

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: P1191545

Luminaire Tested: **LDA4A15935D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

**Test Information**

Test Method: LM-41-14
Report Number: P1191545
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: LDA4A15935D010TE 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 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

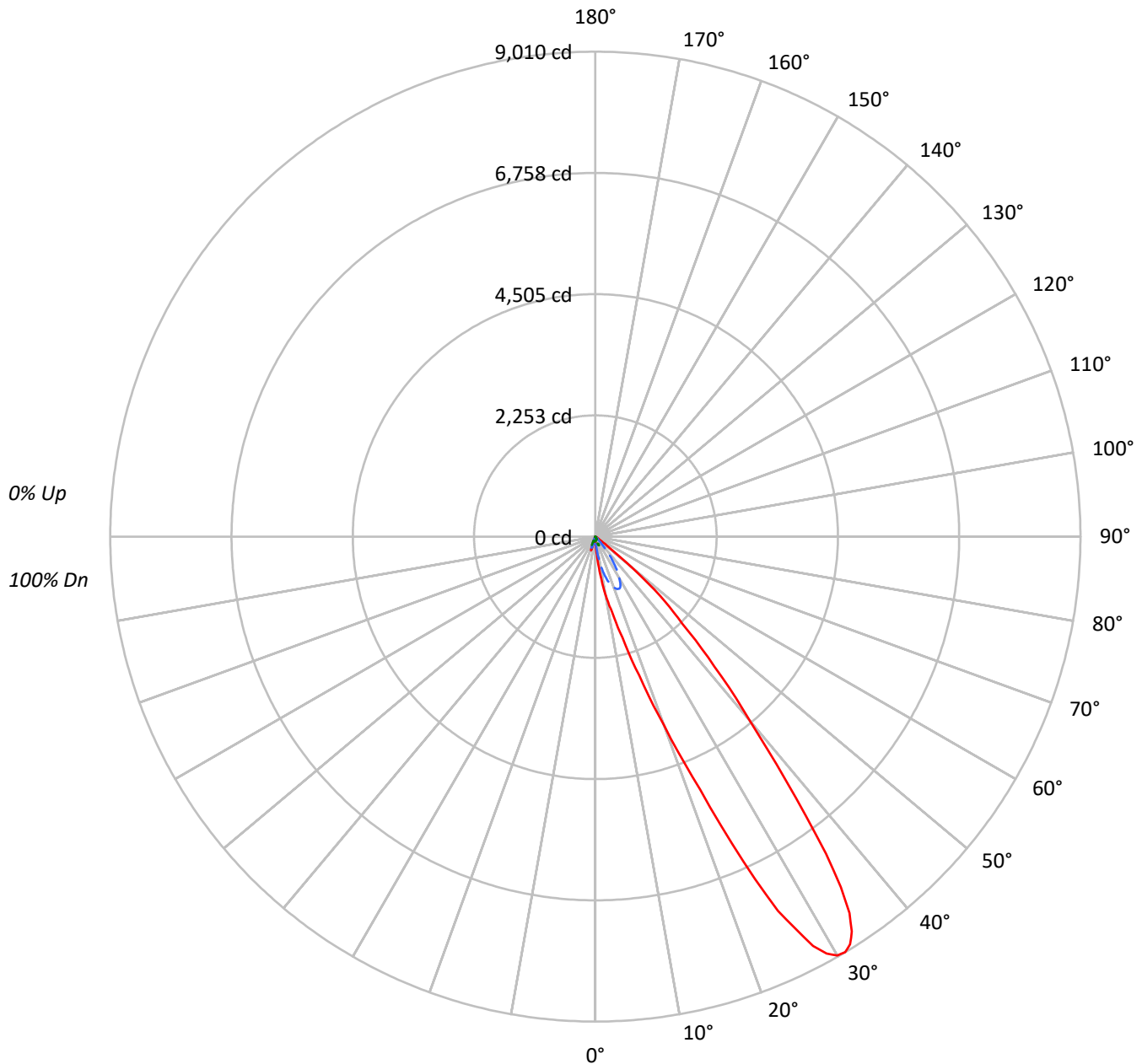
Lumens per Lamp: N/A
Luminaire Lumens: 1453.6 lumens
Efficiency: N/A
Efficacy: 71.3 lumens/watt
Spacing Criteria (0/90/45): 2.52 / 1.04 / 1.28
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 20.4
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	50	30	10
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°	10460	10460	10460
5°	46902	9831	6364
10°	138850	9030	8129
15°	247898	10714	22922
20°	491037	21081	24625
25°	955509	13746	6995
30°	1279923	5142	2450
35°	1197646	2183	949
40°	717682	1014	290
45°	398257	611	0
50°	146087	518	0
55°	22322	387	0
60°	4909	444	0
65°	1605	525	0
70°	361	649	0
75°	0	1287	0
80°	0	1918	0
85°	0	3821	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	18.6	1.3
10°-20°	157.0	10.8
20°-30°	468.7	32.2
30°-40°	555.0	38.2
40°-50°	230.3	15.8
50°-60°	17.9	1.2
60°-70°	2.5	0.2
70°-80°	1.9	0.1
80°-90°	1.7	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°	644.3	44.3
0°-40°	1199.3	82.5
0°-60°	1447.5	99.6
0°-90°	1453.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1453.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	85	85	85	85	85	
5°	379	191	79	55	51	60
15°	1941	820	84	126	180	641
25°	7021	1065	101	59	51	3207
35°	7954	594	14	8	6	4609
45°	2283	52	4	3	0	1861
55°	104	7	2	1	0	152
65°	6	2	2	2	0	7
75°	0	2	3	2	0	0
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°	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8
2.5°	147.0	139.8	143.5	137.2	140.7	134.5	130.0	134.5	134.5	130.8	125.5
5°	378.8	377.0	384.3	367.1	371.6	352.8	336.4	341.0	337.4	325.6	304.9
7.5°	721.6	714.4	722.6	698.2	699.1	667.5	643.2	648.5	632.3	612.5	576.4
10°	1108.6	1098.7	1107.8	1078.9	1073.5	1029.3	995.0	1000.4	963.4	931.0	875.9
12.5°	1444.2	1443.3	1414.5	1419.8	1409.0	1341.4	1319.7	1321.5	1271.0	1234.9	1169.0
15°	1941.3	1960.2	1965.7	1928.6	1861.9	1739.2	1685.0	1664.3	1582.2	1521.8	1427.0
17.5°	2705.3	2731.5	2642.2	2663.9	2553.8	2361.7	2254.2	2190.3	2036.1	1922.3	1750.9
20°	3740.9	3718.4	3589.4	3573.1	3385.5	3138.3	2912.9	2791.9	2554.6	2388.7	2138.9
22.5°	5077.8	5060.7	4839.7	4741.4	4348.9	4000.8	3708.4	3405.4	3052.6	2830.8	2491.5
25°	7020.8	6942.4	6516.7	6237.0	5546.9	4955.2	4468.0	3997.1	3456.8	3215.9	2784.7
26°	7736.2	7717.2	7273.5	6905.5	6073.7	5339.5	4682.7	4210.9	3615.6	3334.1	2867.7
27°	8165.6	8316.3	7903.1	7486.4	6577.1	5697.6	4936.2	4383.1	3739.1	3417.1	2920.9
28°	8611.3	8708.8	8338.8	7815.6	6980.3	5982.6	5128.4	4499.6	3814.9	3457.6	2938.9
29°	8856.6	8950.4	8606.8	8116.0	7244.6	6167.5	5242.0	4551.0	3842.9	3456.8	2922.7
30°	8986.5	9074.1	8738.5	8262.2	7353.7	6225.3	5266.4	4530.3	3815.7	3415.2	2876.7
31°	9010.0	9083.1	8752.0	8257.7	7312.2	6154.0	5197.8	4444.5	3743.6	3338.6	2807.3
32°	8930.6	8987.5	8650.9	8124.2	7125.6	5973.6	5055.3	4312.0	3633.6	3243.0	2718.0
33°	8744.8	8846.8	8436.3	7854.4	6800.7	5706.6	4853.2	4138.8	3496.5	3118.5	2608.8
34°	8437.1	8502.2	8077.2	7432.2	6367.8	5381.9	4605.1	3937.6	3339.6	2971.5	2485.2
35°	7953.7	8011.4	7541.3	6862.1	5874.3	5015.6	4321.9	3715.6	3163.6	2806.4	2348.1
36°	7284.3	7339.4	6847.7	6228.8	5376.4	4634.1	4023.3	3473.9	2973.3	2629.5	2202.8
37°	6502.2	6550.0	6112.5	5607.3	4887.4	4247.9	3721.1	3228.6	2772.1	2449.1	2064.8
38°	5746.2	5789.6	5435.9	5024.6	4415.7	3870.8	3419.7	2974.1	2564.6	2267.9	1919.6
39°	5064.3	5102.2	4817.1	4477.9	3966.4	3509.1	3119.5	2721.6	2356.2	2086.5	1769.9
40°	4457.2	4489.6	4255.1	3976.4	3558.7	3170.9	2827.1	2477.1	2152.4	1910.6	1630.1
42.5°	3271.8	3279.0	3139.2	2975.1	2650.4	2427.6	2183.1	1930.5	1693.2	1527.3	1348.6
45°	2283.1	2372.5	2281.4	2172.3	1939.5	1799.6	1643.6	1491.1	1354.0	1194.4	1017.5
47.5°	1641.8	1645.4	1591.2	1522.8	1338.7	1243.1	1114.9	930.0	793.8	567.4	421.2
50°	761.3	718.9	721.6	674.7	601.6	478.1	399.7	285.0	227.3	162.4	130.8
51°	452.9	421.2	425.7	392.5	343.6	268.0	227.3	182.2	157.9	122.7	101.0
52°	264.3	253.5	252.5	237.3	202.1	185.9	164.2	137.2	120.0	94.8	78.5
53°	192.1	184.9	184.9	175.0	150.7	139.8	124.5	105.5	92.0	72.1	59.6
54°	143.5	138.0	138.0	131.7	121.8	104.6	93.8	78.5	68.6	55.9	44.2
55°	103.8	100.1	100.1	95.6	88.4	75.8	67.6	56.9	50.5	40.6	32.5
57.5°	43.4	41.5	41.5	39.7	37.9	32.5	30.7	26.2	22.5	19.9	16.2
60°	19.9	19.0	19.9	19.0	17.2	18.0	15.3	13.5	12.7	10.8	9.0
61°	15.3	14.5	14.5	14.5	12.7	12.7	11.7	10.8	10.0	8.2	7.2
62°	11.7	10.8	10.8	10.8	10.0	10.0	9.0	8.2	8.2	6.3	5.5
63°	9.0	8.2	8.2	8.2	7.2	7.2	7.2	6.3	6.3	5.5	4.5
64°	6.3	6.3	6.3	6.3	6.3	5.5	5.5	5.5	4.5	3.5	3.5
65°	5.5	4.5	5.5	4.5	4.5	4.5	4.5	4.5	3.5	2.7	2.7
66°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.7	1.8



TEST NUMBER: P1191545

CATALOG NUMBER: LDA4A15935D010TE LAR15SP 4LA1 30° Tilt

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	1.0	1.0	1.0	1.0	1.0	1.0	1.0
75°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0
85°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0
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°	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8
2.5°	122.7	126.3	123.5	116.3	120.0	118.2	114.5	111.8	95.6	83.0	70.4
5°	289.5	292.2	277.0	249.8	240.8	226.4	205.6	191.2	108.3	79.4	62.2
7.5°	547.5	529.5	515.0	464.6	442.9	409.5	369.8	341.9	123.5	74.9	57.7
10°	829.0	800.2	770.3	696.4	657.7	606.1	549.4	517.0	139.8	72.1	57.7
12.5°	1107.8	1069.0	1014.8	933.7	878.6	809.2	731.6	673.9	151.5	73.9	66.8
15°	1349.5	1302.5	1243.1	1151.0	1087.0	1000.4	899.3	820.0	157.0	83.9	92.9
17.5°	1612.9	1528.1	1429.8	1312.5	1242.1	1142.0	1028.3	931.9	157.0	106.5	148.9
20°	1916.1	1760.9	1603.0	1438.8	1339.6	1234.9	1113.1	1009.4	163.2	160.6	204.8
22.5°	2198.3	1984.6	1761.8	1548.0	1410.0	1296.3	1172.7	1053.7	189.4	176.9	136.2
25°	2417.6	2146.1	1883.6	1623.7	1467.7	1341.4	1208.7	1065.4	173.2	101.0	73.9
26°	2474.5	2181.3	1907.9	1632.8	1470.4	1340.5	1205.2	1052.7	145.2	80.3	59.6
27°	2504.2	2193.0	1909.6	1624.6	1459.5	1325.2	1185.3	1026.5	116.3	64.9	48.7
28°	2504.2	2179.4	1890.8	1602.1	1431.5	1296.3	1151.0	985.1	94.8	53.2	38.7
29°	2479.0	2144.2	1852.9	1567.8	1393.8	1255.6	1104.1	936.4	80.3	44.2	31.6
30°	2430.1	2092.8	1802.3	1523.6	1345.0	1209.7	1052.7	885.8	69.4	36.1	25.2
31°	2361.7	2035.1	1740.1	1475.9	1300.0	1167.3	1005.8	834.4	60.4	28.9	20.7
32°	2279.6	1963.0	1676.0	1426.2	1262.9	1127.6	957.1	780.3	52.4	24.4	18.0
33°	2184.8	1881.7	1609.4	1377.4	1226.9	1082.5	903.8	721.6	45.1	19.9	15.3
34°	2080.2	1792.4	1540.8	1325.2	1182.7	1025.7	841.6	659.5	38.7	17.2	12.7
35°	1966.5	1692.3	1470.4	1271.9	1133.0	962.5	774.8	593.6	33.4	14.5	10.8
36°	1843.9	1598.5	1401.8	1218.7	1071.7	894.0	701.9	526.0	28.9	11.7	10.0
37°	1721.2	1510.1	1334.2	1161.8	1000.4	816.4	625.1	455.6	25.2	10.0	8.2
38°	1604.9	1424.3	1267.4	1096.1	917.5	730.6	545.7	385.2	21.7	9.0	7.2
39°	1495.6	1341.4	1198.9	1017.5	831.7	647.7	469.1	312.1	19.0	8.2	6.3
40°	1397.3	1262.9	1124.0	930.0	743.3	562.9	391.5	232.8	16.2	6.3	5.5
42.5°	1189.9	1047.3	864.1	648.5	502.5	326.6	182.2	86.6	11.7	4.5	4.5
45°	785.7	604.4	410.5	244.5	165.1	99.3	73.9	52.4	9.0	3.5	3.5
47.5°	262.5	166.9	121.8	87.5	74.9	59.6	47.9	32.5	6.3	2.7	2.7
50°	100.1	81.1	66.8	50.5	45.1	36.1	28.9	19.0	4.5	2.7	2.7
51°	78.5	64.1	52.4	39.7	36.1	28.9	23.5	16.2	3.5	2.7	2.7
52°	60.4	49.6	40.6	30.7	28.9	23.5	19.9	13.5	3.5	1.8	2.7
53°	46.0	37.9	30.7	23.5	22.5	19.0	16.2	10.8	2.7	1.8	2.7
54°	34.2	28.9	24.4	19.0	19.0	16.2	13.5	9.0	2.7	1.8	2.7
55°	26.2	21.7	19.0	14.5	15.3	13.5	11.7	7.2	2.7	1.8	2.7
57.5°	13.5	12.7	10.8	9.0	10.0	9.0	8.2	4.5	2.7	1.8	2.7
60°	8.2	7.2	6.3	5.5	6.3	6.3	6.3	2.7	2.7	1.8	2.7
61°	6.3	5.5	4.5	4.5	5.5	5.5	5.5	2.7	2.7	1.8	2.7
62°	4.5	4.5	3.5	3.5	5.5	4.5	4.5	2.7	2.7	1.8	2.7
63°	3.5	3.5	3.5	2.7	4.5	4.5	4.5	2.7	2.7	1.8	2.7
64°	2.7	2.7	2.7	2.7	3.5	4.5	4.5	1.8	2.7	1.8	2.7
65°	2.7	2.7	1.8	1.8	3.5	3.5	3.5	1.8	2.7	1.8	2.7
66°	1.8	1.8	1.8	1.8	3.5	3.5	3.5	1.8	2.7	1.8	2.7



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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°	1.0	1.0	1.0	1.0	2.7	2.7	3.5	1.8	2.7	2.7	2.7
75°	1.0	1.0	1.0	1.0	2.7	2.7	3.5	1.8	2.7	2.7	2.7
77.5°	1.0	1.0	1.0	1.0	2.7	2.7	3.5	1.8	2.7	2.7	3.5
80°	1.0	1.0	1.0	1.0	2.7	2.7	3.5	1.8	2.7	2.7	3.5
82.5°	1.0	1.0	1.0	1.0	2.7	2.7	3.5	1.8	2.7	2.7	3.5
85°	1.0	1.0	1.0	1.0	2.7	2.7	3.5	1.8	2.7	2.7	3.5
87.5°	1.0	1.0	1.0	1.0	2.7	2.7	3.5	1.8	2.7	2.7	2.7
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):

	135°	157.5°	180°
0°	84.8	84.8	84.8
2.5°	64.1	61.4	59.6
5°	55.1	52.4	51.4
7.5°	51.4	50.5	51.4
10°	56.9	60.4	64.9
12.5°	75.8	89.3	96.5
15°	125.5	163.2	179.5
17.5°	221.0	251.7	269.7
20°	194.9	177.7	187.6
22.5°	105.5	92.0	94.8
25°	58.6	50.5	51.4
26°	46.9	40.6	40.6
27°	37.9	32.5	32.5
28°	30.7	26.2	26.2
29°	24.4	20.7	20.7
30°	19.9	17.2	17.2
31°	16.2	13.5	13.5
32°	13.5	11.7	10.8
33°	11.7	10.0	9.0
34°	10.0	8.2	7.2
35°	8.2	6.3	6.3
36°	7.2	5.5	5.5
37°	6.3	4.5	4.5
38°	5.5	3.5	3.5
39°	4.5	3.5	2.7
40°	3.5	2.7	1.8
42.5°	2.7	1.8	1.0
45°	2.7	1.0	0.0
47.5°	1.8	1.0	0.0
50°	1.8	0.0	0.0
51°	1.8	0.0	0.0
52°	1.8	0.0	0.0
53°	1.0	0.0	0.0
54°	1.8	0.0	0.0
55°	1.0	0.0	0.0
57.5°	1.8	0.0	0.0
60°	1.8	0.0	0.0
61°	1.8	0.0	0.0
62°	1.8	0.0	0.0
63°	1.8	0.0	0.0
64°	1.8	1.0	0.0
65°	1.8	1.0	0.0
66°	1.8	1.0	0.0



TEST NUMBER: P1191545

CATALOG NUMBER: LDA4A15935D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.8	1.0	0.0
75°	1.8	1.0	0.0
77.5°	1.8	1.0	0.0
80°	1.8	1.0	0.0
82.5°	1.8	1.0	0.0
85°	1.8	1.0	0.0
87.5°	1.8	1.0	0.0
90°	0.0	0.0	0.0

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Scaled Data Report

Cooper Lighting Solutions Photometric Lab

1121 Highway 74 South

Peachtree City, GA 30269



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— 0°-180° - - 45°-225° - - - 90°-270°

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67.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	1.8	1.8
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.8	1.8	1.0	1.0

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67.5°	1.8	1.0	1.8	1.8	2.7	3.5	3.5	1.8	2.7	1.8	2.7
70°	1.0	1.0	1.0	1.0	2.7	2.7	3.5	1.8	2.7	1.8	2.7

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67.5°	1.8	1.0	0.0
70°	1.8	1.0	0.0

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(END OF REPORT)