

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: P170763

Luminaire Tested: **LDA4A13935D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170763
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26104)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A13935D010TE LAR15SP 4LAL1 30° Tilt
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 15° Spot Optic, at 30° tilt. --- 27.9W
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1206.2 lumens
Efficiency: N/A
Efficacy: 54.2 lumens/watt
Spacing Criteria (0/90/45): 2.57 / 1.16 / 1.36
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

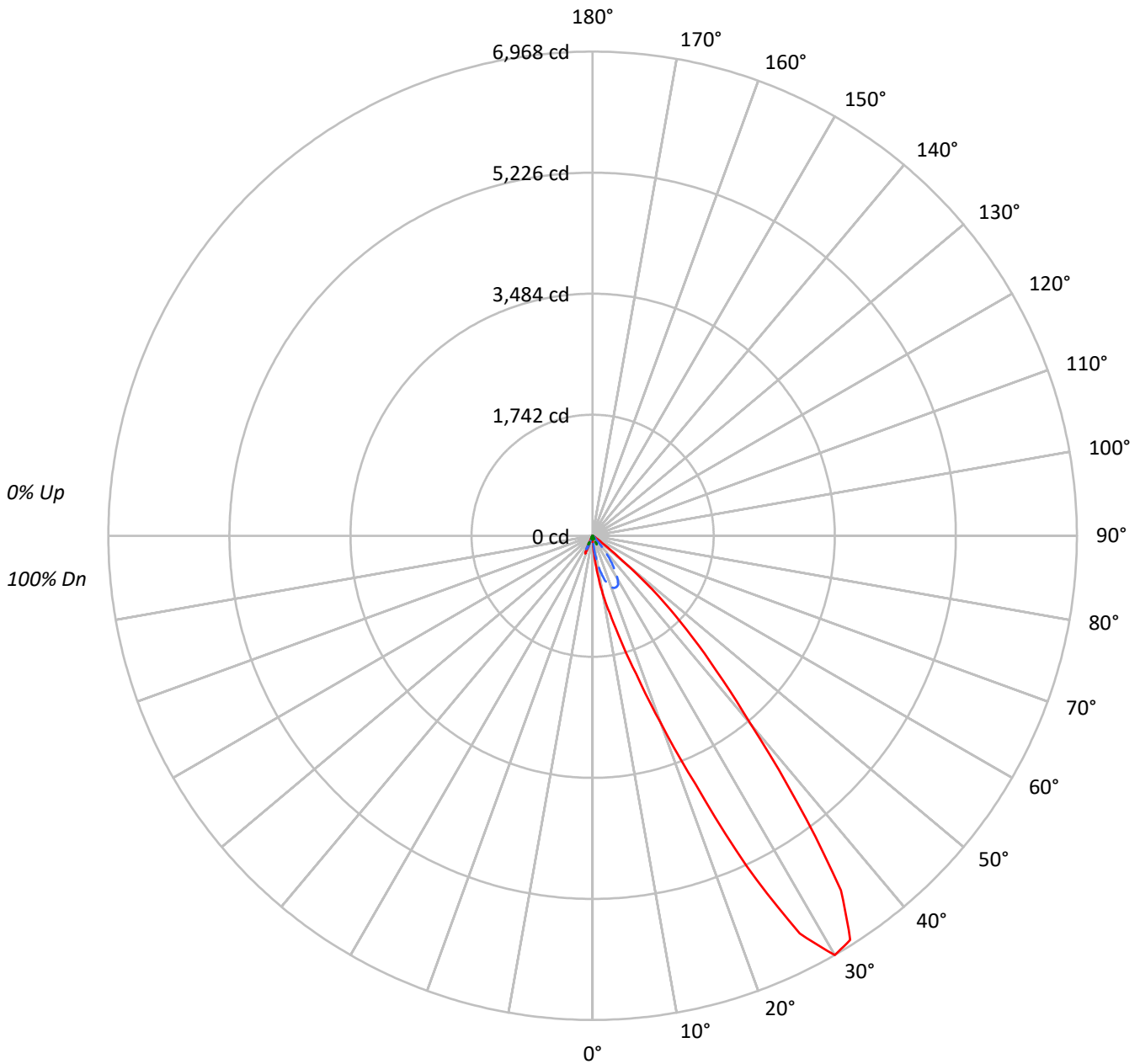
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	51	73	62	55	50	61	55	50	60	54	50	58	53	49	48																			
8	69	58	50	45	68	57	50	45	56	50	45	55	49	45	54	48	45	43																			
9	65	53	46	41	64	52	46	41	51	45	41	50	45	40	49	44	40	39																			
10	61	49	42	37	59	48	41	37	47	41	37	46	41	37	46	40	36	35																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	7018	7018	7018
5°	37021	6637	3516
10°	108277	5636	2317
15°	196972	4725	2618
20°	375776	5382	12759
25°	714155	18727	28172
30°	992419	6310	5469
35°	937840	2891	2093
40°	568420	1272	741
45°	333105	698	227
50°	110549	499	0
55°	21053	430	0
60°	4736	321	0
65°	1343	584	0
70°	469	721	0
75°	0	953	0
80°	0	1421	0
85°	0	2830	991



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	13.6	1.1
10°-20°	111.0	9.2
20°-30°	393.5	32.6
30°-40°	466.6	38.7
40°-50°	198.5	16.5
50°-60°	17.9	1.5
60°-70°	2.2	0.2
70°-80°	1.5	0.1
80°-90°	1.3	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°	518.1	43.0
0°-40°	984.7	81.6
0°-60°	1201.2	99.6
0°-90°	1206.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1206.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	57	57	57	57	57	
5°	299	148	54	34	28	47
15°	1542	650	37	20	20	498
25°	5247	814	138	216	207	2431
35°	6228	481	19	15	14	3598
45°	1910	53	4	3	1	1497
55°	98	8	2	1	0	137
65°	5	2	2	1	0	7
75°	0	1	2	2	0	0
85°	0	1	2	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°	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9
2.5°	104.5	98.6	102.5	101.2	101.9	103.8	101.9	101.9	101.2	98.6	98.6
5°	299.0	281.1	289.7	285.1	287.7	291.0	286.4	285.1	283.1	277.2	275.8
7.5°	557.0	547.0	557.6	549.7	557.0	558.3	551.7	550.3	547.0	538.4	535.1
10°	864.5	848.0	857.9	849.3	860.6	859.9	849.3	850.6	846.7	835.4	830.1
12.5°	1137.1	1123.8	1133.7	1109.3	1137.1	1119.2	1121.2	1123.8	1118.5	1104.0	1097.4
15°	1542.5	1506.2	1523.4	1481.0	1523.4	1517.4	1494.2	1492.9	1479.0	1454.6	1440.0
17.5°	2081.0	2090.9	2078.3	2053.2	2109.4	2094.2	2061.1	2054.5	2028.0	1961.2	1959.9
20°	2862.8	2849.6	2870.8	2791.4	2863.5	2793.4	2784.1	2765.6	2720.6	2627.3	2612.8
22.5°	3863.6	3870.9	3833.2	3778.3	3866.9	3758.4	3725.4	3681.0	3599.0	3455.5	3410.5
25°	5247.4	5238.1	5189.2	5097.9	5192.5	5017.2	4934.5	4843.2	4690.4	4466.9	4359.0
27.5°	6453.2	6490.9	6458.5	6365.9	6428.8	6256.1	6065.6	6007.4	5800.4	5518.6	5324.1
30°	6967.9	6985.7	6971.8	6901.1	6923.5	6781.3	6592.8	6524.0	6311.7	6045.1	5793.1
32.5°	6897.1	6905.7	6908.3	6813.7	6817.7	6683.4	6486.3	6384.5	6152.9	5896.3	5595.3
35°	6228.3	6264.1	6287.2	6198.6	6110.6	5977.0	5753.4	5595.3	5351.9	5117.7	4810.2
37.5°	4823.4	4868.4	4904.1	4828.7	4787.0	4625.6	4439.7	4317.4	4149.4	4011.8	3793.5
40°	3530.2	3538.8	3560.7	3521.6	3456.8	3413.8	3307.3	3237.9	3136.0	3061.9	2917.1
42.5°	2624.0	2619.4	2634.6	2612.8	2610.8	2546.0	2478.5	2437.5	2402.4	2324.4	2222.5
45°	1909.6	1911.0	1925.5	1911.6	1874.6	1860.7	1816.4	1779.3	1733.0	1708.6	1627.9
47.5°	1298.5	1302.4	1312.3	1304.4	1270.7	1265.4	1236.9	1199.9	1199.2	1161.5	1090.8
50°	576.1	577.5	589.4	586.7	546.4	551.7	533.1	499.4	508.7	486.2	431.9
52.5°	191.2	191.8	193.8	192.5	185.9	185.9	181.2	180.6	175.3	170.0	158.1
55°	97.9	97.9	99.2	98.6	95.3	95.3	90.0	93.3	90.6	88.6	81.4
57.5°	41.7	41.7	42.3	42.3	40.3	42.3	40.3	40.3	39.0	38.4	35.7
60°	19.2	19.2	19.2	19.2	18.5	19.8	18.5	18.5	18.5	17.9	16.5
62.5°	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.3	9.3	9.3	8.6
65°	4.6	4.6	4.6	4.6	4.6	5.3	4.6	4.6	4.6	4.6	4.6
67.5°	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.0
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.7
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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°	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9
2.5°	99.2	95.9	100.5	96.6	99.2	96.6	93.3	94.6	76.1	63.5	56.2
5°	276.5	266.6	275.2	266.6	267.2	262.6	250.0	248.7	147.5	72.1	53.6
7.5°	520.6	519.2	529.8	518.6	517.3	506.0	482.9	473.6	267.2	84.7	49.6
10°	826.8	807.6	816.9	805.0	801.0	780.5	747.5	729.6	397.5	97.2	45.0
12.5°	1078.8	1071.6	1078.2	1066.9	1063.0	1035.2	996.2	972.4	531.2	104.5	40.3
15°	1408.3	1393.7	1398.3	1375.2	1363.3	1310.4	1243.6	1199.9	649.6	103.8	37.0
17.5°	1911.0	1882.5	1879.9	1840.2	1811.1	1715.2	1595.5	1505.5	736.2	95.9	35.7
20°	2540.7	2489.1	2471.9	2409.1	2360.1	2201.4	2016.8	1870.6	790.4	85.3	41.0
22.5°	3295.4	3204.8	3153.9	3053.3	2969.3	2714.6	2444.1	2225.2	814.3	82.0	58.9
25°	4175.2	4019.7	3911.9	3753.8	3612.3	3221.3	2841.6	2534.7	814.3	106.5	137.6
27.5°	5067.5	4822.1	4623.6	4392.8	4177.8	3623.5	3134.0	2734.5	794.4	133.0	125.7
30°	5519.3	5217.6	4947.8	4677.9	4408.0	3741.9	3199.5	2759.0	719.7	78.1	44.3
32.5°	5327.4	5009.3	4710.9	4449.7	4183.1	3532.9	3022.2	2596.9	604.6	45.6	28.4
35°	4591.9	4316.1	4056.8	3861.6	3653.9	3140.6	2683.6	2313.1	480.9	35.7	19.2
37.5°	3665.2	3477.3	3292.8	3167.8	3018.9	2633.3	2264.9	1961.2	344.0	25.8	11.9
40°	2843.0	2714.6	2585.7	2506.3	2401.1	2120.0	1832.9	1591.5	203.1	17.9	7.9
42.5°	2177.5	2088.9	1993.0	1938.1	1862.7	1653.0	1428.8	1258.1	93.9	12.6	6.0
45°	1600.7	1535.3	1461.8	1426.8	1373.9	1235.6	1086.8	966.4	52.9	9.3	4.0
47.5°	1077.5	1019.3	951.2	929.4	878.4	757.4	605.2	486.8	35.1	6.6	3.3
50°	428.6	390.3	367.1	336.7	306.9	257.3	192.5	153.5	21.2	5.3	2.6
52.5°	157.4	148.8	144.9	136.9	130.3	116.4	98.6	85.3	12.6	4.0	2.0
55°	82.0	76.7	74.1	71.4	67.5	59.5	49.6	42.3	7.9	2.6	2.0
57.5°	35.7	33.7	34.4	31.8	29.8	27.1	23.8	20.5	5.3	2.6	2.0
60°	17.2	15.9	16.5	15.2	14.6	13.9	12.6	10.6	3.3	2.0	1.3
62.5°	8.6	8.6	8.6	7.9	7.9	7.3	6.6	6.0	2.6	2.0	2.0
65°	4.6	4.0	4.6	4.0	4.0	4.0	3.3	3.3	2.0	2.0	2.0
67.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.3	2.0	2.0
70°	1.3	1.3	1.3	1.3	1.3	1.3	0.7	1.3	1.3	2.0	2.0
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
75°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.3	2.0	2.0
77.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	2.0	2.0
80°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.3	2.0	2.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.3	2.0	2.0
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	2.0	2.0
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	2.0	2.0
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):

	112.5°	135°	157.5°	180°
0°	56.9	56.9	56.9	56.9
2.5°	47.6	42.3	38.4	37.7
5°	40.3	33.7	29.1	28.4
7.5°	34.4	27.1	23.2	22.5
10°	30.4	23.2	19.2	18.5
12.5°	27.1	20.5	17.9	17.2
15°	25.1	20.5	19.8	20.5
17.5°	27.1	27.8	30.4	33.7
20°	45.0	64.2	83.3	97.2
22.5°	101.2	187.2	248.0	277.2
25°	191.2	216.3	217.0	207.0
27.5°	103.8	82.7	74.1	70.1
30°	41.0	39.0	39.0	38.4
32.5°	27.1	25.1	24.5	23.8
35°	16.5	14.6	13.9	13.9
37.5°	10.6	9.3	8.6	7.9
40°	7.3	6.0	5.3	4.6
42.5°	5.3	4.0	2.6	2.6
45°	4.0	2.6	1.3	1.3
47.5°	3.3	2.0	0.7	0.7
50°	2.6	1.3	0.7	0.0
52.5°	2.0	1.3	0.0	0.0
55°	2.0	1.3	0.0	0.0
57.5°	2.0	1.3	0.0	0.0
60°	2.0	1.3	0.0	0.0
62.5°	2.0	1.3	0.0	0.0
65°	2.0	1.3	0.7	0.0
67.5°	2.6	1.3	0.7	0.0
70°	2.6	1.3	0.7	0.0
72.5°	2.6	1.3	0.7	0.0
75°	2.6	2.0	0.7	0.0
77.5°	2.6	2.0	0.7	0.0
80°	2.6	2.0	0.7	0.0
82.5°	2.6	2.0	0.7	0.0
85°	2.6	2.0	0.7	0.7
87.5°	2.6	2.0	0.7	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)