

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: P170918

Luminaire Tested: **LDA4A13830D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170918  
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: LDA4A13830D010TE 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 / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

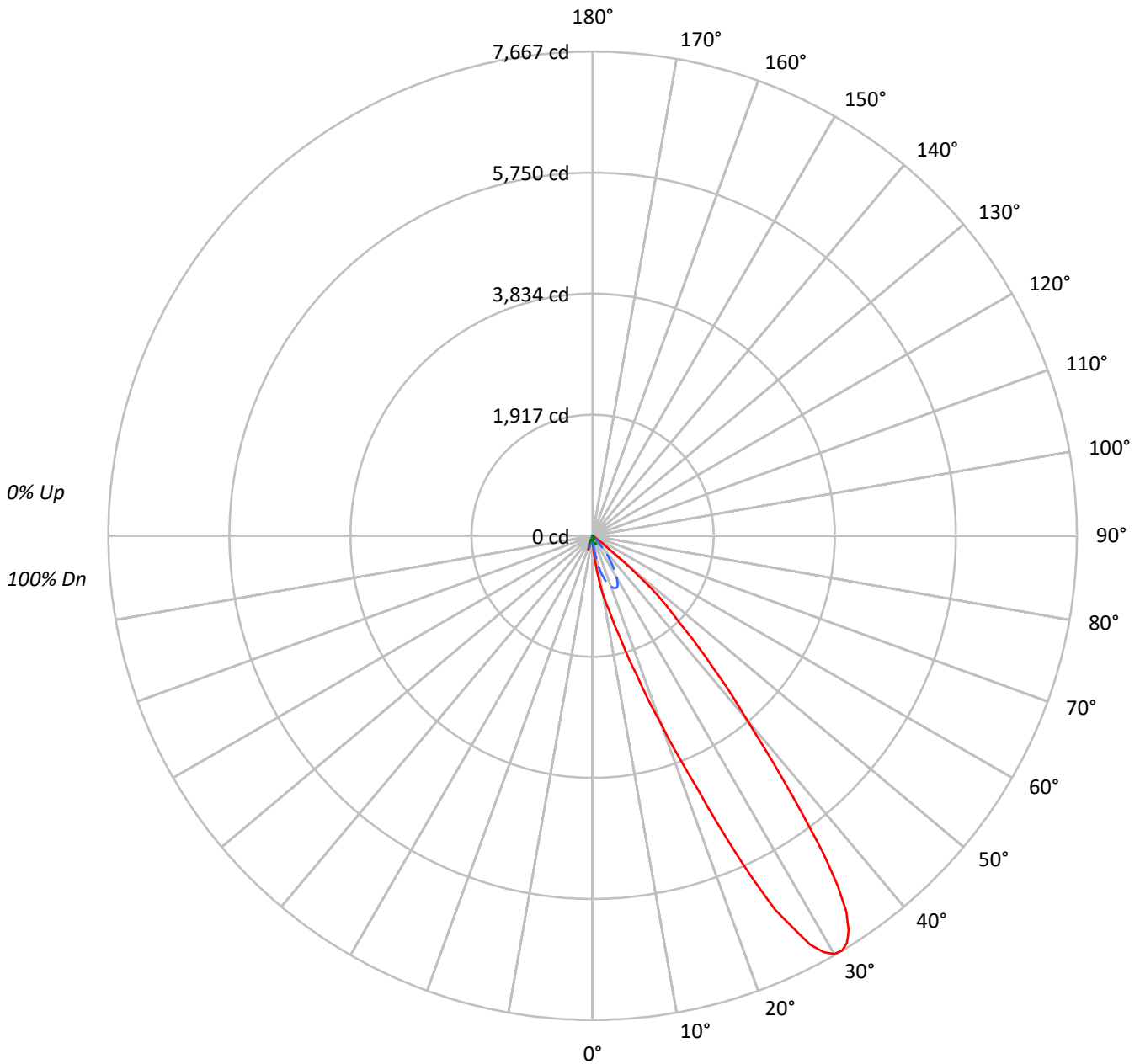
Lumens per Lamp: N/A  
Luminaire Lumens: 1236.8 lumens  
Efficiency: N/A  
Efficacy: 55.5 lumens/watt  
Spacing Criteria (0/90/45): 2.52 / 1.04 / 1.28  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage 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					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°	8906	8906	8906
5°	39919	8370	5423
10°	118159	7690	6926
15°	210942	9118	19512
20°	417845	17930	20962
25°	813097	11704	5961
30°	1089141	4373	2079
35°	1019122	1852	813
40°	610703	869	242
45°	338896	541	0
50°	124327	441	0
55°	18989	323	0
60°	4169	370	0
65°	1343	438	0
70°	289	541	0
75°	0	1096	0
80°	0	1634	0
85°	0	3255	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	15.9	1.3
10°-20°	133.6	10.8
20°-30°	398.8	32.2
30°-40°	472.3	38.2
40°-50°	195.9	15.8
50°-60°	15.2	1.2
60°-70°	2.1	0.2
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°	548.3	44.3
0°-40°	1020.6	82.5
0°-60°	1231.7	99.6
0°-90°	1236.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1236.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	72	72	72	72	72	
5°	322	163	68	47	44	51
15°	1652	698	71	107	153	545
25°	5974	907	86	50	44	2729
35°	6768	505	12	7	5	3922
45°	1943	44	3	2	0	1584
55°	88	6	2	1	0	129
65°	5	2	2	2	0	6
75°	0	2	2	2	0	0
85°	0	2	2	2	0	0
90°	0	0	0	0	0	



TEST NUMBER: P170918

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**CANDELA DISTRIBUTION (FULL):**

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	72.2	72.2	72.2	72.2	72.2	72.2	72.2	72.2	72.2	72.2	72.2
2.5°	125.1	119.0	122.1	116.7	119.7	114.4	110.5	114.4	114.4	111.3	106.7
5°	322.4	320.9	327.0	312.4	316.3	300.1	286.3	290.2	287.1	277.1	259.5
7.5°	614.1	608.0	614.9	594.1	594.9	568.0	547.3	551.9	538.1	521.2	490.5
10°	943.4	935.0	942.6	918.1	913.5	875.9	846.7	851.3	819.8	792.2	745.4
12.5°	1229.0	1228.2	1203.6	1208.2	1199.0	1141.4	1123.0	1124.6	1081.6	1050.9	994.8
15°	1651.9	1668.0	1672.6	1641.2	1584.4	1480.0	1433.9	1416.3	1346.4	1295.0	1214.4
17.5°	2302.1	2324.3	2248.4	2266.8	2173.1	2009.6	1918.3	1863.8	1732.5	1635.8	1489.9
20°	3183.3	3164.1	3054.4	3040.5	2880.9	2670.5	2478.6	2375.8	2173.9	2032.7	1820.0
22.5°	4320.9	4306.3	4118.3	4034.6	3700.7	3404.4	3155.7	2897.8	2597.6	2408.8	2120.2
25°	5974.4	5907.6	5545.3	5307.3	4720.1	4216.5	3802.0	3401.3	2941.5	2736.6	2369.6
26°	6583.1	6567.0	6189.3	5876.1	5168.4	4543.5	3984.7	3583.2	3076.6	2837.1	2440.3
27°	6948.5	7076.7	6725.1	6370.5	5596.7	4848.3	4200.4	3729.9	3181.8	2907.7	2485.5
28°	7327.7	7410.6	7095.9	6650.6	5939.8	5090.8	4363.9	3828.9	3246.3	2942.3	2500.9
29°	7536.5	7616.3	7323.8	6906.3	6164.7	5248.2	4460.6	3872.6	3270.1	2941.5	2487.1
30°	7647.0	7721.5	7435.9	7030.6	6257.6	5297.3	4481.4	3855.0	3247.0	2906.2	2447.9
31°	7667.0	7729.1	7447.4	7026.8	6222.3	5236.7	4423.0	3782.1	3185.6	2841.0	2388.8
32°	7599.4	7647.8	7361.5	6913.2	6063.4	5083.2	4301.7	3669.2	3092.0	2759.6	2312.8
33°	7441.3	7528.0	7178.8	6683.6	5787.1	4856.0	4129.8	3521.8	2975.3	2653.7	2220.0
34°	7179.5	7234.8	6873.3	6324.4	5418.6	4579.6	3918.7	3350.7	2841.7	2528.5	2114.8
35°	6768.1	6817.2	6417.3	5839.3	4998.7	4268.0	3677.7	3161.8	2692.0	2388.1	1998.1
36°	6198.5	6245.3	5827.0	5300.4	4575.0	3943.3	3423.6	2956.1	2530.1	2237.6	1874.5
37°	5533.0	5573.7	5201.4	4771.5	4159.0	3614.7	3166.4	2747.3	2358.9	2084.1	1757.1
38°	4889.7	4926.6	4625.7	4275.6	3757.5	3293.8	2910.0	2530.8	2182.3	1929.8	1633.5
39°	4309.4	4341.6	4099.1	3810.5	3375.2	2986.0	2654.4	2315.9	2005.0	1775.5	1506.1
40°	3792.8	3820.4	3620.9	3383.7	3028.3	2698.2	2405.7	2107.9	1831.5	1625.8	1387.1
42.5°	2784.1	2790.3	2671.3	2531.6	2255.3	2065.7	1857.6	1642.7	1440.8	1299.6	1147.6
45°	1942.8	2018.8	1941.3	1848.4	1650.4	1531.4	1398.6	1268.9	1152.2	1016.3	865.9
47.5°	1397.1	1400.1	1354.1	1295.7	1139.1	1057.8	948.8	791.4	675.5	482.8	358.5
50°	647.9	611.8	614.1	574.2	512.0	406.8	340.1	242.6	193.4	138.2	111.3
51°	385.3	358.5	362.3	333.9	292.5	228.0	193.4	155.1	134.3	104.4	86.0
52°	224.9	215.7	214.9	201.9	171.9	158.1	139.7	116.7	102.1	80.6	66.8
53°	163.5	157.4	157.4	148.9	128.2	119.0	105.9	89.8	78.3	61.4	50.7
54°	122.1	117.4	117.4	112.1	103.6	89.0	79.8	66.8	58.3	47.6	37.6
55°	88.3	85.2	85.2	81.4	75.2	64.5	57.6	48.4	43.0	34.5	27.6
57.5°	36.8	35.3	35.3	33.8	32.2	27.6	26.1	22.3	19.2	16.9	13.8
60°	16.9	16.1	16.9	16.1	14.6	15.4	13.0	11.5	10.7	9.2	7.7
61°	13.0	12.3	12.3	12.3	10.7	10.7	10.0	9.2	8.4	6.9	6.1
62°	10.0	9.2	9.2	9.2	8.4	8.4	7.7	6.9	6.9	5.4	4.6
63°	7.7	6.9	6.9	6.9	6.1	6.1	6.1	5.4	5.4	4.6	3.8
64°	5.4	5.4	5.4	5.4	5.4	4.6	4.6	4.6	3.8	3.1	3.1
65°	4.6	3.8	4.6	3.8	3.8	3.8	3.8	3.8	3.1	2.3	2.3
66°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.3	1.5



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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	0.8	0.8	0.8	0.8	0.8	0.8	0.8
75°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
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°	72.2	72.2	72.2	72.2	72.2	72.2	72.2	72.2	72.2	72.2	72.2
2.5°	104.4	107.5	105.2	99.0	102.1	100.6	97.5	95.2	81.4	70.6	59.9
5°	246.4	248.7	235.7	212.6	205.0	192.7	175.0	162.7	92.1	67.6	53.0
7.5°	465.9	450.6	438.3	395.3	376.9	348.5	314.7	290.9	105.2	63.7	49.1
10°	705.4	680.9	655.5	592.6	559.6	515.8	467.5	439.8	119.0	61.4	49.1
12.5°	942.6	909.6	863.6	794.5	747.7	688.6	622.5	573.4	129.0	62.9	56.8
15°	1148.4	1108.4	1057.8	979.5	925.0	851.3	765.3	697.8	133.6	71.4	79.1
17.5°	1372.5	1300.3	1216.7	1116.9	1057.0	971.8	875.1	792.9	133.6	90.6	126.7
20°	1630.4	1498.4	1364.1	1224.4	1139.9	1050.9	947.2	859.0	138.9	136.6	174.2
22.5°	1870.7	1688.8	1499.2	1317.2	1199.8	1103.1	997.9	896.6	161.2	150.5	115.9
25°	2057.2	1826.2	1602.8	1381.7	1248.9	1141.4	1028.6	906.6	147.4	86.0	62.9
26°	2105.6	1856.1	1623.5	1389.4	1251.2	1140.7	1025.5	895.8	123.6	68.3	50.7
27°	2130.9	1866.1	1625.0	1382.5	1242.0	1127.6	1008.6	873.5	99.0	55.3	41.5
28°	2130.9	1854.6	1608.9	1363.3	1218.2	1103.1	979.5	838.2	80.6	45.3	33.0
29°	2109.4	1824.6	1576.7	1334.1	1186.0	1068.5	939.6	796.8	68.3	37.6	26.9
30°	2068.0	1780.9	1533.7	1296.5	1144.5	1029.4	895.8	753.8	59.1	30.7	21.5
31°	2009.6	1731.7	1480.7	1255.8	1106.1	993.3	855.9	710.0	51.4	24.6	17.7
32°	1939.8	1670.3	1426.2	1213.6	1074.7	959.5	814.4	664.0	44.5	20.7	15.4
33°	1859.2	1601.3	1369.4	1172.2	1044.0	921.1	769.2	614.1	38.4	16.9	13.0
34°	1770.1	1525.3	1311.1	1127.6	1006.3	872.8	716.2	561.1	33.0	14.6	10.7
35°	1673.4	1440.1	1251.2	1082.3	964.1	819.0	659.4	505.1	28.4	12.3	9.2
36°	1569.0	1360.2	1192.9	1037.1	911.9	760.7	597.2	447.5	24.6	10.0	8.4
37°	1464.6	1285.0	1135.3	988.7	851.3	694.7	532.0	387.6	21.5	8.4	6.9
38°	1365.6	1212.1	1078.5	932.7	780.7	621.8	464.4	327.8	18.4	7.7	6.1
39°	1272.7	1141.4	1020.2	865.9	707.7	551.1	399.2	265.6	16.1	6.9	5.4
40°	1189.0	1074.7	956.5	791.4	632.5	479.0	333.1	198.0	13.8	5.4	4.6
42.5°	1012.5	891.2	735.4	551.9	427.6	277.9	155.1	73.7	10.0	3.8	3.8
45°	668.6	514.3	349.3	208.0	140.5	84.4	62.9	44.5	7.7	3.1	3.1
47.5°	223.4	142.0	103.6	74.5	63.7	50.7	40.7	27.6	5.4	2.3	2.3
50°	85.2	69.1	56.8	43.0	38.4	30.7	24.6	16.1	3.8	2.3	2.3
51°	66.8	54.5	44.5	33.8	30.7	24.6	20.0	13.8	3.1	2.3	2.3
52°	51.4	42.2	34.5	26.1	24.6	20.0	16.9	11.5	3.1	1.5	2.3
53°	39.1	32.2	26.1	20.0	19.2	16.1	13.8	9.2	2.3	1.5	2.3
54°	29.2	24.6	20.7	16.1	16.1	13.8	11.5	7.7	2.3	1.5	2.3
55°	22.3	18.4	16.1	12.3	13.0	11.5	10.0	6.1	2.3	1.5	2.3
57.5°	11.5	10.7	9.2	7.7	8.4	7.7	6.9	3.8	2.3	1.5	2.3
60°	6.9	6.1	5.4	4.6	5.4	5.4	5.4	2.3	2.3	1.5	2.3
61°	5.4	4.6	3.8	3.8	4.6	4.6	4.6	2.3	2.3	1.5	2.3
62°	3.8	3.8	3.1	3.1	4.6	3.8	3.8	2.3	2.3	1.5	2.3
63°	3.1	3.1	3.1	2.3	3.8	3.8	3.8	2.3	2.3	1.5	2.3
64°	2.3	2.3	2.3	2.3	3.1	3.8	3.8	1.5	2.3	1.5	2.3
65°	2.3	2.3	1.5	1.5	3.1	3.1	3.1	1.5	2.3	1.5	2.3
66°	1.5	1.5	1.5	1.5	3.1	3.1	3.1	1.5	2.3	1.5	2.3





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CATALOG NUMBER: LDA4A13830D010TE 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°	0.8	0.8	0.8	0.8	2.3	2.3	3.1	1.5	2.3	2.3	2.3
75°	0.8	0.8	0.8	0.8	2.3	2.3	3.1	1.5	2.3	2.3	2.3
77.5°	0.8	0.8	0.8	0.8	2.3	2.3	3.1	1.5	2.3	2.3	3.1
80°	0.8	0.8	0.8	0.8	2.3	2.3	3.1	1.5	2.3	2.3	3.1
82.5°	0.8	0.8	0.8	0.8	2.3	2.3	3.1	1.5	2.3	2.3	3.1
85°	0.8	0.8	0.8	0.8	2.3	2.3	3.1	1.5	2.3	2.3	3.1
87.5°	0.8	0.8	0.8	0.8	2.3	2.3	3.1	1.5	2.3	2.3	2.3
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: P170918

CATALOG NUMBER: LDA4A13830D010TE LAR15SP 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
0°	72.2	72.2	72.2
2.5°	54.5	52.2	50.7
5°	46.8	44.5	43.8
7.5°	43.8	43.0	43.8
10°	48.4	51.4	55.3
12.5°	64.5	76.0	82.1
15°	106.7	138.9	152.8
17.5°	188.1	214.2	229.5
20°	165.8	151.2	159.7
22.5°	89.8	78.3	80.6
25°	49.9	43.0	43.8
26°	39.9	34.5	34.5
27°	32.2	27.6	27.6
28°	26.1	22.3	22.3
29°	20.7	17.7	17.7
30°	16.9	14.6	14.6
31°	13.8	11.5	11.5
32°	11.5	10.0	9.2
33°	10.0	8.4	7.7
34°	8.4	6.9	6.1
35°	6.9	5.4	5.4
36°	6.1	4.6	4.6
37°	5.4	3.8	3.8
38°	4.6	3.1	3.1
39°	3.8	3.1	2.3
40°	3.1	2.3	1.5
42.5°	2.3	1.5	0.8
45°	2.3	0.8	0.0
47.5°	1.5	0.8	0.0
50°	1.5	0.0	0.0
51°	1.5	0.0	0.0
52°	1.5	0.0	0.0
53°	0.8	0.0	0.0
54°	1.5	0.0	0.0
55°	0.8	0.0	0.0
57.5°	1.5	0.0	0.0
60°	1.5	0.0	0.0
61°	1.5	0.0	0.0
62°	1.5	0.0	0.0
63°	1.5	0.0	0.0
64°	1.5	0.8	0.0
65°	1.5	0.8	0.0
66°	1.5	0.8	0.0



TEST NUMBER: P170918

CATALOG NUMBER: LDA4A13830D010TE LAR15SP 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
72.5°	1.5	0.8	0.0
75°	1.5	0.8	0.0
77.5°	1.5	0.8	0.0
80°	1.5	0.8	0.0
82.5°	1.5	0.8	0.0
85°	1.5	0.8	0.0
87.5°	1.5	0.8	0.0
90°	0.0	0.0	0.0



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









67.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.5	1.5
70°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.5	1.5	0.8	0.8





67.5°	1.5	0.8	1.5	1.5	2.3	3.1	3.1	1.5	2.3	1.5	2.3
70°	0.8	0.8	0.8	0.8	2.3	2.3	3.1	1.5	2.3	1.5	2.3





67.5°	1.5	0.8	0.0
70°	1.5	0.8	0.0



(END OF REPORT)