

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: P175446

Luminaire Tested: **LDA6A20940D010TE LARL15SP 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175446
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: LDA6A20940D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1248.9 lumens
Efficiency: N/A
Efficacy: 42.9 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

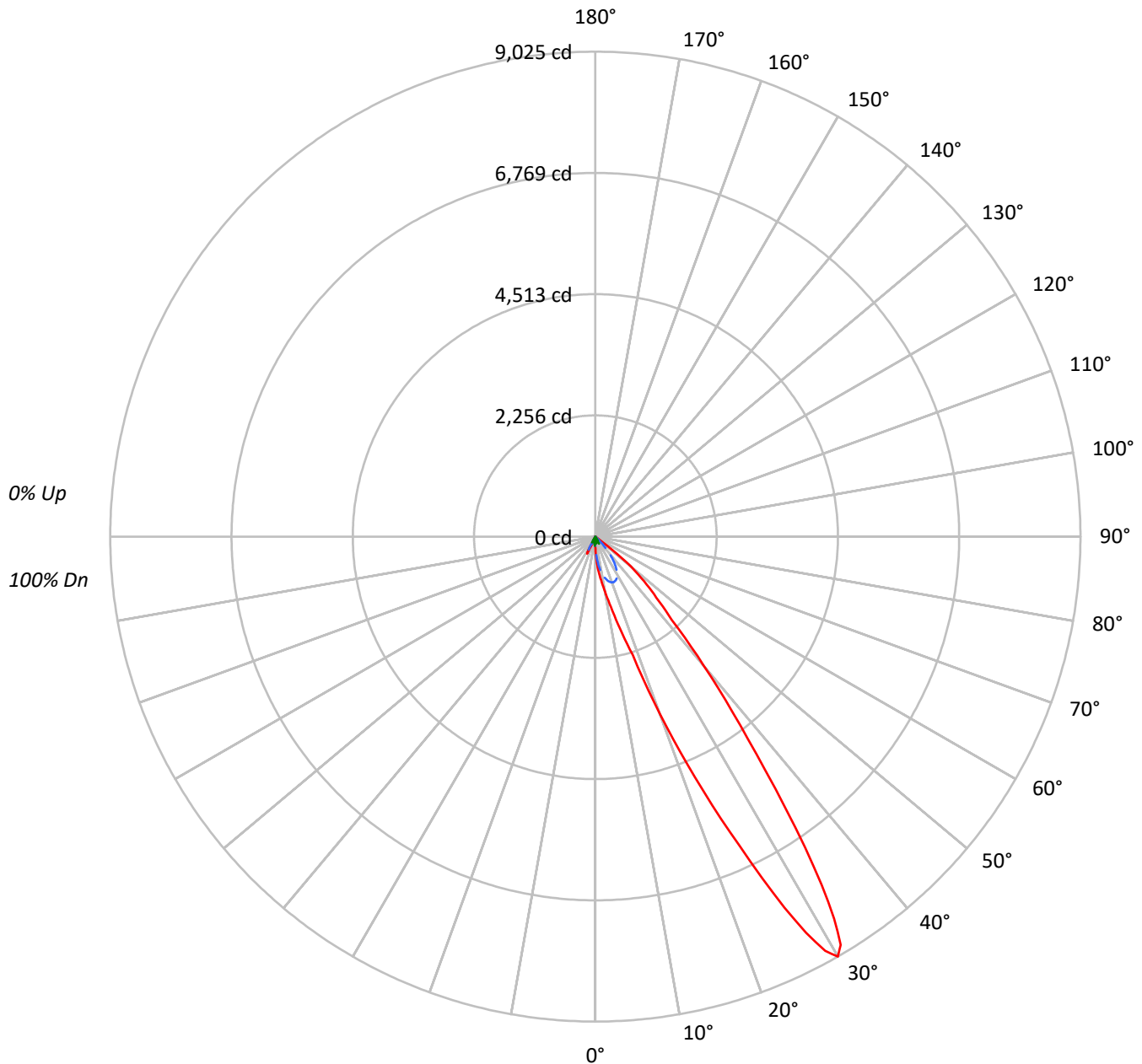
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
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°	10076	10076	10076
5°	34465	8568	1145
10°	57681	4759	562
15°	100194	1754	477
20°	204698	1149	823
25°	384246	2244	14523
30°	571309	3912	2348
35°	412300	301	187
40°	223941	122	0
45°	124307	132	0
50°	72740	145	0
55°	2313	105	0
60°	800	186	0
65°	363	221	0
70°	272	272	0
75°	127	466	0
80°	0	695	0
85°	0	1384	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	25.7	2.1
10°-20°	133.7	10.7
20°-30°	430.4	34.5
30°-40°	448.0	35.9
40°-50°	190.9	15.3
50°-60°	15.8	1.3
60°-70°	1.6	0.1
70°-80°	1.4	0.1
80°-90°	1.3	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°	589.8	47.2
0°-40°	1037.9	83.1
0°-60°	1244.6	99.7
0°-90°	1248.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1248.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	184	184	184	184	184	
5°	626	456	156	28	21	71
15°	1765	840	31	11	8	577
25°	6352	895	37	112	240	3051
35°	6161	639	4	4	3	3814
45°	1603	110	2	1	0	1319
55°	24	3	1	1	0	151
65°	3	2	2	1	0	3
75°	1	2	2	2	0	1
85°	0	2	2	2	0	0
90°	0	0	0	0	0	



TEST NUMBER: P175446

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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	183.8	183.8	183.8	183.8	183.8	183.8	183.8	183.8	183.8	183.8	183.8
2.5°	408.2	386.8	403.1	393.6	387.4	385.7	395.2	384.6	373.3	372.8	369.4
5°	626.3	606.1	622.9	608.3	601.6	596.0	600.4	583.0	564.5	565.0	556.6
7.5°	816.3	805.1	816.3	800.6	795.5	789.9	788.2	771.4	749.4	751.1	738.2
10°	1036.2	1003.6	1021.5	987.3	978.8	963.6	958.6	931.0	896.2	894.5	875.9
12.5°	1339.2	1326.3	1344.3	1295.9	1285.8	1259.9	1245.9	1202.0	1144.7	1130.1	1087.3
15°	1765.4	1723.8	1741.8	1673.7	1654.6	1609.6	1578.7	1510.7	1456.1	1394.3	1329.1
17.5°	2306.8	2283.2	2306.2	2172.4	2122.9	2035.2	1962.7	1849.1	1733.3	1677.7	1586.0
20°	3508.8	3396.4	3408.7	3160.2	3001.7	2765.5	2576.6	2325.9	2095.9	1963.8	1812.6
22.5°	4842.9	4714.8	4683.3	4363.9	4095.2	3740.4	3408.7	2989.3	2581.7	2286.5	2030.2
25°	6352.5	6269.3	6104.6	5581.7	5119.6	4613.6	4125.6	3576.8	3048.3	2596.3	2211.8
26°	7069.3	7002.4	6755.0	6101.2	5503.0	4897.5	4339.8	3750.6	3180.5	2684.6	2254.5
27°	7750.2	7696.2	7374.6	6613.4	5865.6	5137.0	4495.5	3874.2	3275.5	2741.4	2284.9
28°	8350.1	8295.0	7879.5	7047.4	6152.9	5310.1	4593.3	3951.3	3330.0	2754.9	2283.2
29°	8816.7	8747.0	8210.6	7325.7	6321.6	5393.4	4613.0	3960.8	3322.1	2723.4	2251.7
30°	9025.3	8938.7	8305.1	7385.3	6324.4	5361.9	4557.3	3909.7	3258.1	2649.2	2193.2
31°	8861.7	8788.0	8133.6	7213.3	6152.9	5217.9	4419.0	3791.6	3136.6	2541.8	2115.6
32°	8384.9	8317.4	7714.2	6835.4	5828.5	4974.5	4218.3	3622.9	2975.3	2411.9	2025.7
33°	7731.1	7678.8	7137.9	6316.5	5411.9	4674.8	3978.3	3411.5	2781.3	2266.3	1916.0
34°	6985.0	6944.0	6450.3	5730.1	4957.1	4342.0	3704.5	3107.4	2569.3	2119.6	1834.0
35°	6160.8	6132.7	5730.1	5128.0	4504.5	3996.2	3400.3	2838.6	2355.7	1978.4	1745.7
36°	5377.6	5354.6	5047.6	4575.9	4073.8	3637.5	3070.8	2558.7	2151.0	1851.4	1663.0
37°	4708.6	4691.7	4464.6	4084.5	3660.0	3264.8	2735.2	2296.7	1972.8	1740.6	1578.1
38°	4152.0	4138.5	3954.1	3617.3	3233.9	2879.1	2411.4	2065.0	1821.0	1644.5	1482.0
39°	3633.1	3615.6	3449.8	3145.0	2809.4	2503.6	2196.6	1874.4	1701.8	1544.4	1378.6
40°	3129.3	3106.8	2961.2	2702.0	2422.0	2184.8	1909.3	1757.5	1605.1	1428.0	1272.9
42.5°	2099.9	2087.5	2008.2	1891.3	1772.7	1686.1	1598.9	1463.5	1302.7	1156.5	1041.8
45°	1603.4	1600.6	1561.8	1500.6	1421.8	1348.8	1232.4	1154.2	1045.7	922.6	840.5
47.5°	1230.1	1230.7	1194.7	1148.6	1094.6	1047.4	962.5	900.1	822.5	752.2	688.7
50°	852.9	816.9	822.0	785.4	741.6	714.0	635.3	587.5	477.3	366.0	286.2
51°	639.2	592.0	598.2	557.2	511.6	487.4	413.8	365.4	262.0	172.0	112.4
52°	390.2	353.1	352.5	321.0	281.7	260.3	201.8	157.4	89.4	47.2	32.6
53°	174.8	150.1	144.5	123.1	96.7	83.8	57.3	42.2	31.5	24.2	18.6
54°	46.1	41.0	39.4	36.0	32.6	31.5	27.5	23.1	18.0	14.1	11.8
55°	24.2	22.5	21.9	20.8	19.1	18.6	16.3	14.1	11.2	10.1	9.0
57.5°	11.2	11.2	10.7	10.1	9.6	9.6	8.4	7.9	7.3	7.3	6.2
60°	7.3	7.3	7.3	6.7	6.7	6.2	5.6	5.1	4.5	5.1	4.5
61°	6.2	6.2	6.2	5.6	5.1	4.5	4.5	4.5	3.9	3.9	3.4
62°	4.5	4.5	3.9	3.9	3.4	3.4	3.4	3.4	2.8	3.4	3.4
63°	3.4	3.4	2.8	2.8	2.8	2.8	2.2	2.2	2.2	3.4	3.4
64°	2.8	2.8	2.8	2.2	2.2	2.2	2.2	2.2	2.2	2.8	2.2
65°	2.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.7	2.2	2.2
66°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.7	1.7	2.2	2.2



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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°	0.6	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



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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°	183.8	183.8	183.8	183.8	183.8	183.8	183.8	183.8	183.8	183.8	183.8
2.5°	369.4	362.6	348.6	345.8	332.3	324.4	326.6	322.2	250.2	176.5	110.2
5°	550.4	535.2	514.4	507.1	484.1	471.7	467.8	456.5	309.8	155.7	51.7
7.5°	727.5	707.8	682.5	670.7	639.2	618.4	604.9	588.1	350.8	123.7	28.7
10°	859.1	836.6	810.2	795.0	759.6	738.8	716.8	698.3	372.8	85.5	21.4
12.5°	1034.5	990.1	935.0	901.8	849.5	820.8	795.5	777.5	381.2	51.2	16.3
15°	1268.4	1197.0	1118.8	1058.7	969.8	915.9	873.1	840.5	374.4	30.9	14.1
17.5°	1494.9	1393.7	1291.4	1209.9	1108.1	1027.7	945.7	881.6	345.8	24.7	12.9
20°	1683.3	1564.7	1434.2	1320.1	1202.6	1107.0	997.9	907.4	299.7	19.7	14.1
22.5°	1828.3	1677.1	1529.2	1387.6	1247.6	1137.9	1018.2	913.0	241.2	20.2	19.7
25°	1932.9	1734.4	1577.0	1415.7	1263.3	1143.0	1007.5	895.1	177.7	37.1	66.3
26°	1954.3	1746.2	1583.2	1412.9	1257.7	1134.6	995.1	883.8	160.2	73.7	146.2
27°	1966.1	1744.6	1578.7	1401.6	1245.9	1122.2	981.1	873.7	157.4	125.9	218.1
28°	1955.4	1730.5	1559.6	1381.4	1226.8	1105.9	964.8	861.9	155.7	154.6	206.9
29°	1926.2	1705.8	1530.9	1349.9	1197.5	1080.0	940.0	845.0	139.4	123.1	124.8
30°	1881.7	1670.9	1489.3	1307.7	1160.4	1042.9	904.6	818.0	92.2	61.8	52.8
31°	1826.6	1625.9	1438.2	1258.8	1118.3	997.9	867.5	783.2	47.8	26.4	24.7
32°	1765.9	1572.0	1383.1	1209.3	1075.5	954.6	836.6	752.2	31.5	14.6	14.1
33°	1701.8	1509.0	1322.3	1158.2	1027.7	906.3	804.5	719.1	23.6	9.0	8.4
34°	1638.9	1441.5	1261.1	1103.1	976.0	863.0	775.3	680.8	19.1	6.7	5.6
35°	1567.5	1368.4	1198.1	1044.6	920.4	825.9	746.1	639.2	15.2	4.5	4.5
36°	1484.3	1290.9	1132.9	983.3	867.5	791.6	714.0	593.7	11.8	3.4	3.9
37°	1396.0	1213.8	1067.1	922.6	824.2	760.1	675.2	547.0	10.1	2.8	3.4
38°	1304.9	1137.4	996.2	864.1	786.5	725.8	631.4	498.7	8.4	2.2	2.8
39°	1215.5	1059.2	925.4	816.9	751.1	685.3	581.3	449.2	7.3	2.2	2.8
40°	1128.4	980.5	862.4	775.9	711.8	635.9	529.6	397.5	5.1	1.7	2.8
42.5°	921.5	817.5	742.7	656.1	583.6	498.1	389.6	258.1	3.9	1.7	2.2
45°	771.4	685.9	598.8	500.9	429.5	341.8	230.5	109.6	3.9	1.7	2.2
47.5°	610.0	509.4	381.2	257.5	168.1	86.6	27.0	15.2	2.8	1.7	2.2
50°	177.7	102.9	38.2	23.1	17.4	10.7	6.7	6.2	2.2	1.7	2.2
51°	51.2	30.4	20.2	13.5	10.1	6.2	5.1	5.6	2.2	1.7	1.7
52°	24.2	17.4	11.8	9.0	6.7	5.1	4.5	5.1	2.2	1.7	1.7
53°	14.1	10.7	8.4	7.3	5.1	4.5	3.4	4.5	2.2	1.7	1.7
54°	9.6	8.4	7.3	6.2	4.5	3.4	3.4	4.5	2.2	1.7	1.7
55°	8.4	7.3	6.2	5.6	3.9	3.4	3.4	3.4	1.7	1.1	1.7
57.5°	5.6	5.6	4.5	4.5	3.4	2.2	1.1	2.8	2.2	1.7	1.7
60°	3.9	3.9	3.9	2.8	1.1	1.1	0.6	2.2	2.2	1.7	2.2
61°	3.9	3.9	2.8	2.2	1.1	1.1	0.6	2.2	2.2	1.7	2.2
62°	3.4	2.8	2.2	2.2	1.1	1.1	0.6	2.2	2.2	1.7	2.2
63°	2.8	2.2	2.2	2.2	1.1	0.6	0.6	2.2	2.2	1.7	2.2
64°	2.2	2.2	2.2	2.2	0.6	0.6	0.6	2.2	2.2	1.7	2.2
65°	2.2	2.2	2.2	1.7	0.6	0.6	0.6	1.7	2.2	1.7	2.2
66°	2.2	2.2	1.7	1.7	0.6	0.6	0.6	1.7	2.2	1.7	2.2



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CATALOG NUMBER: LDA6A20940D010TE 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	1.1	1.1	1.1	0.0	0.0	0.0	1.7	2.2	1.7	2.2
75°	0.6	0.6	1.1	1.1	0.0	0.0	0.0	1.7	2.2	2.2	2.2
77.5°	0.6	0.6	1.1	1.1	0.0	0.0	0.0	1.7	2.2	2.2	2.8
80°	0.6	0.6	1.1	1.1	0.0	0.0	0.0	1.7	2.2	2.2	2.8
82.5°	0.6	0.6	1.1	1.1	0.0	0.0	0.0	1.7	2.2	2.2	2.8
85°	0.6	0.6	1.1	1.1	0.0	0.0	0.0	1.7	2.2	2.2	2.8
87.5°	0.6	0.6	1.1	1.1	0.0	0.0	0.0	1.7	2.2	2.2	2.8
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: P175446

CATALOG NUMBER: LDA6A20940D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	183.8	183.8	183.8
2.5°	70.3	50.6	46.1
5°	28.1	23.1	20.8
7.5°	17.4	14.6	13.5
10°	14.1	10.7	10.1
12.5°	11.2	9.6	9.0
15°	10.7	9.0	8.4
17.5°	10.7	10.1	9.6
20°	13.5	13.5	14.1
22.5°	23.1	27.0	30.4
25°	111.9	181.0	240.1
26°	234.4	330.6	353.6
27°	290.7	300.8	289.0
28°	223.8	200.7	188.9
29°	119.8	100.1	91.6
30°	47.8	39.4	37.1
31°	23.1	19.7	19.1
32°	12.9	10.7	10.7
33°	7.9	6.7	6.2
34°	5.6	4.5	3.9
35°	3.9	3.4	2.8
36°	3.4	2.2	1.7
37°	2.8	1.7	1.7
38°	2.2	1.7	1.1
39°	1.7	1.1	0.6
40°	1.7	0.6	0.0
42.5°	1.1	0.6	0.0
45°	1.1	0.0	0.0
47.5°	1.7	1.1	0.6
50°	1.1	0.6	0.0
51°	1.1	0.0	0.0
52°	1.1	0.0	0.0
53°	1.1	0.0	0.0
54°	1.1	0.0	0.0
55°	1.1	0.0	0.0
57.5°	1.1	0.0	0.0
60°	1.1	0.0	0.0
61°	1.1	0.0	0.0
62°	1.1	0.0	0.0
63°	1.1	0.6	0.0
64°	1.1	0.6	0.0
65°	1.1	0.6	0.0
66°	1.1	0.6	0.0



TEST NUMBER: P175446

CATALOG NUMBER: LDA6A20940D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.7	0.6	0.0
75°	1.7	0.6	0.0
77.5°	1.7	0.6	0.0
80°	1.7	0.6	0.0
82.5°	1.7	0.6	0.0
85°	1.7	0.6	0.0
87.5°	1.7	0.6	0.0
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	2.2	1.7	1.7	1.7	1.7	1.7	1.7	1.1	1.1	1.7	1.7
70°	1.7	1.7	1.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1





67.5°	1.7	1.7	1.7	1.7	0.6	0.0	0.0	1.7	2.2	1.7	2.2
70°	1.1	1.1	1.1	1.1	0.0	0.0	0.0	1.7	2.2	1.7	2.2





67.5°	1.7	0.6	0.0
70°	1.7	0.6	0.0



(END OF REPORT)