1	2.1
77.5°	0.5	0.5	1.0	1.0	0.0	0.0	0.0	1.6	2.1	2.1	2.6
80°	0.5	0.5	1.0	1.0	0.0	0.0	0.0	1.6	2.1	2.1	2.6
82.5°	0.5	0.5	1.0	1.0	0.0	0.0	0.0	1.6	2.1	2.1	2.6
85°	0.5	0.5	1.0	1.0	0.0	0.0	0.0	1.6	2.1	2.1	2.6
87.5°	0.5	0.5	1.0	1.0	0.0	0.0	0.0	1.6	2.1	2.1	2.6
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: P175445

CATALOG NUMBER: LDA6A20935D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	171.2	171.2	171.2
2.5°	65.5	47.1	42.9
5°	26.2	21.5	19.4
7.5°	16.2	13.6	12.6
10°	13.1	9.9	9.4
12.5°	10.5	8.9	8.4
15°	9.9	8.4	7.9
17.5°	9.9	9.4	8.9
20°	12.6	12.6	13.1
22.5°	21.5	25.1	28.3
25°	104.2	168.6	223.6
26°	218.4	307.9	329.4
27°	270.7	280.1	269.1
28°	208.4	186.9	175.9
29°	111.5	93.2	85.4
30°	44.5	36.7	34.6
31°	21.5	18.3	17.8
32°	12.0	9.9	9.9
33°	7.3	6.3	5.8
34°	5.2	4.2	3.7
35°	3.7	3.1	2.6
36°	3.1	2.1	1.6
37°	2.6	1.6	1.6
38°	2.1	1.6	1.0
39°	1.6	1.0	0.5
40°	1.6	0.5	0.0
42.5°	1.0	0.5	0.0
45°	1.0	0.0	0.0
47.5°	1.6	1.0	0.5
50°	1.0	0.5	0.0
51°	1.0	0.0	0.0
52°	1.0	0.0	0.0
53°	1.0	0.0	0.0
54°	1.0	0.0	0.0
55°	1.0	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	0.5	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: P175445

CATALOG NUMBER: LDA6A20935D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.6	0.5	0.0
75°	1.6	0.5	0.0
77.5°	1.6	0.5	0.0
80°	1.6	0.5	0.0
82.5°	1.6	0.5	0.0
85°	1.6	0.5	0.0
87.5°	1.6	0.5	0.0
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	2.1	1.6	1.6	1.6	1.6	1.6	1.6	1.0	1.0	1.6	1.6
70°	1.6	1.6	1.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0





67.5°	1.6	1.6	1.6	1.6	0.5	0.0	0.0	1.6	2.1	1.6	2.1
70°	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.6	2.1	1.6	2.1





67.5°	1.6	0.5	0.0
70°	1.6	0.5	0.0



(END OF REPORT)