

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: P170823

Luminaire Tested: **LDA4A13835D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170823
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26106)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A13835D010TE LAR35FL 4LAL1 30° Tilt
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 35° Flood Optic, at 30° tilt. --- 27.9W
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1649.0 lumens
Efficiency: N/A
Efficacy: 74.0 lumens/watt
Spacing Criteria (0/90/45): 2.71 / 1.11 / 1.33
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

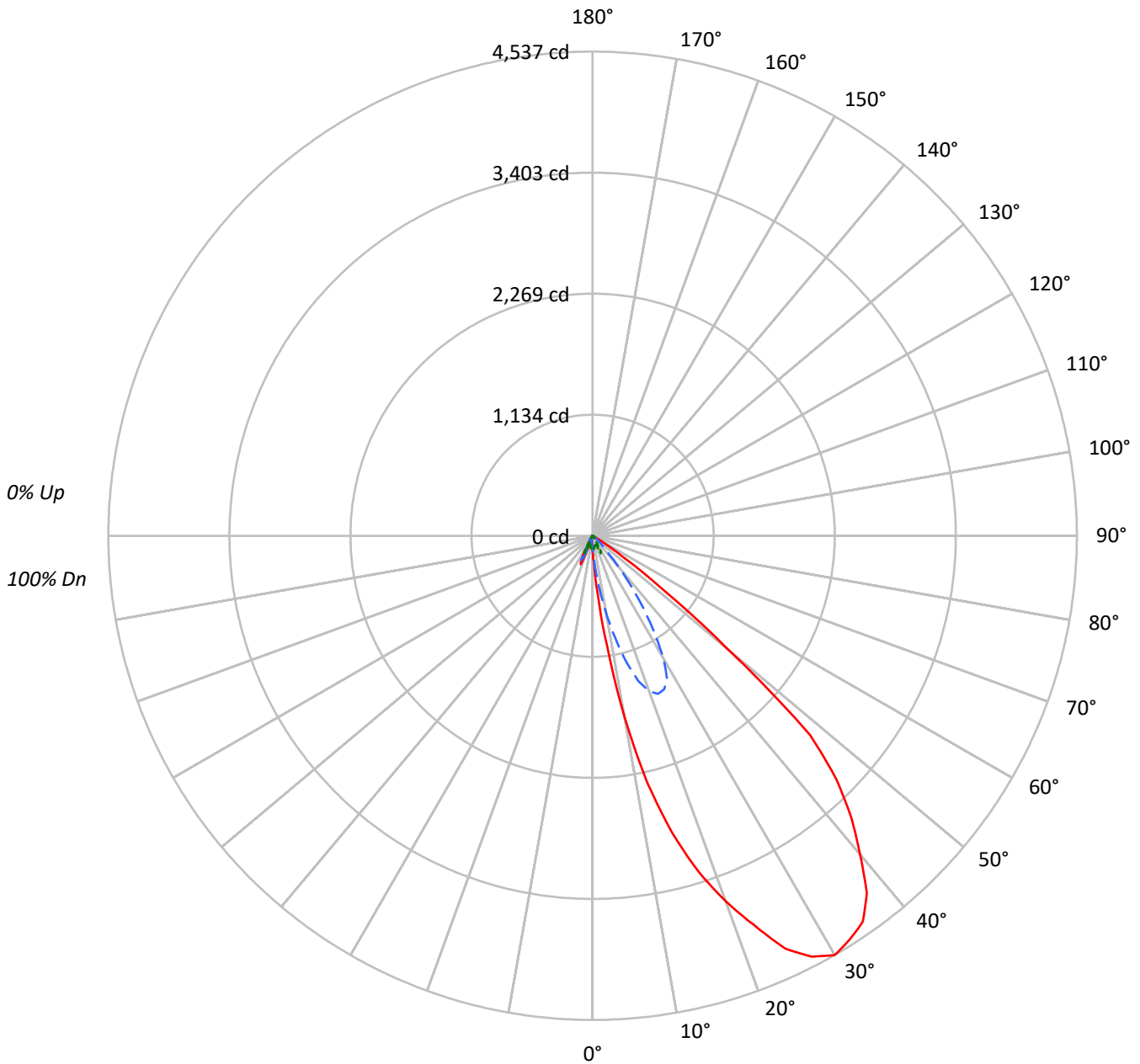
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									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	103	110	107	104	102	103	101	99	99	97	96	95	94	93	91																			
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	86	83	82																			
3	98	90	84	79	96	89	83	79	86	81	77	84	79	76	81	78	75	73																			
4	91	82	75	70	89	81	75	70	79	73	69	77	72	68	75	70	67	65																			
5	85	75	68	62	83	74	67	62	72	66	61	70	65	61	68	64	60	58																			
6	79	68	61	56	78	67	60	55	66	60	55	64	59	55	63	58	54	52																			
7	74	62	55	50	72	62	55	50	60	54	49	59	53	49	58	53	49	47																			
8	69	57	50	45	68	57	50	45	55	49	44	54	48	44	53	48	44	42																			
9	64	53	45	40	63	52	45	40	51	45	40	50	44	40	49	44	40	38																			
10	60	48	41	37	59	48	41	37	47	41	36	46	40	36	45	40	36	35																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	16726	16726	16726
5°	67344	15787	7392
10°	217118	13239	4246
15°	368316	10509	3295
20°	478698	9425	9963
25°	580902	24824	35263
30°	646207	8731	9315
35°	664708	5225	4382
40°	627625	2206	1562
45°	564077	1273	419
50°	317466	768	0
55°	78793	516	0
60°	12137	592	0
65°	2831	700	0
70°	577	866	0
75°	0	1144	0
80°	0	2273	0
85°	0	4529	1132



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	27.2	1.7
10°-20°	202.4	12.3
20°-30°	467.5	28.3
30°-40°	524.4	31.8
40°-50°	365.9	22.2
50°-60°	54.6	3.3
60°-70°	3.6	0.2
70°-80°	1.8	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°	697.1	42.3
0°-40°	1221.4	74.1
0°-60°	1641.9	99.6
0°-90°	1649.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1649.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	136	136	136	136	136	
5°	544	318	128	74	60	90
15°	2884	1228	82	32	26	824
25°	4268	1587	182	254	259	1951
35°	4414	825	35	29	29	2715
45°	3234	124	7	4	2	2372
55°	366	16	2	2	0	482
65°	10	2	2	2	0	15
75°	0	2	2	2	0	0
85°	0	2	3	2	1	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	135.6	135.6	135.6	135.6	135.6	135.6	135.6	135.6	135.6	135.6	135.6
2.5°	246.9	244.5	238.1	236.5	242.1	237.3	239.7	244.5	239.7	234.0	239.7
5°	543.9	557.7	543.9	541.5	551.2	542.3	546.4	555.2	543.1	531.8	539.9
7.5°	1049.9	1058.8	1020.1	1033.8	1030.6	1033.0	1035.4	1035.4	1028.1	1008.0	1019.3
10°	1733.5	1739.9	1688.3	1706.0	1682.6	1706.0	1702.0	1684.3	1688.3	1660.8	1675.4
12.5°	2367.8	2388.8	2337.1	2354.1	2325.8	2352.5	2342.0	2337.1	2296.0	2296.0	2311.3
15°	2884.3	2931.9	2885.1	2902.9	2870.6	2907.7	2878.6	2891.6	2854.4	2808.4	2848.8
17.5°	3302.3	3349.1	3305.6	3327.3	3297.5	3326.5	3292.6	3320.1	3272.5	3239.4	3266.8
20°	3646.9	3681.6	3630.0	3660.6	3625.1	3654.2	3617.1	3653.4	3597.7	3573.5	3589.6
22.5°	3947.1	3960.9	3934.2	3985.9	3916.5	3947.1	3902.7	3939.9	3873.7	3843.0	3847.1
25°	4268.3	4299.0	4248.2	4267.5	4219.1	4240.1	4190.0	4224.8	4142.4	4098.9	4090.0
27.5°	4446.7	4490.3	4445.1	4466.9	4417.6	4435.4	4385.3	4435.4	4351.5	4308.7	4299.0
30°	4537.1	4558.1	4529.0	4543.5	4487.8	4496.7	4445.1	4499.1	4415.2	4377.3	4372.4
32.5°	4484.6	4526.6	4488.6	4507.2	4455.6	4464.4	4414.4	4472.5	4388.6	4353.9	4336.9
35°	4414.4	4457.2	4421.7	4441.0	4393.4	4399.9	4346.6	4397.5	4300.6	4257.8	4221.5
37.5°	4219.9	4260.3	4230.4	4236.9	4190.9	4186.0	4128.7	4171.5	4077.1	4040.8	4016.5
40°	3897.9	3934.2	3910.0	3923.7	3877.7	3867.2	3828.5	3868.0	3794.6	3768.0	3734.1
42.5°	3589.6	3619.5	3596.9	3618.7	3567.0	3553.3	3518.6	3568.6	3485.5	3463.7	3439.5
45°	3233.7	3252.3	3234.5	3253.1	3203.9	3182.1	3150.6	3193.4	3111.9	3091.7	3039.2
47.5°	2763.2	2743.1	2739.8	2757.6	2696.3	2651.1	2622.0	2676.9	2559.1	2519.5	2459.0
50°	1654.4	1688.3	1702.8	1690.7	1648.7	1586.6	1539.8	1606.8	1543.8	1447.0	1350.1
52.5°	852.2	814.3	822.4	826.4	776.4	757.8	742.5	757.8	708.6	683.5	622.2
55°	366.4	348.6	355.1	357.5	347.8	325.2	317.2	326.8	304.2	294.6	269.5
57.5°	135.6	135.6	131.5	133.2	129.9	121.9	120.2	124.3	117.0	114.6	104.9
60°	49.2	49.2	49.2	49.2	45.2	44.4	44.4	46.0	43.6	42.8	39.5
62.5°	21.0	21.8	20.2	21.0	20.2	19.4	20.2	19.4	19.4	18.6	18.6
65°	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	8.9	8.9
67.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.0	4.0	4.0
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
72.5°	0.8	0.8	0.8	0.8	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	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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):

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	135.6	135.6	135.6	135.6	135.6	135.6	135.6	135.6	135.6	135.6	135.6
2.5°	232.4	231.6	234.8	231.6	226.0	222.7	226.8	218.7	187.2	155.8	132.4
5°	525.4	521.3	515.7	517.3	503.6	492.3	492.3	470.5	318.0	180.8	127.5
7.5°	995.9	986.2	945.0	974.9	945.8	923.2	907.9	863.5	514.1	207.4	117.8
10°	1644.7	1627.8	1598.7	1604.4	1556.7	1518.8	1472.8	1398.6	739.2	230.8	105.7
12.5°	2284.7	2267.7	2190.3	2234.6	2170.9	2133.8	2056.3	1969.1	982.1	242.1	94.4
15°	2827.8	2813.3	2728.5	2770.5	2692.2	2657.5	2557.4	2460.6	1227.5	238.1	82.3
17.5°	3249.9	3247.4	3149.8	3191.8	3105.4	3077.2	2960.2	2864.9	1426.0	220.3	74.2
20°	3575.1	3569.5	3471.0	3513.0	3418.5	3391.1	3242.6	3142.5	1551.9	196.1	71.8
22.5°	3831.7	3820.4	3714.7	3751.0	3645.3	3609.8	3446.0	3341.9	1603.5	180.8	88.8
25°	4062.5	4042.4	3922.1	3950.4	3834.2	3841.4	3595.3	3480.7	1586.6	203.4	182.4
27.5°	4265.9	4229.6	4108.5	4116.6	3980.2	3909.2	3697.8	3571.1	1509.1	226.8	169.5
30°	4341.8	4306.3	4177.9	4182.8	4040.8	3940.7	3714.7	3573.5	1323.5	142.0	61.3
32.5°	4299.8	4261.1	4127.1	4128.7	3982.6	3881.0	3655.8	3500.0	1076.6	93.6	46.8
35°	4177.9	4137.6	4004.4	4010.9	3869.7	3768.8	3548.5	3382.2	824.8	74.2	34.7
37.5°	3972.2	3943.9	3817.2	3828.5	3708.3	3600.9	3377.4	3197.4	581.9	53.3	21.8
40°	3707.5	3685.7	3563.0	3580.7	3450.0	3350.7	3111.1	2915.8	362.4	36.3	13.7
42.5°	3397.6	3374.2	3253.1	3266.8	3155.4	3013.4	2768.9	2547.8	189.6	25.8	9.7
45°	3011.0	2983.6	2860.9	2868.1	2736.6	2570.4	2317.0	2121.7	124.3	17.8	7.3
47.5°	2403.3	2354.1	2194.3	2187.8	2080.5	1808.5	1448.6	1172.6	82.3	12.1	4.8
50°	1321.1	1270.2	1129.8	1114.5	995.1	816.7	603.7	469.7	47.6	8.1	4.0
52.5°	601.2	574.6	509.2	498.7	447.9	371.2	285.7	234.8	27.4	5.6	3.2
55°	260.7	251.0	223.5	221.9	198.5	171.9	137.2	116.2	16.1	4.0	2.4
57.5°	102.5	99.3	93.6	89.6	80.7	71.8	59.7	50.0	10.5	3.2	2.4
60°	38.7	37.9	34.7	35.5	32.3	30.7	26.6	22.6	6.5	2.4	2.4
62.5°	17.8	17.8	16.9	16.9	16.1	14.5	12.9	12.1	4.0	2.4	2.4
65°	8.9	8.9	8.1	8.1	8.1	7.3	6.5	6.5	2.4	2.4	2.4
67.5°	4.0	4.0	4.0	4.0	4.0	3.2	3.2	3.2	1.6	2.4	2.4
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.4	2.4
75°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	2.4	2.4
77.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	2.4	3.2
80°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	2.4	3.2
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	2.4	3.2
85°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	2.4	3.2
87.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	2.4	3.2
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):

	112.5°	135°	157.5°	180°
0°	135.6	135.6	135.6	135.6
2.5°	113.8	100.9	89.6	87.2
5°	93.6	74.2	62.1	59.7
7.5°	75.9	54.1	45.2	43.6
10°	62.1	43.6	35.5	33.9
12.5°	51.6	35.5	28.2	26.6
15°	44.4	31.5	25.8	25.8
17.5°	42.8	34.7	33.1	33.9
20°	55.7	62.9	75.1	75.9
22.5°	129.1	209.8	277.6	290.5
25°	232.4	254.2	247.8	259.1
27.5°	122.7	96.0	97.6	100.1
30°	53.3	58.9	62.1	65.4
32.5°	44.4	46.0	46.8	49.2
35°	29.1	29.1	28.2	29.1
37.5°	17.8	16.9	16.1	16.1
40°	11.3	10.5	9.7	9.7
42.5°	8.1	6.5	5.6	5.6
45°	5.6	4.0	3.2	2.4
47.5°	4.0	2.4	1.6	0.8
50°	3.2	2.4	0.8	0.0
52.5°	2.4	1.6	0.8	0.0
55°	2.4	1.6	0.0	0.0
57.5°	2.4	1.6	0.0	0.0
60°	2.4	1.6	0.0	0.0
62.5°	2.4	1.6	0.0	0.0
65°	2.4	1.6	0.8	0.0
67.5°	2.4	1.6	0.8	0.0
70°	2.4	1.6	0.8	0.0
72.5°	2.4	1.6	0.8	0.0
75°	2.4	2.4	0.8	0.0
77.5°	3.2	2.4	0.8	0.0
80°	3.2	2.4	0.8	0.0
82.5°	3.2	2.4	0.8	0.0
85°	3.2	2.4	0.8	0.8
87.5°	3.2	2.4	0.8	0.0
90°	0.0	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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











(END OF REPORT)