

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: P1191653

Luminaire Tested: **LDA4A20940D010TE 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: P1191653
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: LDA4A20940D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

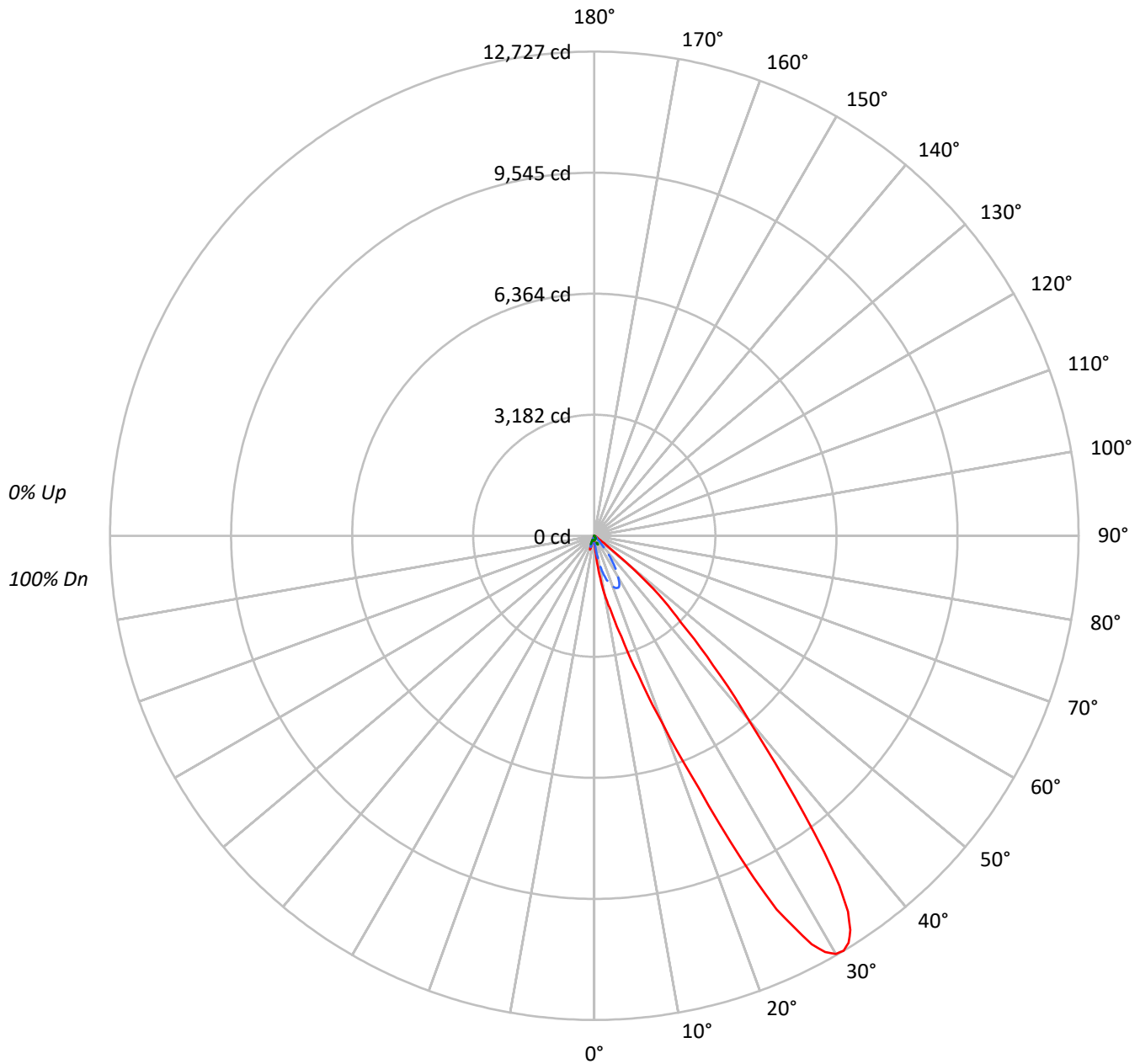
Lumens per Lamp: N/A
Luminaire Lumens: 2053.1 lumens
Efficiency: N/A
Efficacy: 71.3 lumens/watt
Spacing Criteria (0/90/45): 2.52 / 1.04 / 1.28
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 28.8
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	112	109	106	104	110	107	104	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	85	80	97	90	84	80		87	82	78			84	80	77			82
4	92	83	77	71	90	82	76	71		80	74	70			78	73	69			76
5	86	76	69	64	84	75	68	63		73	67	63			71	66	62			70
6	80	69	62	57	79	69	62	57		67	61	56			65	60	56			64
7	75	64	56	51	73	63	56	51		62	55	51			60	55	50			59
8	70	58	51	46	69	58	51	46		57	50	46			55	50	46			54
9	65	54	47	42	64	53	46	42		52	46	41			51	45	41			50
10	61	49	42	38	60	49	42	38		48	42	38			47	41	37			46

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	14764	14764	14764
5°	66267	13880	9001
10°	196139	12763	11498
15°	350157	15119	32371
20°	693600	29770	34784
25°	1349686	19435	9894
30°	1807900	7264	3447
35°	1691660	3072	1355
40°	1013742	1449	419
45°	562560	890	0
50°	206360	729	0
55°	31504	559	0
60°	6932	641	0
65°	2247	759	0
70°	469	938	0
75°	0	1811	0
80°	0	2699	0
85°	0	5378	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	26.3	1.3
10°-20°	221.8	10.8
20°-30°	662.0	32.2
30°-40°	784.0	38.2
40°-50°	325.2	15.8
50°-60°	25.3	1.2
60°-70°	3.5	0.2
70°-80°	2.7	0.1
80°-90°	2.4	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°	910.1	44.3
0°-40°	1694.1	82.5
0°-60°	2044.6	99.6
0°-90°	2053.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2053.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	120	120	120	120	120	
5°	535	270	112	78	73	85
15°	2742	1158	118	177	254	905
25°	9917	1505	143	83	73	4530
35°	11234	838	20	11	9	6511
45°	3225	74	5	4	0	2629
55°	146	10	3	1	0	215
65°	8	3	3	3	0	9
75°	0	3	4	3	0	0
85°	0	3	4	3	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°	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7
2.5°	207.6	197.5	202.6	193.7	198.8	189.8	183.5	189.8	189.8	184.8	177.1
5°	535.2	532.6	542.9	518.7	524.9	498.3	475.2	481.6	476.5	460.0	430.6
7.5°	1019.4	1009.1	1020.7	986.2	987.5	942.9	908.5	916.1	893.3	865.2	814.2
10°	1566.0	1552.0	1564.7	1524.0	1516.3	1453.9	1405.4	1413.1	1360.8	1314.9	1237.3
12.5°	2039.9	2038.8	1997.9	2005.6	1990.3	1894.7	1864.1	1866.7	1795.4	1744.4	1651.3
15°	2742.1	2768.8	2776.5	2724.2	2630.0	2456.7	2380.2	2351.0	2235.0	2149.5	2015.7
17.5°	3821.2	3858.3	3732.0	3762.7	3607.2	3335.9	3184.3	3093.8	2875.9	2715.3	2473.2
20°	5284.1	5252.3	5070.0	5047.1	4782.0	4432.9	4114.3	3943.6	3608.5	3374.1	3021.1
22.5°	7172.5	7148.3	6836.1	6697.2	6143.0	5651.1	5238.2	4810.1	4311.8	3998.5	3519.3
25°	9917.1	9806.2	9204.7	8809.9	7835.1	6999.1	6311.1	5646.0	4882.8	4542.5	3933.5
26°	10927.5	10900.8	10273.8	9754.0	8579.2	7542.0	6614.4	5947.9	5106.9	4709.4	4050.6
27°	11534.0	11746.8	11163.3	10574.5	9290.2	8047.8	6972.4	6191.3	5281.5	4826.6	4125.9
28°	12163.4	12301.1	11778.7	11039.6	9859.8	8450.5	7243.9	6355.7	5388.5	4883.9	4151.4
29°	12510.1	12642.5	12157.0	11463.9	10233.1	8711.7	7404.3	6428.4	5428.1	4882.8	4128.4
30°	12693.5	12817.2	12343.1	11670.4	10387.3	8793.2	7438.8	6399.0	5389.9	4824.1	4063.3
31°	12726.7	12829.9	12362.2	11664.0	10328.7	8692.6	7341.9	6277.9	5287.9	4715.8	3965.3
32°	12614.6	12694.8	12219.6	11475.5	10064.8	8437.7	7140.6	6090.7	5132.4	4580.7	3839.2
33°	12352.1	12496.0	11916.2	11094.4	9606.1	8060.5	6855.2	5846.0	4938.8	4404.9	3685.0
34°	11917.5	12009.3	11409.1	10498.1	8994.5	7601.8	6504.8	5561.9	4717.1	4197.1	3510.4
35°	11234.5	11316.2	10652.3	9692.8	8297.6	7084.6	6104.7	5248.4	4468.6	3964.0	3316.8
36°	10289.1	10366.9	9672.4	8798.3	7594.3	6545.5	5682.9	4906.9	4199.8	3714.2	3111.6
37°	9184.5	9251.9	8633.9	7920.4	6903.6	6000.2	5256.1	4560.3	3915.7	3459.4	2916.7
38°	8116.6	8177.8	7678.3	7097.3	6237.2	5467.6	4830.5	4201.1	3622.6	3203.4	2711.5
39°	7153.4	7206.8	6804.2	6325.1	5602.7	4956.6	4406.2	3844.3	3328.2	2947.2	2500.0
40°	6295.9	6341.6	6010.3	5616.6	5026.7	4478.8	3993.3	3498.9	3040.2	2698.8	2302.4
42.5°	4621.5	4631.7	4434.2	4202.4	3743.6	3428.8	3083.5	2726.7	2391.6	2157.2	1905.0
45°	3225.0	3351.1	3222.5	3068.3	2739.5	2542.1	2321.6	2106.2	1912.5	1687.1	1437.3
47.5°	2319.1	2324.2	2247.7	2150.8	1890.9	1755.8	1574.8	1313.8	1121.3	801.5	595.0
50°	1075.4	1015.5	1019.4	953.1	849.8	675.3	564.4	402.7	321.2	229.4	184.8
51°	639.6	595.0	601.4	554.3	485.5	378.5	321.2	257.5	223.0	173.3	142.8
52°	373.3	358.1	356.8	335.1	285.4	262.5	232.0	193.7	169.4	133.8	110.9
53°	271.4	261.2	261.2	247.2	212.9	197.5	175.8	149.1	130.0	101.9	84.1
54°	202.6	194.9	194.9	186.1	172.0	147.8	132.5	110.9	96.9	79.1	62.4
55°	146.5	141.5	141.5	135.1	124.8	107.0	95.6	80.2	71.4	57.3	45.9
57.5°	61.1	58.6	58.6	56.0	53.6	45.9	43.3	36.9	31.9	28.1	22.9
60°	28.1	26.8	28.1	26.8	24.2	25.5	21.7	19.1	17.8	15.3	12.7
61°	21.7	20.4	20.4	20.4	17.8	17.8	16.5	15.3	14.0	11.4	10.1
62°	16.5	15.3	15.3	15.3	14.0	14.0	12.7	11.4	11.4	9.0	7.7
63°	12.7	11.4	11.4	11.4	10.1	10.1	10.1	9.0	9.0	7.7	6.4
64°	9.0	9.0	9.0	9.0	9.0	7.7	7.7	7.7	6.4	5.1	5.1
65°	7.7	6.4	7.7	6.4	6.4	6.4	6.4	6.4	5.1	3.8	3.8
66°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	3.8	2.6



TEST NUMBER: P1191653

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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	1.3	1.3	1.3	1.3	1.3	1.3	1.3
75°	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3
80°	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3
85°	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	1.3
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3
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):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7
2.5°	173.3	178.4	174.6	164.3	169.4	167.0	161.9	158.0	135.1	117.3	99.3
5°	409.1	412.8	391.2	353.0	340.3	319.9	290.5	270.2	152.9	112.1	87.9
7.5°	773.4	747.9	727.6	656.2	625.7	578.5	522.4	482.9	174.6	105.7	81.5
10°	1171.0	1130.2	1088.2	983.6	928.9	856.2	776.0	730.1	197.5	101.9	81.5
12.5°	1564.7	1510.0	1433.5	1318.8	1241.1	1142.9	1033.4	951.8	214.0	104.5	94.3
15°	1906.1	1840.0	1755.8	1625.8	1535.4	1413.1	1270.3	1158.2	221.7	118.4	131.2
17.5°	2278.3	2158.5	2019.7	1854.0	1754.5	1613.1	1452.6	1316.2	221.7	150.3	210.2
20°	2706.4	2487.2	2264.2	2032.4	1892.2	1744.4	1572.4	1425.8	230.7	226.8	289.3
22.5°	3105.2	2803.2	2488.5	2186.5	1991.6	1831.0	1656.5	1488.2	267.6	249.8	192.4
25°	3414.8	3031.4	2660.5	2293.6	2073.1	1894.7	1707.5	1504.9	244.7	142.8	104.5
26°	3495.2	3081.0	2694.9	2306.4	2077.0	1893.4	1702.3	1486.9	205.2	113.4	84.1
27°	3537.1	3097.5	2697.5	2294.8	2061.6	1871.8	1674.3	1450.0	164.3	91.8	68.8
28°	3537.1	3078.4	2670.7	2262.9	2022.1	1831.0	1625.8	1391.4	133.8	75.2	54.7
29°	3501.5	3028.8	2617.2	2214.6	1968.7	1773.6	1559.6	1322.6	113.4	62.4	44.6
30°	3432.7	2956.1	2545.9	2152.1	1899.8	1708.6	1486.9	1251.2	98.2	51.0	35.6
31°	3335.9	2874.5	2458.0	2084.5	1836.1	1648.8	1420.8	1178.7	85.4	40.8	29.2
32°	3219.9	2772.6	2367.5	2014.4	1783.9	1592.8	1352.0	1102.2	73.8	34.5	25.5
33°	3086.1	2657.9	2273.2	1945.7	1733.0	1529.1	1276.7	1019.4	63.7	28.1	21.7
34°	2938.3	2531.8	2176.3	1871.8	1670.4	1448.7	1188.8	931.5	54.7	24.2	17.8
35°	2777.7	2390.3	2077.0	1796.7	1600.3	1359.5	1094.5	838.4	47.2	20.4	15.3
36°	2604.5	2257.9	1980.1	1721.4	1513.7	1262.8	991.3	742.8	40.8	16.5	14.0
37°	2431.2	2133.0	1884.6	1641.2	1413.1	1153.2	883.0	643.5	35.6	14.0	11.4
38°	2266.8	2012.0	1790.3	1548.2	1295.8	1032.1	770.9	544.0	30.6	12.7	10.1
39°	2112.6	1894.7	1693.4	1437.3	1174.8	914.8	662.6	440.9	26.8	11.4	9.0
40°	1973.8	1783.9	1587.6	1313.8	1049.9	795.1	553.0	328.7	22.9	9.0	7.7
42.5°	1680.7	1479.4	1220.7	916.1	709.7	461.3	257.5	122.4	16.5	6.4	6.4
45°	1109.9	853.7	579.8	345.3	233.1	140.2	104.5	73.8	12.7	5.1	5.1
47.5°	370.8	235.7	172.0	123.7	105.7	84.1	67.5	45.9	9.0	3.8	3.8
50°	141.5	114.7	94.3	71.4	63.7	51.0	40.8	26.8	6.4	3.8	3.8
51°	110.9	90.5	73.8	56.0	51.0	40.8	33.2	22.9	5.1	3.8	3.8
52°	85.4	70.1	57.3	43.3	40.8	33.2	28.1	19.1	5.1	2.6	3.8
53°	65.0	53.6	43.3	33.2	31.9	26.8	22.9	15.3	3.8	2.6	3.8
54°	48.4	40.8	34.5	26.8	26.8	22.9	19.1	12.7	3.8	2.6	3.8
55°	36.9	30.6	26.8	20.4	21.7	19.1	16.5	10.1	3.8	2.6	3.8
57.5°	19.1	17.8	15.3	12.7	14.0	12.7	11.4	6.4	3.8	2.6	3.8
60°	11.4	10.1	9.0	7.7	9.0	9.0	9.0	3.8	3.8	2.6	3.8
61°	9.0	7.7	6.4	6.4	7.7	7.7	7.7	3.8	3.8	2.6	3.8
62°	6.4	6.4	5.1	5.1	7.7	6.4	6.4	3.8	3.8	2.6	3.8
63°	5.1	5.1	5.1	3.8	6.4	6.4	6.4	3.8	3.8	2.6	3.8
64°	3.8	3.8	3.8	3.8	5.1	6.4	6.4	2.6	3.8	2.6	3.8
65°	3.8	3.8	2.6	2.6	5.1	5.1	5.1	2.6	3.8	2.6	3.8
66°	2.6	2.6	2.6	2.6	5.1	5.1	5.1	2.6	3.8	2.6	3.8



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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°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.6	3.8	3.8	3.8
75°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.6	3.8	3.8	3.8
77.5°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.6	3.8	3.8	5.1
80°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.6	3.8	3.8	5.1
82.5°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.6	3.8	3.8	5.1
85°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.6	3.8	3.8	5.1
87.5°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.6	3.8	3.8	3.8
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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CATALOG NUMBER: LDA4A20940D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	119.7	119.7	119.7
2.5°	90.5	86.6	84.1
5°	77.8	73.8	72.7
7.5°	72.7	71.4	72.7
10°	80.2	85.4	91.8
12.5°	107.0	126.1	136.4
15°	177.1	230.7	253.5
17.5°	312.2	355.5	381.0
20°	275.3	251.1	265.0
22.5°	149.1	130.0	133.8
25°	82.8	71.4	72.7
26°	66.3	57.3	57.3
27°	53.6	45.9	45.9
28°	43.3	36.9	36.9
29°	34.5	29.2	29.2
30°	28.1	24.2	24.2
31°	22.9	19.1	19.1
32°	19.1	16.5	15.3
33°	16.5	14.0	12.7
34°	14.0	11.4	10.1
35°	11.4	9.0	9.0
36°	10.1	7.7	7.7
37°	9.0	6.4	6.4
38°	7.7	5.1	5.1
39°	6.4	5.1	3.8
40°	5.1	3.8	2.6
42.5°	3.8	2.6	1.3
45°	3.8	1.3	0.0
47.5°	2.6	1.3	0.0
50°	2.6	0.0	0.0
51°	2.6	0.0	0.0
52°	2.6	0.0	0.0
53°	1.3	0.0	0.0
54°	2.6	0.0	0.0
55°	1.3	0.0	0.0
57.5°	2.6	0.0	0.0
60°	2.6	0.0	0.0
61°	2.6	0.0	0.0
62°	2.6	0.0	0.0
63°	2.6	0.0	0.0
64°	2.6	1.3	0.0
65°	2.6	1.3	0.0
66°	2.6	1.3	0.0



TEST NUMBER: P1191653

CATALOG NUMBER: LDA4A20940D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	2.6	1.3	0.0
75°	2.6	1.3	0.0
77.5°	2.6	1.3	0.0
80°	2.6	1.3	0.0
82.5°	2.6	1.3	0.0
85°	2.6	1.3	0.0
87.5°	2.6	1.3	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°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	2.6	2.6
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.6	2.6	1.3	1.3

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67.5°	2.6	1.3	2.6	2.6	3.8	5.1	5.1	2.6	3.8	2.6	3.8
70°	1.3	1.3	1.3	1.3	3.8	3.8	5.1	2.6	3.8	2.6	3.8

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67.5°	2.6	1.3	0.0
70°	2.6	1.3	0.0

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(END OF REPORT)