

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: P1191617

Luminaire Tested: **LDA4A20930D010TE 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: P1191617
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: LDA4A20930D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

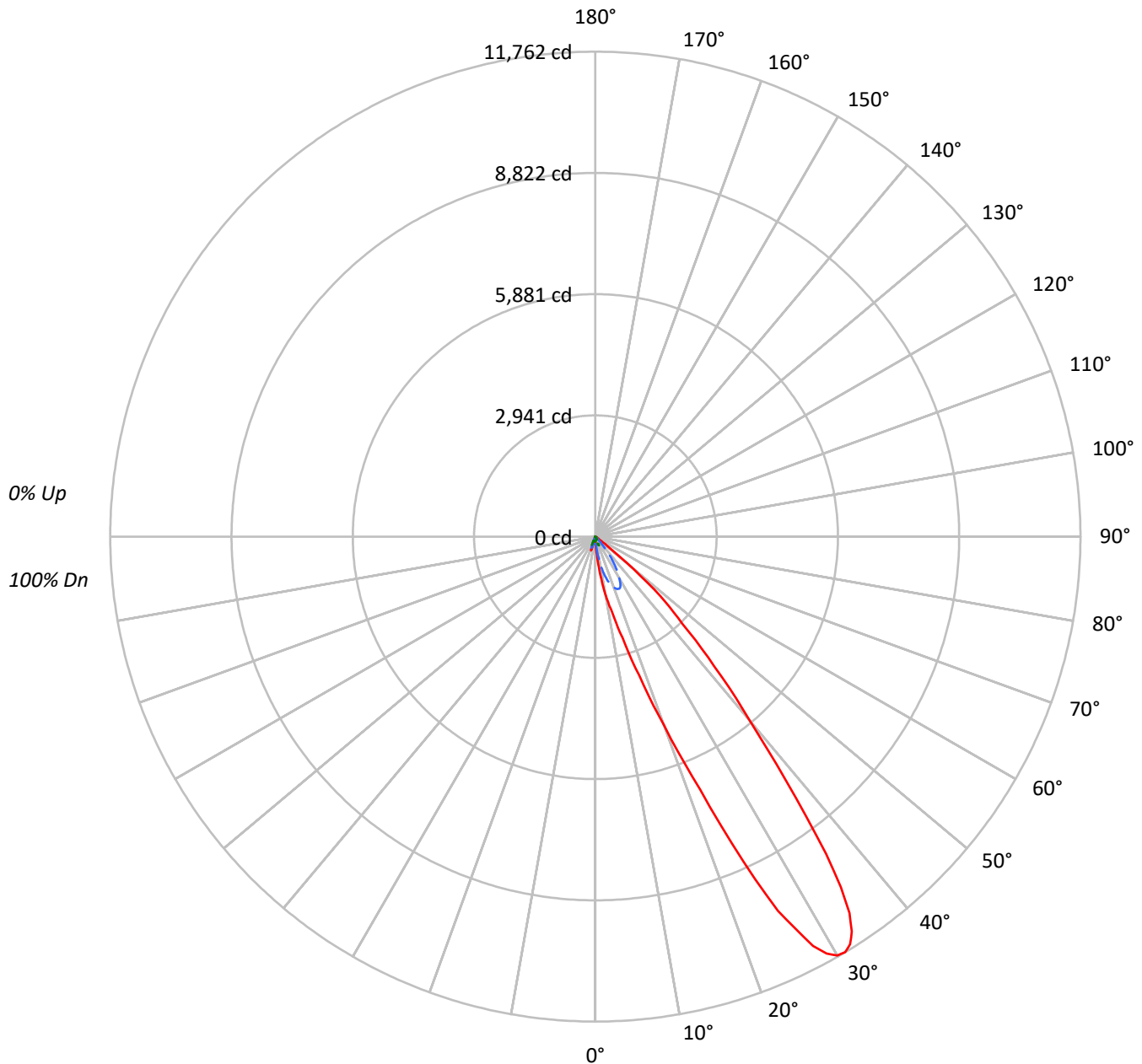
Lumens per Lamp: N/A
Luminaire Lumens: 1897.5 lumens
Efficiency: N/A
Efficacy: 65.9 lumens/watt
Spacing Criteria (0/90/45): 2.52 / 1.04 / 1.28
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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°	13642	13642	13642
5°	61240	12840	8320
10°	181272	11811	10634
15°	323622	13983	29919
20°	641030	27526	32159
25°	1247396	17951	9146
30°	1670900	6708	3190
35°	1563473	2831	1250
40°	936905	1336	370
45°	519910	837	0
50°	190721	672	0
55°	29117	495	0
60°	6389	567	0
65°	2072	671	0
70°	433	829	0
75°	0	1668	0
80°	0	2486	0
85°	0	4953	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	24.3	1.3
10°-20°	205.0	10.8
20°-30°	611.8	32.2
30°-40°	724.6	38.2
40°-50°	300.6	15.8
50°-60°	23.4	1.2
60°-70°	3.2	0.2
70°-80°	2.4	0.1
80°-90°	2.2	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°	841.1	44.3
0°-40°	1565.7	82.5
0°-60°	1889.6	99.6
0°-90°	1897.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1897.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	111	111	111	111	111	
5°	495	250	104	72	67	78
15°	2534	1070	110	164	234	837
25°	9166	1391	132	77	67	4187
35°	10383	775	19	11	8	6017
45°	2980	68	5	4	0	2430
55°	135	9	2	1	0	198
65°	7	2	2	2	0	9
75°	0	2	4	2	0	0
85°	0	2	4	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°	110.6	110.6	110.6	110.6	110.6	110.6	110.6	110.6	110.6	110.6	110.6
2.5°	192.0	182.6	187.2	179.0	183.7	175.5	169.6	175.5	175.5	170.7	163.6
5°	494.6	492.3	501.7	479.3	485.2	460.5	439.3	445.1	440.5	425.1	398.1
7.5°	942.1	932.7	943.2	911.5	912.7	871.4	839.7	846.8	825.5	799.6	752.5
10°	1447.3	1434.4	1446.1	1408.5	1401.4	1343.7	1299.0	1305.9	1257.7	1215.3	1143.5
12.5°	1885.4	1884.3	1846.5	1853.6	1839.5	1751.2	1722.8	1725.3	1659.3	1612.2	1526.2
15°	2534.3	2559.0	2566.1	2517.8	2430.6	2270.4	2199.8	2172.7	2065.6	1986.6	1863.0
17.5°	3531.8	3565.8	3449.3	3477.5	3333.9	3083.1	2942.9	2859.3	2657.9	2509.5	2285.8
20°	4883.6	4854.2	4685.8	4664.6	4419.7	4096.9	3802.6	3644.7	3335.0	3118.4	2792.2
22.5°	6628.9	6606.6	6318.0	6189.6	5677.4	5222.8	4841.2	4445.6	3985.2	3695.4	3252.6
25°	9165.5	9063.1	8507.2	8142.2	7241.3	6468.8	5832.8	5218.1	4512.7	4198.3	3635.3
26°	10099.4	10074.7	9495.2	9014.8	7929.0	6970.5	6113.1	5497.1	4720.0	4352.5	3743.6
27°	10660.0	10856.6	10317.2	9773.2	8586.1	7437.9	6444.0	5722.2	4881.3	4460.8	3813.1
28°	11241.8	11368.9	10886.0	10203.0	9112.5	7810.0	6694.8	5874.1	4980.2	4513.8	3836.7
29°	11562.1	11684.6	11235.8	10595.2	9457.5	8051.5	6843.2	5941.1	5016.7	4512.7	3815.6
30°	11731.6	11845.9	11407.7	10785.9	9600.0	8126.8	6875.1	5914.0	4981.4	4458.5	3755.5
31°	11762.2	11857.6	11425.4	10780.0	9545.9	8033.9	6785.6	5802.2	4887.1	4358.4	3664.9
32°	11658.6	11732.8	11293.5	10605.8	9302.2	7798.3	6599.5	5629.1	4743.5	4233.6	3548.2
33°	11416.0	11549.0	11013.3	10253.7	8878.2	7449.8	6335.7	5403.0	4564.5	4071.0	3405.7
34°	11014.4	11099.1	10544.6	9702.5	8312.9	7025.8	6011.8	5140.4	4359.6	3879.2	3244.4
35°	10383.2	10458.5	9845.0	8958.3	7668.7	6547.7	5642.1	4850.6	4130.0	3663.6	3065.4
36°	9509.4	9581.2	8939.5	8131.6	7018.7	6049.6	5252.3	4535.1	3881.5	3432.7	2875.9
37°	8488.4	8550.8	7979.6	7320.2	6380.4	5545.5	4857.7	4214.8	3618.8	3197.3	2695.6
38°	7501.5	7558.1	7096.5	6559.4	5764.4	5053.2	4464.4	3882.6	3348.0	2960.6	2506.0
39°	6611.2	6660.8	6288.6	5845.8	5178.0	4581.0	4072.3	3552.9	3076.0	2723.8	2310.6
40°	5818.7	5861.0	5554.9	5191.0	4645.7	4139.4	3690.6	3233.8	2809.8	2494.2	2128.0
42.5°	4271.3	4280.7	4098.1	3883.8	3459.8	3169.1	2849.9	2520.1	2210.4	1993.7	1760.6
45°	2980.5	3097.1	2978.2	2835.7	2532.0	2349.4	2145.6	1946.7	1767.6	1559.2	1328.4
47.5°	2143.3	2147.9	2077.3	1987.8	1747.6	1622.8	1455.5	1214.1	1036.3	740.8	549.9
50°	993.9	938.6	942.1	880.8	785.5	624.1	521.7	372.1	296.7	212.0	170.7
51°	591.2	549.9	555.9	512.3	448.7	349.7	296.7	237.9	206.0	160.1	131.9
52°	345.1	330.9	329.7	309.7	263.8	242.5	214.3	179.0	156.7	123.7	102.5
53°	250.8	241.4	241.4	228.5	196.6	182.6	162.5	137.8	120.2	94.3	77.8
54°	187.2	180.1	180.1	171.9	159.0	136.5	122.5	102.5	89.5	73.0	57.8
55°	135.4	130.8	130.8	124.8	115.4	98.9	88.3	74.1	65.9	53.0	42.4
57.5°	56.5	54.2	54.2	51.8	49.5	42.4	40.1	34.2	29.4	25.9	21.1
60°	25.9	24.8	25.9	24.8	22.4	23.6	20.0	17.7	16.5	14.2	11.7
61°	20.0	18.8	18.8	18.8	16.5	16.5	15.3	14.2	12.9	10.6	9.4
62°	15.3	14.2	14.2	14.2	12.9	12.9	11.7	10.6	10.6	8.3	7.1
63°	11.7	10.6	10.6	10.6	9.4	9.4	9.4	8.3	8.3	7.1	5.9
64°	8.3	8.3	8.3	8.3	8.3	7.1	7.1	7.1	5.9	4.8	4.8
65°	7.1	5.9	7.1	5.9	5.9	5.9	5.9	5.9	4.8	3.5	3.5
66°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.5	2.3



TEST NUMBER: P1191617

CATALOG NUMBER: LDA4A20930D010TE 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	1.2	1.2	1.2	1.2	1.2	1.2	1.2
75°	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2
80°	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2
85°	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2
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°	110.6	110.6	110.6	110.6	110.6	110.6	110.6	110.6	110.6	110.6	110.6
2.5°	160.1	164.9	161.3	151.9	156.7	154.2	149.6	146.0	124.8	108.3	91.8
5°	378.1	381.5	361.6	326.2	314.4	295.5	268.5	249.6	141.3	103.7	81.2
7.5°	714.9	691.3	672.4	606.4	578.2	534.6	482.8	446.3	161.3	97.7	75.4
10°	1082.2	1044.6	1005.6	909.2	858.5	791.3	717.2	674.8	182.6	94.3	75.4
12.5°	1446.1	1395.4	1324.8	1218.9	1147.0	1056.3	955.1	879.7	197.8	96.6	87.2
15°	1761.8	1700.5	1622.8	1502.7	1419.0	1305.9	1174.0	1070.5	204.9	109.5	121.3
17.5°	2105.7	1994.9	1866.6	1713.4	1621.6	1490.9	1342.4	1216.5	204.9	139.0	194.3
20°	2501.3	2298.7	2092.6	1878.3	1748.7	1612.2	1453.2	1317.8	213.1	209.7	267.3
22.5°	2869.9	2590.7	2300.0	2020.8	1840.7	1692.3	1531.0	1375.4	247.3	230.8	177.8
25°	3156.0	2801.6	2458.8	2119.7	1916.0	1751.2	1578.0	1390.8	226.2	131.9	96.6
26°	3230.3	2847.5	2490.7	2131.6	1919.6	1749.9	1573.4	1374.3	189.5	104.8	77.8
27°	3269.1	2862.8	2493.0	2120.9	1905.4	1729.9	1547.5	1340.1	151.9	84.9	63.6
28°	3269.1	2845.2	2468.4	2091.5	1868.9	1692.3	1502.7	1286.0	123.7	69.5	50.7
29°	3236.1	2799.3	2418.9	2046.7	1819.4	1639.3	1441.5	1222.4	104.8	57.8	41.3
30°	3172.5	2732.1	2353.0	1989.0	1755.8	1579.2	1374.3	1156.4	90.6	47.1	33.0
31°	3083.1	2656.8	2271.6	1926.6	1696.9	1523.9	1313.0	1089.3	78.9	37.6	27.1
32°	2975.9	2562.5	2188.1	1861.8	1648.7	1472.0	1249.5	1018.7	68.3	31.9	23.6
33°	2852.3	2456.5	2100.9	1798.3	1601.6	1413.1	1180.0	942.1	58.9	25.9	20.0
34°	2715.6	2340.0	2011.4	1729.9	1543.8	1339.0	1098.7	860.8	50.7	22.4	16.5
35°	2567.3	2209.2	1919.6	1660.4	1479.1	1256.6	1011.6	774.8	43.6	18.8	14.2
36°	2407.1	2086.7	1830.1	1591.1	1399.0	1167.1	916.1	686.5	37.6	15.3	12.9
37°	2247.0	1971.3	1741.8	1516.8	1305.9	1065.7	816.1	594.7	33.0	12.9	10.6
38°	2095.0	1859.5	1654.6	1430.8	1197.6	953.9	712.4	502.9	28.2	11.7	9.4
39°	1952.5	1751.2	1565.1	1328.4	1085.8	845.5	612.4	407.5	24.8	10.6	8.3
40°	1824.2	1648.7	1467.4	1214.1	970.3	734.9	511.1	303.8	21.1	8.3	7.1
42.5°	1553.3	1367.2	1128.1	846.8	655.9	426.3	237.9	113.1	15.3	5.9	5.9
45°	1025.8	789.0	535.8	319.1	215.5	129.6	96.6	68.3	11.7	4.8	4.8
47.5°	342.7	217.9	159.0	114.2	97.7	77.8	62.4	42.4	8.3	3.5	3.5
50°	130.8	106.0	87.2	65.9	58.9	47.1	37.6	24.8	5.9	3.5	3.5
51°	102.5	83.5	68.3	51.8	47.1	37.6	30.6	21.1	4.8	3.5	3.5
52°	78.9	64.7	53.0	40.1	37.6	30.6	25.9	17.7	4.8	2.3	3.5
53°	60.1	49.5	40.1	30.6	29.4	24.8	21.1	14.2	3.5	2.3	3.5
54°	44.7	37.6	31.9	24.8	24.8	21.1	17.7	11.7	3.5	2.3	3.5
55°	34.2	28.2	24.8	18.8	20.0	17.7	15.3	9.4	3.5	2.3	3.5
57.5°	17.7	16.5	14.2	11.7	12.9	11.7	10.6	5.9	3.5	2.3	3.5
60°	10.6	9.4	8.3	7.1	8.3	8.3	8.3	3.5	3.5	2.3	3.5
61°	8.3	7.1	5.9	5.9	7.1	7.1	7.1	3.5	3.5	2.3	3.5
62°	5.9	5.9	4.8	4.8	7.1	5.9	5.9	3.5	3.5	2.3	3.5
63°	4.8	4.8	4.8	3.5	5.9	5.9	5.9	3.5	3.5	2.3	3.5
64°	3.5	3.5	3.5	3.5	4.8	5.9	5.9	2.3	3.5	2.3	3.5
65°	3.5	3.5	2.3	2.3	4.8	4.8	4.8	2.3	3.5	2.3	3.5
66°	2.3	2.3	2.3	2.3	4.8	4.8	4.8	2.3	3.5	2.3	3.5



TEST NUMBER: P1191617

CATALOG NUMBER: LDA4A20930D010TE 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°	1.2	1.2	1.2	1.2	3.5	3.5	4.8	2.3	3.5	3.5	3.5
75°	1.2	1.2	1.2	1.2	3.5	3.5	4.8	2.3	3.5	3.5	3.5
77.5°	1.2	1.2	1.2	1.2	3.5	3.5	4.8	2.3	3.5	3.5	4.8
80°	1.2	1.2	1.2	1.2	3.5	3.5	4.8	2.3	3.5	3.5	4.8
82.5°	1.2	1.2	1.2	1.2	3.5	3.5	4.8	2.3	3.5	3.5	4.8
85°	1.2	1.2	1.2	1.2	3.5	3.5	4.8	2.3	3.5	3.5	4.8
87.5°	1.2	1.2	1.2	1.2	3.5	3.5	4.8	2.3	3.5	3.5	3.5
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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CATALOG NUMBER: LDA4A20930D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	110.6	110.6	110.6
2.5°	83.5	80.1	77.8
5°	71.8	68.3	67.2
7.5°	67.2	65.9	67.2
10°	74.1	78.9	84.9
12.5°	98.9	116.6	126.0
15°	163.6	213.1	234.3
17.5°	288.6	328.5	352.2
20°	254.4	232.0	245.0
22.5°	137.8	120.2	123.7
25°	76.6	65.9	67.2
26°	61.2	53.0	53.0
27°	49.5	42.4	42.4
28°	40.1	34.2	34.2
29°	31.9	27.1	27.1
30°	25.9	22.4	22.4
31°	21.1	17.7	17.7
32°	17.7	15.3	14.2
33°	15.3	12.9	11.7
34°	12.9	10.6	9.4
35°	10.6	8.3	8.3
36°	9.4	7.1	7.1
37°	8.3	5.9	5.9
38°	7.1	4.8	4.8
39°	5.9	4.8	3.5
40°	4.8	3.5	2.3
42.5°	3.5	2.3	1.2
45°	3.5	1.2	0.0
47.5°	2.3	1.2	0.0
50°	2.3	0.0	0.0
51°	2.3	0.0	0.0
52°	2.3	0.0	0.0
53°	1.2	0.0	0.0
54°	2.3	0.0	0.0
55°	1.2	0.0	0.0
57.5°	2.3	0.0	0.0
60°	2.3	0.0	0.0
61°	2.3	0.0	0.0
62°	2.3	0.0	0.0
63°	2.3	0.0	0.0
64°	2.3	1.2	0.0
65°	2.3	1.2	0.0
66°	2.3	1.2	0.0



TEST NUMBER: P1191617

CATALOG NUMBER: LDA4A20930D010TE LAR15SP 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	2.3	1.2	0.0
75°	2.3	1.2	0.0
77.5°	2.3	1.2	0.0
80°	2.3	1.2	0.0
82.5°	2.3	1.2	0.0
85°	2.3	1.2	0.0
87.5°	2.3	1.2	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°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.3	2.3
70°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	2.3	2.3	1.2	1.2

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67.5°	2.3	1.2	2.3	2.3	3.5	4.8	4.8	2.3	3.5	2.3	3.5
70°	1.2	1.2	1.2	1.2	3.5	3.5	4.8	2.3	3.5	2.3	3.5

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67.5°	2.3	1.2	0.0
70°	2.3	1.2	0.0

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(END OF REPORT)