

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: P175442

Luminaire Tested: **LDA6A20840D010TE LARL15SP 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175442
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: LDA6A20840D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1455.5 lumens
Efficiency: N/A
Efficacy: 50.0 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

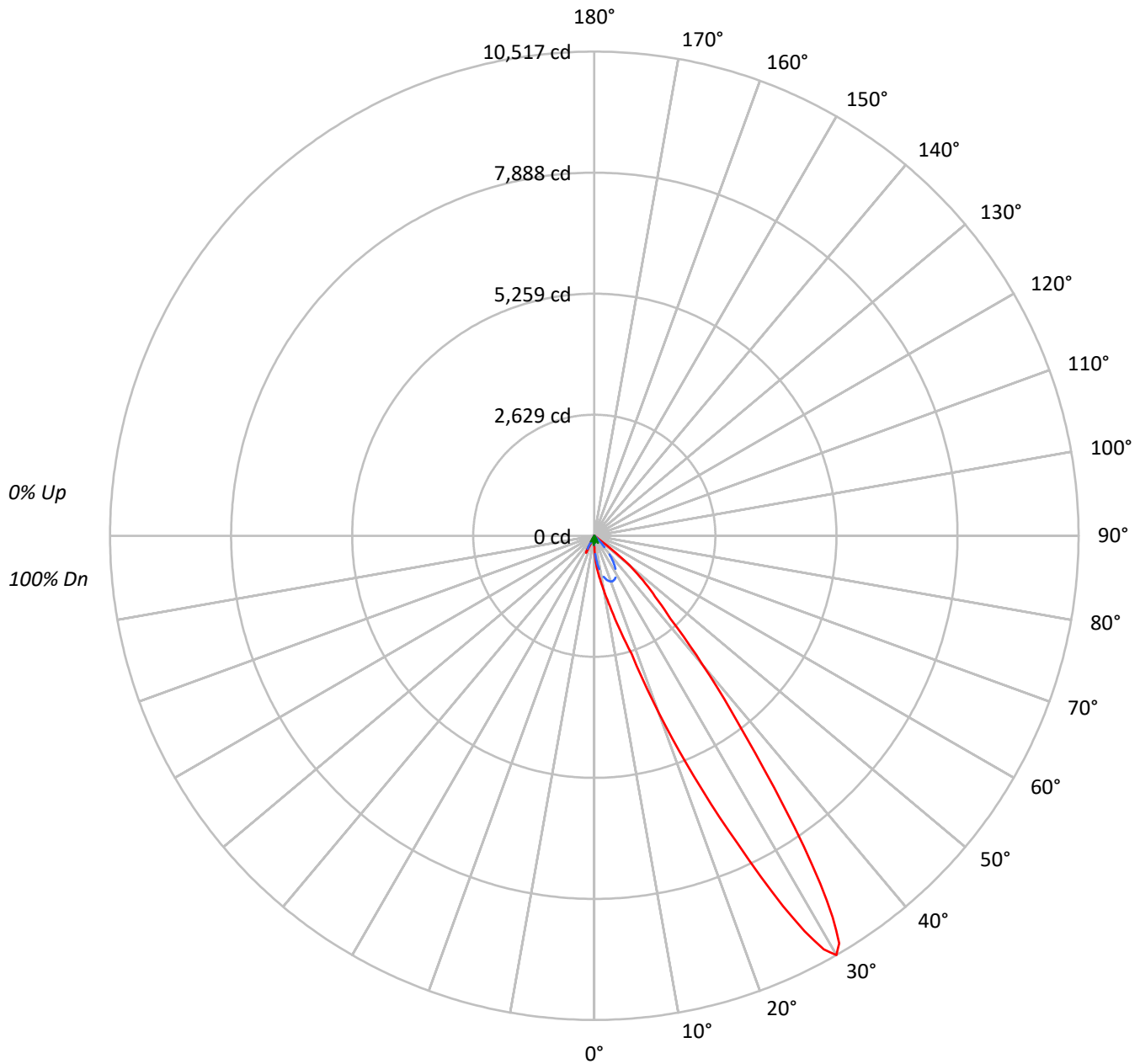
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	11742	11742	11742
5°	40161	9988	1332
10°	67211	5544	657
15°	116754	2043	556
20°	238534	1336	957
25°	447758	2613	16918
30°	665742	4564	2735
35°	480447	348	221
40°	260960	143	0
45°	144860	155	0
50°	84765	171	0
55°	2695	124	0
60°	932	219	0
65°	428	259	0
70°	321	321	0
75°	148	551	0
80°	0	821	0
85°	0	1635	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	30.0	2.1
10°-20°	155.8	10.7
20°-30°	501.5	34.5
30°-40°	522.1	35.9
40°-50°	222.4	15.3
50°-60°	18.5	1.3
60°-70°	1.9	0.1
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°	687.3	47.2
0°-40°	1209.4	83.1
0°-60°	1450.3	99.6
0°-90°	1455.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1455.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	214	214	214	214	214	
5°	730	532	182	33	24	83
15°	2057	979	36	12	10	672
25°	7402	1043	43	130	280	3555
35°	7179	745	5	5	3	4444
45°	1868	128	2	1	0	1537
55°	28	4	1	1	0	176
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	



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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	214.2	214.2	214.2	214.2	214.2	214.2	214.2	214.2	214.2	214.2	214.2
2.5°	475.6	450.7	469.7	458.6	451.4	449.4	460.6	448.1	435.0	434.4	430.4
5°	729.8	706.3	725.9	708.9	701.0	694.5	699.7	679.4	657.8	658.4	648.6
7.5°	951.3	938.2	951.3	932.9	927.0	920.5	918.5	898.9	873.3	875.3	860.2
10°	1207.4	1169.4	1190.4	1150.4	1140.6	1122.9	1117.0	1084.9	1044.3	1042.3	1020.7
12.5°	1560.6	1545.5	1566.5	1510.1	1498.3	1468.2	1451.8	1400.7	1333.9	1316.8	1267.1
15°	2057.2	2008.7	2029.7	1950.4	1928.1	1875.7	1839.7	1760.4	1696.8	1624.8	1548.8
17.5°	2688.1	2660.6	2687.4	2531.5	2473.8	2371.6	2287.1	2154.8	2019.8	1955.0	1848.2
20°	4088.8	3957.8	3972.2	3682.6	3497.8	3222.7	3002.5	2710.4	2442.4	2288.4	2112.2
22.5°	5643.5	5494.1	5457.4	5085.3	4772.1	4358.7	3972.2	3483.4	3008.4	2664.5	2365.7
25°	7402.5	7305.6	7113.6	6504.3	5965.8	5376.2	4807.5	4168.1	3552.2	3025.5	2577.4
26°	8237.8	8159.9	7871.6	7109.7	6412.6	5707.0	5057.1	4370.5	3706.2	3128.3	2627.1
27°	9031.2	8968.3	8593.6	7706.5	6835.2	5986.1	5238.6	4514.6	3816.9	3194.5	2662.5
28°	9730.3	9666.1	9181.9	8212.3	7169.9	6187.9	5352.6	4604.4	3880.4	3210.2	2660.6
29°	10274.0	10192.8	9567.8	8536.6	7366.5	6284.8	5375.5	4615.5	3871.3	3173.5	2623.9
30°	10517.1	10416.2	9677.9	8606.0	7369.8	6248.2	5310.6	4555.9	3796.6	3087.1	2555.7
31°	10326.5	10240.6	9478.0	8405.6	7169.9	6080.4	5149.5	4418.3	3655.1	2961.9	2465.3
32°	9770.9	9692.3	8989.3	7965.3	6791.9	5796.8	4915.6	4221.8	3467.0	2810.6	2360.5
33°	9009.0	8948.0	8317.8	7360.6	6306.5	5447.6	4635.8	3975.4	3241.0	2640.9	2232.7
34°	8139.6	8091.7	7516.5	6677.3	5776.4	5059.7	4316.8	3621.0	2994.0	2469.9	2137.1
35°	7179.1	7146.4	6677.3	5975.6	5249.1	4656.8	3962.3	3307.8	2745.1	2305.5	2034.2
36°	6266.5	6239.6	5881.9	5332.3	4747.2	4238.8	3578.4	2981.6	2506.6	2157.4	1937.9
37°	5486.9	5467.2	5202.5	4759.7	4265.0	3804.4	3187.3	2676.3	2298.9	2028.3	1839.0
38°	4838.3	4822.6	4607.7	4215.2	3768.4	3355.0	2809.9	2406.4	2122.0	1916.3	1727.0
39°	4233.6	4213.3	4020.0	3664.9	3273.8	2917.4	2559.7	2184.3	1983.1	1799.7	1606.4
40°	3646.6	3620.4	3450.7	3148.6	2822.4	2545.9	2224.9	2048.0	1870.5	1664.1	1483.3
42.5°	2447.0	2432.6	2340.2	2203.9	2065.7	1964.8	1863.2	1705.4	1518.0	1347.6	1214.0
45°	1868.5	1865.2	1820.0	1748.6	1656.9	1571.7	1436.1	1345.0	1218.6	1075.1	979.4
47.5°	1433.5	1434.1	1392.2	1338.5	1275.6	1220.5	1121.6	1048.9	958.5	876.6	802.6
50°	993.9	951.9	957.8	915.2	864.1	832.0	740.3	684.6	556.2	426.5	333.5
51°	744.9	689.9	697.1	649.3	596.2	568.0	482.2	425.8	305.3	200.5	131.0
52°	454.7	411.4	410.8	374.1	328.2	303.3	235.2	183.4	104.2	55.0	38.0
53°	203.8	174.9	168.4	143.5	112.7	97.6	66.8	49.1	36.7	28.2	21.6
54°	53.7	47.8	45.9	41.9	38.0	36.7	32.1	26.9	21.0	16.4	13.8
55°	28.2	26.2	25.6	24.2	22.3	21.6	19.0	16.4	13.1	11.8	10.5
57.5°	13.1	13.1	12.4	11.8	11.1	11.1	9.8	9.2	8.5	8.5	7.2
60°	8.5	8.5	8.5	7.9	7.9	7.2	6.6	5.9	5.2	5.9	5.2
61°	7.2	7.2	7.2	6.6	5.9	5.2	5.2	5.2	4.6	4.6	3.9
62°	5.2	5.2	4.6	4.6	3.9	3.9	3.9	3.9	3.3	3.9	3.9
63°	3.9	3.9	3.3	3.3	3.3	3.3	2.6	2.6	2.6	3.9	3.9
64°	3.3	3.3	3.3	2.6	2.6	2.6	2.6	2.6	2.6	3.3	2.6
65°	3.3	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.0	2.6	2.6
66°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.6	2.6



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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°	0.7	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.7	0.7
75°	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
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°	214.2	214.2	214.2	214.2	214.2	214.2	214.2	214.2	214.2	214.2	214.2
2.5°	430.4	422.6	406.2	402.9	387.2	378.0	380.6	375.4	291.5	205.7	128.4
5°	641.4	623.7	599.5	590.9	564.1	549.7	545.1	532.0	361.0	181.5	60.3
7.5°	847.8	824.8	795.4	781.6	744.9	720.7	704.9	685.3	408.8	144.1	33.4
10°	1001.1	974.9	944.1	926.4	885.1	860.9	835.3	813.7	434.4	99.6	24.9
12.5°	1205.5	1153.7	1089.5	1050.9	989.9	956.5	927.0	906.1	444.2	59.6	19.0
15°	1478.0	1394.8	1303.7	1233.6	1130.1	1067.2	1017.4	979.4	436.3	36.0	16.4
17.5°	1742.0	1624.1	1504.9	1409.9	1291.3	1197.6	1102.0	1027.3	402.9	28.8	15.1
20°	1961.5	1823.3	1671.3	1538.3	1401.4	1290.0	1162.9	1057.4	349.2	22.9	16.4
22.5°	2130.5	1954.3	1782.0	1616.9	1453.8	1326.0	1186.5	1064.0	281.1	23.6	22.9
25°	2252.4	2021.1	1837.7	1649.7	1472.1	1331.9	1174.0	1043.0	207.0	43.2	77.3
26°	2277.3	2034.9	1844.9	1646.4	1465.6	1322.1	1159.6	1029.9	186.7	85.8	170.3
27°	2291.1	2032.9	1839.7	1633.3	1451.8	1307.7	1143.2	1018.1	183.4	146.8	254.2
28°	2278.6	2016.5	1817.4	1609.7	1429.5	1288.7	1124.2	1004.3	181.5	180.2	241.1
29°	2244.5	1987.7	1784.0	1573.0	1395.5	1258.5	1095.4	984.7	162.5	143.5	145.4
30°	2192.8	1947.1	1735.5	1523.9	1352.2	1215.3	1054.1	953.2	107.4	72.1	61.6
31°	2128.6	1894.7	1675.9	1466.9	1303.1	1162.9	1010.9	912.6	55.7	30.8	28.8
32°	2057.8	1831.8	1611.7	1409.2	1253.3	1112.4	974.9	876.6	36.7	17.0	16.4
33°	1983.1	1758.4	1540.9	1349.6	1197.6	1056.1	937.5	837.9	27.5	10.5	9.8
34°	1909.8	1679.8	1469.5	1285.4	1137.3	1005.7	903.5	793.4	22.3	7.9	6.6
35°	1826.6	1594.6	1396.1	1217.3	1072.5	962.4	869.4	744.9	17.7	5.2	5.2
36°	1729.6	1504.2	1320.1	1145.9	1010.9	922.4	832.0	691.8	13.8	3.9	4.6
37°	1626.7	1414.5	1243.5	1075.1	960.4	885.8	786.8	637.5	11.8	3.3	3.9
38°	1520.6	1325.4	1160.9	1007.0	916.6	845.8	735.7	581.1	9.8	2.6	3.3
39°	1416.4	1234.3	1078.4	951.9	875.3	798.6	677.4	523.5	8.5	2.6	3.3
40°	1314.9	1142.6	1005.0	904.1	829.4	741.0	617.2	463.2	5.9	2.0	3.3
42.5°	1073.8	952.6	865.5	764.6	680.0	580.5	454.0	300.7	4.6	2.0	2.6
45°	898.9	799.3	697.7	583.7	500.5	398.3	268.6	127.8	4.6	2.0	2.6
47.5°	710.8	593.6	444.2	300.1	195.9	100.9	31.4	17.7	3.3	2.0	2.6
50°	207.0	119.9	44.6	26.9	20.3	12.4	7.9	7.2	2.6	2.0	2.6
51°	59.6	35.4	23.6	15.7	11.8	7.2	5.9	6.6	2.6	2.0	2.0
52°	28.2	20.3	13.8	10.5	7.9	5.9	5.2	5.9	2.6	2.0	2.0
53°	16.4	12.4	9.8	8.5	5.9	5.2	3.9	5.2	2.6	2.0	2.0
54°	11.1	9.8	8.5	7.2	5.2	3.9	3.9	5.2	2.6	2.0	2.0
55°	9.8	8.5	7.2	6.6	4.6	3.9	3.9	3.9	2.0	1.3	2.0
57.5°	6.6	6.6	5.2	5.2	3.9	2.6	1.3	3.3	2.6	2.0	2.0
60°	4.6	4.6	4.6	3.3	1.3	1.3	0.7	2.6	2.6	2.0	2.6
61°	4.6	4.6	3.3	2.6	1.3	1.3	0.7	2.6	2.6	2.0	2.6
62°	3.9	3.3	2.6	2.6	1.3	1.3	0.7	2.6	2.6	2.0	2.6
63°	3.3	2.6	2.6	2.6	1.3	0.7	0.7	2.6	2.6	2.0	2.6
64°	2.6	2.6	2.6	2.6	0.7	0.7	0.7	2.6	2.6	2.0	2.6
65°	2.6	2.6	2.6	2.0	0.7	0.7	0.7	2.0	2.6	2.0	2.6
66°	2.6	2.6	2.0	2.0	0.7	0.7	0.7	2.0	2.6	2.0	2.6



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CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
72.5°	0.7	1.3	1.3	1.3	0.0	0.0	0.0	2.0	2.6	2.0	2.6
75°	0.7	0.7	1.3	1.3	0.0	0.0	0.0	2.0	2.6	2.6	2.6
77.5°	0.7	0.7	1.3	1.3	0.0	0.0	0.0	2.0	2.6	2.6	3.3
80°	0.7	0.7	1.3	1.3	0.0	0.0	0.0	2.0	2.6	2.6	3.3
82.5°	0.7	0.7	1.3	1.3	0.0	0.0	0.0	2.0	2.6	2.6	3.3
85°	0.7	0.7	1.3	1.3	0.0	0.0	0.0	2.0	2.6	2.6	3.3
87.5°	0.7	0.7	1.3	1.3	0.0	0.0	0.0	2.0	2.6	2.6	3.3
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):

	135°	157.5°	180°
0°	214.2	214.2	214.2
2.5°	81.9	59.0	53.7
5°	32.8	26.9	24.2
7.5°	20.3	17.0	15.7
10°	16.4	12.4	11.8
12.5°	13.1	11.1	10.5
15°	12.4	10.5	9.8
17.5°	12.4	11.8	11.1
20°	15.7	15.7	16.4
22.5°	26.9	31.4	35.4
25°	130.4	211.0	279.7
26°	273.2	385.2	412.1
27°	338.7	350.5	336.7
28°	260.7	233.9	220.1
29°	139.5	116.6	106.8
30°	55.7	45.9	43.2
31°	26.9	22.9	22.3
32°	15.1	12.4	12.4
33°	9.2	7.9	7.2
34°	6.6	5.2	4.6
35°	4.6	3.9	3.3
36°	3.9	2.6	2.0
37°	3.3	2.0	2.0
38°	2.6	2.0	1.3
39°	2.0	1.3	0.7
40°	2.0	0.7	0.0
42.5°	1.3	0.7	0.0
45°	1.3	0.0	0.0
47.5°	2.0	1.3	0.7
50°	1.3	0.7	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	0.7	0.0
64°	1.3	0.7	0.0
65°	1.3	0.7	0.0
66°	1.3	0.7	0.0



TEST NUMBER: P175442

CATALOG NUMBER: LDA6A20840D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	2.0	0.7	0.0
75°	2.0	0.7	0.0
77.5°	2.0	0.7	0.0
80°	2.0	0.7	0.0
82.5°	2.0	0.7	0.0
85°	2.0	0.7	0.0
87.5°	2.0	0.7	0.0
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	2.6	2.0	2.0	2.0	2.0	2.0	2.0	1.3	1.3	2.0	2.0
70°	2.0	2.0	2.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3





67.5°	2.0	2.0	2.0	2.0	0.7	0.0	0.0	2.0	2.6	2.0	2.6
70°	1.3	1.3	1.3	1.3	0.0	0.0	0.0	2.0	2.6	2.0	2.6





67.5°	2.0	0.7	0.0
70°	2.0	0.7	0.0



(END OF REPORT)