

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: P170909

Luminaire Tested: **LDA4A09827D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170909
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: LDA4A09827D010TE 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 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 769.9 lumens
Efficiency: N/A
Efficacy: 55.6 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

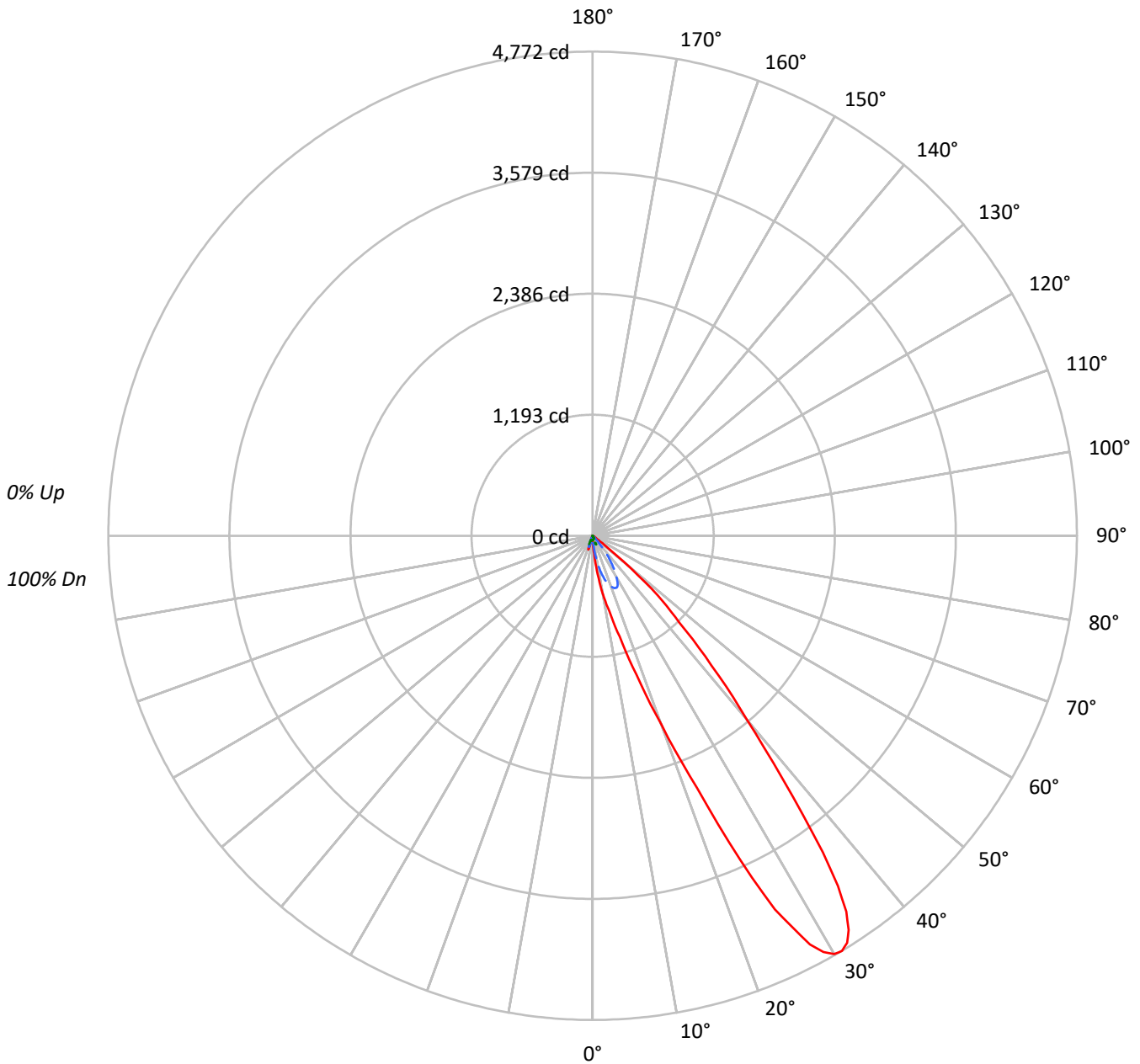
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									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	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	112	109	106	104	110	107	104	102	103	101	99	99	98	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82																			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74																			
4	92	83	77	71	90	82	76	71	80	74	70	78	73	69	76	72	68	67																			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	70	65	62	60																			
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	56	54																			
7	75	64	56	51	73	63	56	51	62	55	51	60	55	50	59	54	50	49																			
8	70	58	51	46	69	58	51	46	57	50	46	55	50	46	54	49	45	44																			
9	65	54	47	42	64	53	46	42	52	46	41	51	45	41	50	45	41	40																			
10	61	49	42	38	60	49	42	38	48	42	38	47	41	37	46	41	37	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	5538	5538	5538
5°	24850	5200	3368
10°	73546	4784	4309
15°	131311	5670	12144
20°	260095	11170	13047
25°	506117	7281	3702
30°	677954	2720	1296
35°	634367	1144	497
40°	380143	531	161
45°	210947	331	0
50°	77390	269	0
55°	11806	215	0
60°	2590	247	0
65°	846	292	0
70°	180	361	0
75°	0	667	0
80°	0	994	0
85°	0	1981	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	9.9	1.3
10°-20°	83.2	10.8
20°-30°	248.2	32.2
30°-40°	294.0	38.2
40°-50°	122.0	15.8
50°-60°	9.5	1.2
60°-70°	1.3	0.2
70°-80°	1.0	0.1
80°-90°	0.9	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°	341.3	44.3
0°-40°	635.3	82.5
0°-60°	766.7	99.6
0°-90°	769.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	769.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	45	45	45	45	45	
5°	201	101	42	29	27	32
15°	1028	434	44	66	95	339
25°	3719	564	54	31	27	1699
35°	4213	314	8	4	3	2441
45°	1209	28	2	1	0	986
55°	55	4	1	0	0	80
65°	3	1	1	1	0	4
75°	0	1	1	1	0	0
85°	0	1	1	1	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°	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9
2.5°	77.9	74.1	76.0	72.6	74.5	71.2	68.8	71.2	71.2	69.3	66.4
5°	200.7	199.7	203.5	194.5	196.9	186.8	178.2	180.6	178.7	172.5	161.5
7.5°	382.3	378.4	382.7	369.8	370.3	353.6	340.7	343.5	334.9	324.4	305.3
10°	587.2	582.0	586.8	571.5	568.6	545.2	527.0	529.9	510.3	493.1	464.0
12.5°	765.0	764.5	749.2	752.1	746.3	710.5	699.0	700.0	673.2	654.1	619.2
15°	1028.3	1038.3	1041.2	1021.6	986.2	921.2	892.6	881.6	838.1	806.1	755.9
17.5°	1433.0	1446.8	1399.5	1411.0	1352.7	1250.9	1194.1	1160.1	1078.4	1018.2	927.4
20°	1981.5	1969.5	1901.2	1892.6	1793.2	1662.3	1542.9	1478.8	1353.2	1265.2	1132.9
22.5°	2689.6	2680.5	2563.5	2511.4	2303.5	2119.1	1964.3	1803.7	1616.9	1499.4	1319.7
25°	3718.8	3677.2	3451.7	3303.6	2938.1	2624.6	2366.6	2117.2	1831.0	1703.4	1475.0
26°	4097.7	4087.7	3852.6	3657.7	3217.1	2828.2	2480.3	2230.4	1915.1	1766.0	1519.0
27°	4325.2	4405.0	4186.1	3965.4	3483.7	3017.9	2614.6	2321.7	1980.5	1810.0	1547.2
28°	4561.2	4612.8	4416.9	4139.8	3697.3	3168.9	2716.4	2383.3	2020.7	1831.5	1556.7
29°	4691.2	4740.9	4558.8	4298.9	3837.3	3266.8	2776.6	2410.6	2035.5	1831.0	1548.1
30°	4760.0	4806.3	4628.6	4376.3	3895.1	3297.4	2789.5	2399.6	2021.1	1809.0	1523.7
31°	4772.4	4811.1	4635.7	4373.9	3873.1	3259.6	2753.2	2354.2	1982.9	1768.4	1487.0
32°	4730.3	4760.4	4582.2	4303.2	3774.2	3164.1	2677.7	2283.9	1924.6	1717.7	1439.6
33°	4631.9	4685.9	4468.5	4160.3	3602.2	3022.6	2570.6	2192.2	1852.0	1651.8	1381.8
34°	4469.0	4503.4	4278.3	3936.7	3372.9	2850.6	2439.2	2085.7	1768.9	1573.9	1316.4
35°	4212.9	4243.5	3994.5	3634.7	3111.5	2656.6	2289.2	1968.1	1675.7	1486.5	1243.7
36°	3858.3	3887.5	3627.1	3299.3	2847.8	2454.5	2131.0	1840.1	1574.9	1392.8	1166.8
37°	3444.1	3469.4	3237.7	2970.1	2588.8	2250.0	1971.0	1710.1	1468.3	1297.3	1093.7
38°	3043.7	3066.6	2879.3	2661.4	2338.9	2050.3	1811.4	1575.3	1358.4	1201.2	1016.8
39°	2682.4	2702.5	2551.5	2371.9	2100.9	1858.7	1652.3	1441.6	1248.0	1105.2	937.5
40°	2360.9	2378.1	2253.8	2106.2	1885.0	1679.5	1497.5	1312.1	1140.1	1012.0	863.4
42.5°	1733.0	1736.8	1662.8	1575.8	1403.8	1285.8	1156.3	1022.5	896.9	808.9	714.3
45°	1209.3	1256.6	1208.4	1150.6	1027.3	953.2	870.6	789.8	717.2	632.6	539.0
47.5°	869.6	871.5	842.9	806.5	709.1	658.4	590.6	492.6	420.5	300.5	223.1
50°	403.3	380.8	382.3	357.4	318.7	253.2	211.7	151.0	120.4	86.0	69.3
51°	239.9	223.1	225.5	207.8	182.0	141.9	120.4	96.5	83.6	65.0	53.5
52°	140.0	134.3	133.8	125.7	107.0	98.4	87.0	72.6	63.5	50.2	41.6
53°	101.8	98.0	98.0	92.7	79.8	74.1	65.9	55.9	48.7	38.2	31.5
54°	76.0	73.1	73.1	69.8	64.5	55.4	49.7	41.6	36.3	29.6	23.4
55°	54.9	53.0	53.0	50.6	46.8	40.1	35.8	30.1	26.8	21.5	17.2
57.5°	22.9	22.0	22.0	21.0	20.1	17.2	16.2	13.9	11.9	10.5	8.6
60°	10.5	10.0	10.5	10.0	9.1	9.6	8.1	7.2	6.7	5.7	4.8
61°	8.1	7.6	7.6	7.6	6.7	6.7	6.2	5.7	5.3	4.3	3.8
62°	6.2	5.7	5.7	5.7	5.3	5.3	4.8	4.3	4.3	3.3	2.9
63°	4.8	4.3	4.3	4.3	3.8	3.8	3.8	3.3	3.3	2.9	2.4
64°	3.3	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.4	1.9	1.9
65°	2.9	2.4	2.9	2.4	2.4	2.4	2.4	2.4	1.9	1.4	1.4
66°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.0



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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°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
75°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5
85°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	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°	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9	44.9
2.5°	65.0	66.9	65.5	61.6	63.5	62.6	60.7	59.2	50.6	44.0	37.3
5°	153.4	154.8	146.7	132.4	127.6	119.9	108.9	101.3	57.3	42.0	33.0
7.5°	290.0	280.5	272.8	246.1	234.6	216.9	195.9	181.1	65.5	39.7	30.6
10°	439.1	423.8	408.1	368.9	348.3	321.1	291.0	273.8	74.1	38.2	30.6
12.5°	586.8	566.2	537.5	494.5	465.4	428.6	387.5	356.9	80.3	39.2	35.4
15°	714.8	690.0	658.4	609.7	575.8	529.9	476.4	434.3	83.1	44.4	49.2
17.5°	854.3	809.4	757.3	695.2	657.9	604.9	544.7	493.6	83.1	56.4	78.8
20°	1014.9	932.7	849.1	762.1	709.6	654.1	589.6	534.7	86.5	85.1	108.5
22.5°	1164.4	1051.2	933.2	819.9	746.8	686.6	621.2	558.1	100.3	93.7	72.1
25°	1280.5	1136.7	997.7	860.1	777.4	710.5	640.3	564.3	91.7	53.5	39.2
26°	1310.6	1155.4	1010.6	864.8	778.8	710.0	638.4	557.6	76.9	42.5	31.5
27°	1326.4	1161.6	1011.5	860.5	773.1	701.9	627.8	543.8	61.6	34.4	25.8
28°	1326.4	1154.4	1001.5	848.6	758.3	686.6	609.7	521.8	50.2	28.2	20.5
29°	1313.0	1135.8	981.4	830.4	738.2	665.1	584.8	496.0	42.5	23.4	16.7
30°	1287.2	1108.5	954.7	807.0	712.4	640.7	557.6	469.2	36.8	19.1	13.4
31°	1250.9	1077.9	921.7	781.7	688.5	618.3	532.8	442.0	32.0	15.3	11.0
32°	1207.4	1039.7	887.8	755.4	668.9	597.3	507.0	413.3	27.7	12.9	9.6
33°	1157.3	996.7	852.4	729.6	649.8	573.4	478.8	382.3	23.9	10.5	8.1
34°	1101.8	949.4	816.1	701.9	626.4	543.3	445.8	349.3	20.5	9.1	6.7
35°	1041.6	896.4	778.8	673.7	600.1	509.8	410.4	314.4	17.7	7.6	5.7
36°	976.6	846.7	742.5	645.5	567.6	473.5	371.7	278.6	15.3	6.2	5.3
37°	911.7	799.9	706.7	615.4	529.9	432.4	331.1	241.3	13.4	5.3	4.3
38°	850.0	754.5	671.3	580.5	485.9	387.0	289.1	204.0	11.5	4.8	3.8
39°	792.2	710.5	635.0	539.0	440.5	343.1	248.5	165.3	10.0	4.3	3.3
40°	740.1	668.9	595.4	492.6	393.7	298.2	207.4	123.3	8.6	3.3	2.9
42.5°	630.2	554.7	457.7	343.5	266.1	173.0	96.5	45.9	6.2	2.4	2.4
45°	416.2	320.1	217.4	129.5	87.4	52.6	39.2	27.7	4.8	1.9	1.9
47.5°	139.0	88.4	64.5	46.3	39.7	31.5	25.3	17.2	3.3	1.4	1.4
50°	53.0	43.0	35.4	26.8	23.9	19.1	15.3	10.0	2.4	1.4	1.4
51°	41.6	33.9	27.7	21.0	19.1	15.3	12.4	8.6	1.9	1.4	1.4
52°	32.0	26.3	21.5	16.2	15.3	12.4	10.5	7.2	1.9	1.0	1.4
53°	24.4	20.1	16.2	12.4	11.9	10.0	8.6	5.7	1.4	1.0	1.4
54°	18.2	15.3	12.9	10.0	10.0	8.6	7.2	4.8	1.4	1.0	1.4
55°	13.9	11.5	10.0	7.6	8.1	7.2	6.2	3.8	1.4	1.0	1.4
57.5°	7.2	6.7	5.7	4.8	5.3	4.8	4.3	2.4	1.4	1.0	1.4
60°	4.3	3.8	3.3	2.9	3.3	3.3	3.3	1.4	1.4	1.0	1.4
61°	3.3	2.9	2.4	2.4	2.9	2.9	2.9	1.4	1.4	1.0	1.4
62°	2.4	2.4	1.9	1.9	2.9	2.4	2.4	1.4	1.4	1.0	1.4
63°	1.9	1.9	1.9	1.4	2.4	2.4	2.4	1.4	1.4	1.0	1.4
64°	1.4	1.4	1.4	1.4	1.9	2.4	2.4	1.0	1.4	1.0	1.4
65°	1.4	1.4	1.0	1.0	1.9	1.9	1.9	1.0	1.4	1.0	1.4
66°	1.0	1.0	1.0	1.0	1.9	1.9	1.9	1.0	1.4	1.0	1.4



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CATALOG NUMBER: LDA4A09827D010TE 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°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.4
75°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.4
77.5°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.9
80°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.9
82.5°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.9
85°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.9
87.5°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.4	1.4
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: P170909

CATALOG NUMBER: LDA4A09827D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	44.9	44.9	44.9
2.5°	33.9	32.5	31.5
5°	29.1	27.7	27.2
7.5°	27.2	26.8	27.2
10°	30.1	32.0	34.4
12.5°	40.1	47.3	51.1
15°	66.4	86.5	95.1
17.5°	117.1	133.3	142.9
20°	103.2	94.1	99.4
22.5°	55.9	48.7	50.2
25°	31.1	26.8	27.2
26°	24.8	21.5	21.5
27°	20.1	17.2	17.2
28°	16.2	13.9	13.9
29°	12.9	11.0	11.0
30°	10.5	9.1	9.1
31°	8.6	7.2	7.2
32°	7.2	6.2	5.7
33°	6.2	5.3	4.8
34°	5.3	4.3	3.8
35°	4.3	3.3	3.3
36°	3.8	2.9	2.9
37°	3.3	2.4	2.4
38°	2.9	1.9	1.9
39°	2.4	1.9	1.4
40°	1.9	1.4	1.0
42.5°	1.4	1.0	0.5
45°	1.4	0.5	0.0
47.5°	1.0	0.5	0.0
50°	1.0	0.0	0.0
51°	1.0	0.0	0.0
52°	1.0	0.0	0.0
53°	0.5	0.0	0.0
54°	1.0	0.0	0.0
55°	0.5	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	0.0	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: P170909

CATALOG NUMBER: LDA4A09827D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.0	0.5	0.0
75°	1.0	0.5	0.0
77.5°	1.0	0.5	0.0
80°	1.0	0.5	0.0
82.5°	1.0	0.5	0.0
85°	1.0	0.5	0.0
87.5°	1.0	0.5	0.0
90°	0.0	0.0	0.0



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







67.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.0	1.0
70°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0	0.5	0.5





67.5°	1.0	0.5	1.0	1.0	1.4	1.9	1.9	1.0	1.4	1.0	1.4
70°	0.5	0.5	0.5	0.5	1.4	1.4	1.9	1.0	1.4	1.0	1.4





67.5°	1.0	0.5	0.0
70°	1.0	0.5	0.0



(END OF REPORT)