

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: P1192160

Luminaire Tested: **LDA6A35940D010TE LARL20NF 6LAL1 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: P1192160
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26268)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A35940D010TE LARL20NF 6LAL1 30° Tilt
Description: PORTFOLIO 6" Lensed Adjustable, Self-flange Trim Ring, 20° Narrow Flood Optic, at 30° tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

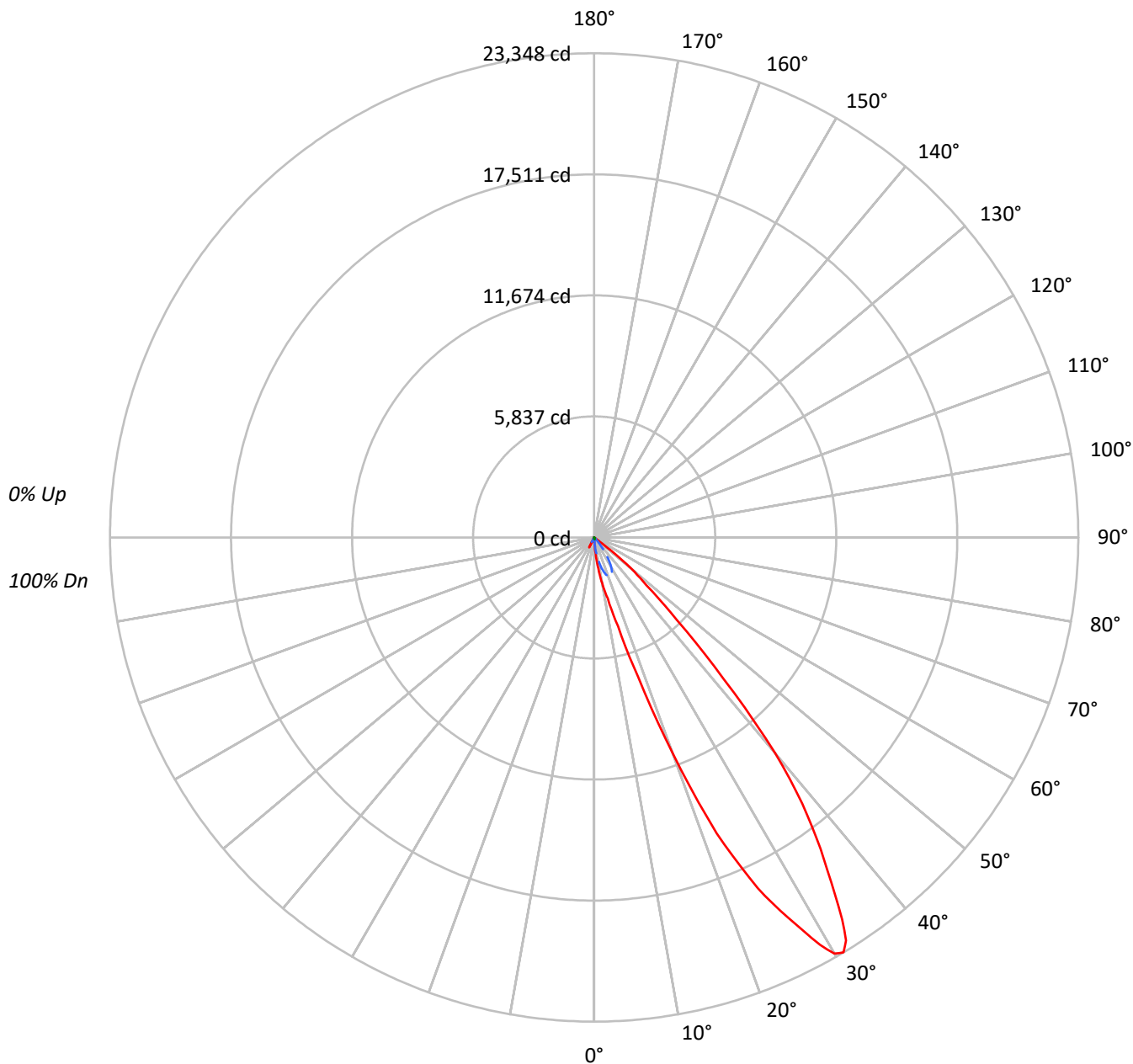
Lumens per Lamp: N/A
Luminaire Lumens: 3556.5 lumens
Efficiency: N/A
Efficacy: 74.6 lumens/watt
Spacing Criteria (0/90/45): 2.7 / 0.43 / 1.35
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

Input Watts (W): 47.7
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	97	96	96	94	93	91		
2	105	100	95	91	103	98	93	90	94	91	88	91	88	86	89	86	84	82		
3	99	91	85	80	96	89	84	79	87	82	78	84	80	77	82	78	76	74		
4	92	83	76	71	90	82	75	70	79	74	70	77	72	69	75	71	68	66		
5	86	75	68	63	84	74	68	63	73	67	62	71	66	62	69	65	61	59		
6	80	69	62	56	78	68	61	56	66	60	56	65	59	55	63	59	55	53		
7	74	63	56	50	73	62	55	50	61	55	50	59	54	50	58	53	49	48		
8	69	58	50	45	68	57	50	45	56	49	45	55	49	45	54	48	44	43		
9	65	53	46	41	63	52	45	41	51	45	40	50	44	40	49	44	40	39		
10	60	49	41	37	59	48	41	37	47	41	37	46	41	36	45	40	36	35		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	4408	4408	4408
5°	42785	3896	1601
10°	126534	2772	1002
15°	251154	1890	868
20°	647889	1540	1208
25°	1129142	1851	8728
30°	1466707	1937	4918
35°	1314222	843	462
40°	971592	301	0
45°	437542	326	0
50°	197392	358	0
55°	17624	401	0
60°	2138	460	0
65°	895	700	0
70°	673	866	0
75°	0	1144	0
80°	0	1705	474
85°	0	3397	943

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	32.0	0.9
10°-20°	299.5	8.4
20°-30°	1182.6	33.3
30°-40°	1427.0	40.1
40°-50°	553.8	15.6
50°-60°	48.7	1.4
60°-70°	4.6	0.1
70°-80°	4.4	0.1
80°-90°	4.0	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°	1514.1	42.6
0°-40°	2941.1	82.7
0°-60°	3543.5	99.6
0°-90°	3556.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3556.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	80	80	80	80	80	
5°	778	380	71	35	29	123
15°	4425	1674	33	21	15	1622
25°	18667	1981	31	97	144	8537
35°	19638	1008	13	13	7	12071
45°	5644	71	4	3	0	4958
55°	184	8	4	3	0	445
65°	7	5	5	4	0	8
75°	0	5	5	5	0	1
85°	0	5	5	5	2	0
90°	0	0	0	0	0	

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TEST NUMBER: P1192160

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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4
2.5°	252.3	239.7	225.9	231.5	234.3	241.2	235.5	214.8	227.4	217.5	209.4
5°	777.5	763.7	737.3	741.5	733.1	743.0	720.8	676.4	684.8	670.7	634.7
7.5°	1516.3	1458.1	1415.2	1417.9	1393.0	1404.1	1362.4	1286.2	1277.8	1207.1	1196.0
10°	2273.1	2244.0	2192.7	2185.8	2141.4	2146.8	2081.7	1980.6	1952.8	1871.1	1824.0
12.5°	3015.8	2967.2	2895.2	2879.9	2807.9	2809.4	2720.6	2607.0	2565.5	2481.0	2415.9
15°	4425.3	4356.0	4191.1	4128.7	3929.2	3898.6	3679.6	3421.9	3297.2	3151.7	2960.3
17.5°	7026.9	6982.5	6659.4	6480.7	6076.0	5674.1	5437.1	4880.0	4554.3	4146.7	3793.3
20°	11105.7	11187.6	10623.4	10224.2	9473.0	8624.8	8026.0	7011.6	6333.9	5631.2	4965.8
22.5°	15443.7	15478.5	14900.5	14402.9	13528.5	12362.8	10983.7	9752.9	8511.1	7304.0	6206.4
25°	18667.4	18567.8	17931.6	17334.1	16413.8	15223.3	13883.1	12239.5	10541.5	8883.9	7276.4
26°	19651.6	19597.6	18959.9	18244.8	17231.8	16023.0	14628.8	12969.9	11176.5	9391.2	7603.4
27°	20563.5	20528.9	19837.3	19041.8	17906.7	16641.2	15181.9	13524.3	11655.9	9783.5	7840.4
28°	21487.9	21449.2	20612.0	19689.1	18455.4	17080.6	15564.3	13894.2	11965.1	10013.6	7938.7
29°	22464.9	22390.2	21320.2	20164.2	18821.3	17337.1	15763.8	14063.3	12070.4	10070.3	7913.8
30°	23170.4	23054.0	21831.7	20465.1	18971.0	17417.5	15786.0	14059.1	12005.3	9952.7	7754.5
31°	23348.0	23230.1	21974.5	20460.9	18861.5	17295.4	15626.7	13862.4	11733.5	9667.1	7485.5
32°	22918.2	22810.2	21612.7	19993.8	18515.0	17001.7	15309.4	13497.9	11312.1	9240.3	7121.1
33°	21959.2	21877.3	20844.8	19379.8	18018.9	16584.5	14854.6	12979.6	10713.4	8697.0	6692.7
34°	20749.1	20689.7	19895.4	18657.8	17389.6	16011.9	14265.8	12296.3	9924.8	8081.5	6225.7
35°	19637.8	19593.4	18950.3	17852.4	16670.3	15303.7	13520.1	11454.9	9112.8	7418.9	5726.8
36°	18567.8	18530.3	17971.8	16951.6	15811.2	14473.7	12581.8	10448.8	8240.8	6731.7	5209.7
37°	17450.7	17417.5	16937.8	15967.7	14845.0	13481.1	11467.5	9377.4	7355.3	6045.7	4679.1
38°	16292.0	16264.2	15825.0	14857.6	13718.3	12268.6	10196.5	8269.9	6491.8	5376.2	4202.2
39°	14998.9	14975.2	14570.6	13556.1	12339.2	10839.6	8888.1	7190.3	5672.8	4726.2	3740.8
40°	13576.8	13545.0	13140.3	12006.5	10777.3	9369.0	7631.0	6199.3	4899.3	4119.1	3334.6
42.5°	9230.4	9195.9	8895.0	8235.4	7051.8	6146.8	5057.3	4149.6	3471.8	3002.0	2597.3
45°	5643.7	5647.7	5489.9	5082.2	4369.8	3866.8	3275.0	2841.2	2536.2	2356.2	2074.8
47.5°	3413.6	3413.6	3343.0	3135.2	2814.8	2613.9	2368.5	2166.3	1933.5	1756.0	1451.2
50°	2314.5	2316.0	2207.7	2218.8	2005.5	1880.7	1646.5	1399.9	1171.1	913.4	651.5
51°	1713.1	1721.5	1621.6	1667.2	1433.2	1327.6	1106.0	896.6	694.4	494.9	285.6
52°	1047.8	1063.1	995.2	1036.7	900.8	746.9	566.9	418.5	281.4	196.8	137.1
53°	486.5	498.9	464.3	483.8	403.4	314.6	238.5	194.1	155.1	126.0	93.0
54°	257.7	260.6	249.6	243.9	221.7	195.3	162.3	134.4	105.3	84.6	62.4
55°	184.4	184.4	178.8	173.4	155.1	133.2	108.0	91.5	69.3	55.5	40.2
57.5°	56.7	56.7	56.7	54.0	47.1	40.2	31.8	27.6	22.2	20.7	16.5
60°	19.5	19.5	19.5	18.0	16.5	15.3	13.8	12.6	11.1	11.1	9.6
61°	13.8	13.8	13.8	13.8	12.6	12.6	11.1	9.6	8.4	9.6	8.4
62°	11.1	12.6	11.1	11.1	11.1	9.6	8.4	8.4	6.9	8.4	6.9
63°	9.6	9.6	9.6	9.6	8.4	8.4	6.9	6.9	5.4	6.9	6.9
64°	8.4	8.4	8.4	8.4	6.9	6.9	5.4	5.4	4.2	5.4	5.4
65°	6.9	6.9	6.9	6.9	5.4	5.4	5.4	4.2	4.2	5.4	5.4
66°	5.4	5.4	5.4	5.4	5.4	4.2	4.2	4.2	2.7	4.2	4.2



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CATALOG NUMBER: LDA6A35940D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
72.5°	2.7	2.7	2.7	2.7	1.5	1.5	1.5	1.5	1.5	2.7	2.7
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5
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°	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4
2.5°	201.0	187.2	184.4	184.4	155.1	160.8	151.2	144.3	101.1	77.7	58.2
5°	614.0	564.2	543.2	525.2	446.3	439.4	390.8	379.8	135.9	70.8	44.4
7.5°	1144.9	1068.5	1020.1	973.0	845.3	810.8	727.7	706.7	184.4	59.7	34.8
10°	1749.1	1639.6	1555.0	1442.8	1277.8	1205.8	1083.8	1039.4	224.6	49.8	33.3
12.5°	2317.2	2192.7	2077.5	1929.3	1706.2	1591.0	1430.2	1373.5	239.7	41.7	30.6
15°	2807.9	2641.7	2499.0	2339.4	2090.1	1944.6	1747.6	1674.4	227.4	33.3	26.4
17.5°	3430.3	3149.0	2900.9	2677.7	2406.0	2228.7	1999.9	1880.7	184.4	29.1	23.7
20°	4350.6	3783.7	3347.0	2986.7	2609.7	2389.5	2135.7	1991.7	133.2	26.4	23.7
22.5°	5216.9	4407.3	3737.8	3222.4	2715.2	2451.9	2188.5	2029.0	94.2	26.4	27.6
25°	5923.6	4877.1	4008.1	3377.6	2773.4	2464.2	2169.0	1980.6	73.5	30.6	54.0
26°	6121.9	4993.7	4060.9	3390.1	2765.0	2446.2	2135.7	1936.2	65.1	41.7	101.1
27°	6245.2	5046.2	4062.3	3370.7	2734.4	2410.2	2085.9	1876.6	56.7	63.9	170.4
28°	6270.1	5021.3	4015.2	3316.6	2681.9	2361.6	2030.4	1804.6	52.8	80.4	194.1
29°	6202.3	4932.6	3929.2	3237.5	2618.1	2303.4	1963.8	1725.6	45.6	60.9	126.0
30°	6049.6	4785.8	3803.2	3136.4	2550.2	2238.3	1882.2	1631.2	37.5	30.6	56.7
31°	5821.0	4583.4	3647.8	3017.3	2474.0	2155.2	1783.8	1525.9	31.8	20.7	33.3
32°	5531.3	4340.7	3474.7	2895.2	2388.0	2054.1	1668.7	1408.0	29.1	16.5	27.6
33°	5198.6	4085.8	3295.9	2771.9	2285.4	1933.5	1545.4	1282.0	26.4	18.0	27.6
34°	4835.6	3825.4	3093.5	2643.0	2166.3	1801.8	1413.7	1133.8	23.7	16.5	20.7
35°	4442.1	3555.1	2912.0	2529.3	2031.9	1659.1	1279.3	1007.6	20.7	12.6	13.8
36°	4102.5	3291.7	2735.9	2385.3	1884.9	1512.1	1140.7	871.7	18.0	8.4	9.6
37°	3732.4	3044.9	2572.4	2235.6	1726.9	1360.9	1002.1	737.3	16.5	5.4	8.4
38°	3387.2	2817.5	2408.7	2063.7	1564.9	1208.5	860.6	605.6	15.3	5.4	6.9
39°	3074.0	2611.2	2256.3	1880.7	1394.2	1049.2	717.8	475.4	13.8	4.2	6.9
40°	2805.2	2426.7	2073.3	1688.2	1218.2	891.2	575.3	352.1	12.6	4.2	6.9
42.5°	2281.2	1947.3	1564.9	1193.3	788.6	504.5	257.7	129.0	9.6	4.2	5.4
45°	1743.6	1385.8	1032.5	717.8	406.1	195.3	95.7	70.8	8.4	4.2	5.4
47.5°	1132.3	831.5	554.3	313.2	135.9	78.9	49.8	36.0	6.9	4.2	5.4
50°	418.5	231.5	122.1	76.2	52.8	33.3	22.2	20.7	6.9	4.2	5.4
51°	171.9	112.2	76.2	51.3	33.3	23.7	18.0	18.0	6.9	4.2	5.4
52°	102.6	70.8	51.3	37.5	24.9	18.0	13.8	15.3	6.9	4.2	5.4
53°	67.8	48.6	37.5	29.1	19.5	13.8	9.6	11.1	6.9	4.2	5.4
54°	45.6	34.8	27.6	22.2	13.8	11.1	5.4	9.6	5.4	4.2	5.4
55°	31.8	24.9	20.7	16.5	9.6	6.9	4.2	8.4	5.4	4.2	5.4
57.5°	13.8	12.6	11.1	9.6	4.2	2.7	1.5	6.9	5.4	4.2	5.4
60°	9.6	8.4	6.9	6.9	1.5	1.5	0.0	5.4	5.4	4.2	5.4
61°	8.4	6.9	6.9	5.4	1.5	1.5	0.0	5.4	6.9	4.2	5.4
62°	6.9	6.9	5.4	5.4	1.5	0.0	0.0	5.4	6.9	4.2	6.9
63°	5.4	5.4	5.4	5.4	1.5	0.0	0.0	5.4	6.9	4.2	6.9
64°	5.4	5.4	5.4	5.4	0.0	0.0	0.0	5.4	6.9	4.2	6.9
65°	5.4	4.2	4.2	4.2	0.0	0.0	0.0	5.4	6.9	5.4	6.9
66°	4.2	4.2	4.2	4.2	0.0	0.0	0.0	5.4	6.9	5.4	6.9



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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°	2.7	2.7	2.7	2.7	0.0	0.0	0.0	4.2	6.9	5.4	8.4
75°	1.5	2.7	2.7	2.7	0.0	0.0	0.0	5.4	6.9	5.4	8.4
77.5°	1.5	2.7	2.7	2.7	0.0	0.0	0.0	5.4	6.9	5.4	8.4
80°	1.5	2.7	2.7	2.7	0.0	0.0	0.0	5.4	6.9	5.4	8.4
82.5°	1.5	2.7	2.7	2.7	0.0	0.0	0.0	5.4	6.9	5.4	8.4
85°	1.5	2.7	2.7	2.7	0.0	0.0	0.0	5.4	6.9	5.4	8.4
87.5°	1.5	2.7	2.7	2.7	0.0	0.0	0.0	5.4	6.9	5.4	8.4
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: LDA6A35940D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	80.4	80.4	80.4
2.5°	48.6	44.4	41.7
5°	34.8	31.8	29.1
7.5°	29.1	24.9	23.7
10°	26.4	19.5	18.0
12.5°	22.2	16.5	15.3
15°	20.7	16.5	15.3
17.5°	20.7	16.5	15.3
20°	22.2	20.7	20.7
22.5°	31.8	34.8	36.0
25°	96.9	124.8	144.3
26°	227.4	341.0	457.4
27°	345.2	503.0	536.3
28°	310.5	360.3	350.7
29°	149.7	169.2	153.9
30°	66.6	78.9	77.7
31°	42.9	48.6	47.1
32°	36.0	33.3	31.8
33°	29.1	23.7	19.5
34°	19.5	15.3	12.6
35°	12.6	8.4	6.9
36°	8.4	4.2	2.7
37°	5.4	2.7	1.5
38°	5.4	1.5	0.0
39°	4.2	1.5	0.0
40°	4.2	1.5	0.0
42.5°	4.2	0.0	0.0
45°	2.7	0.0	0.0
47.5°	2.7	0.0	0.0
50°	4.2	1.5	0.0
51°	4.2	0.0	0.0
52°	4.2	0.0	0.0
53°	2.7	0.0	0.0
54°	2.7	0.0	0.0
55°	2.7	0.0	0.0
57.5°	2.7	0.0	0.0
60°	2.7	0.0	0.0
61°	4.2	0.0	0.0
62°	4.2	0.0	0.0
63°	4.2	0.0	0.0
64°	4.2	1.5	0.0
65°	4.2	1.5	0.0
66°	4.2	1.5	0.0



TEST NUMBER: P1192160

CATALOG NUMBER: LDA6A35940D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	5.4	1.5	0.0
75°	5.4	1.5	0.0
77.5°	5.4	1.5	0.0
80°	5.4	2.7	1.5
82.5°	5.4	2.7	1.5
85°	5.4	2.7	1.5
87.5°	5.4	2.7	1.5
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°	4.2	4.2	4.2	4.2	4.2	4.2	2.7	2.7	2.7	4.2	4.2
70°	4.2	4.2	2.7	2.7	2.7	2.7	2.7	1.5	1.5	4.2	4.2

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67.5°	4.2	4.2	4.2	4.2	0.0	0.0	0.0	5.4	6.9	5.4	6.9
70°	4.2	4.2	4.2	4.2	0.0	0.0	0.0	5.4	6.9	5.4	8.4

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67.5°	5.4	1.5	0.0
70°	5.4	1.5	0.0

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(END OF REPORT)