

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: P170761

Luminaire Tested: **LDA4A13927D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170761
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: LDA4A13927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1038.3 lumens
Efficiency: N/A
Efficacy: 46.6 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

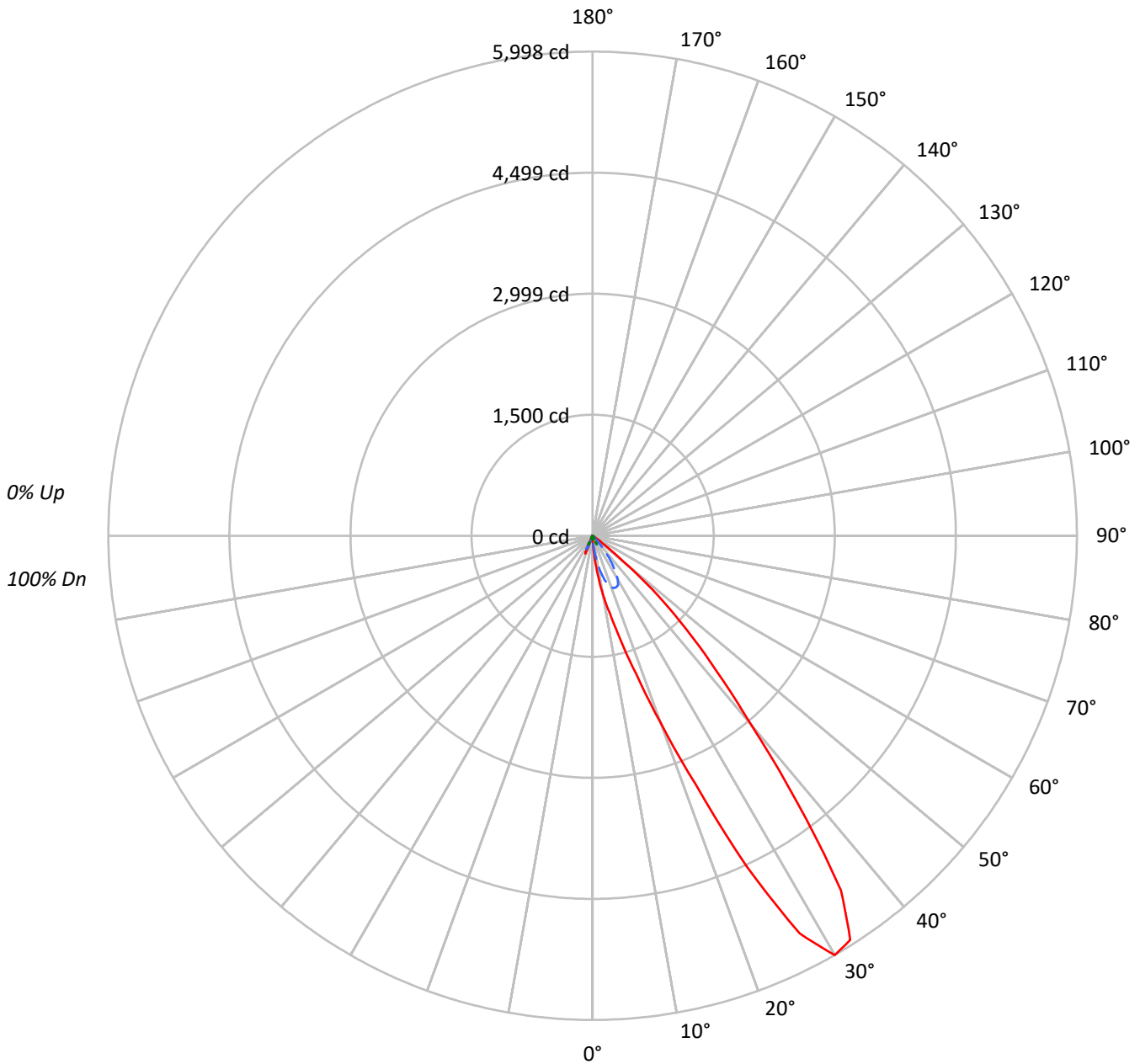
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	37	35																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	6044	6044	6044
5°	31870	5708	3034
10°	93210	4847	1991
15°	169569	4074	2260
20°	323494	4634	10987
25°	614777	16114	24252
30°	854321	5441	4700
35°	807350	2485	1807
40°	489328	1095	644
45°	286757	593	192
50°	95178	441	0
55°	18128	366	0
60°	4070	271	0
65°	1167	496	0
70°	397	613	0
75°	0	810	0
80°	0	1208	0
85°	0	2406	849



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	11.7	1.1
10°-20°	95.5	9.2
20°-30°	338.8	32.6
30°-40°	401.7	38.7
40°-50°	170.9	16.5
50°-60°	15.4	1.5
60°-70°	1.9	0.2
70°-80°	1.3	0.1
80°-90°	1.2	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°	446.0	43.0
0°-40°	847.7	81.6
0°-60°	1034.0	99.6
0°-90°	1038.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1038.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	49	49	49	49	49	
5°	257	127	46	29	24	40
15°	1328	559	32	18	18	428
25°	4517	701	118	186	178	2093
35°	5362	414	16	12	12	3097
45°	1644	46	3	2	1	1288
55°	84	7	2	1	0	118
65°	4	2	2	1	0	6
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°	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0
2.5°	90.0	84.8	88.3	87.1	87.7	89.4	87.7	87.7	87.1	84.8	84.8
5°	257.4	242.0	249.4	245.4	247.7	250.5	246.6	245.4	243.7	238.6	237.4
7.5°	479.5	470.9	480.0	473.2	479.5	480.6	474.9	473.8	470.9	463.5	460.7
10°	744.2	730.0	738.5	731.1	740.8	740.2	731.1	732.3	728.9	719.2	714.6
12.5°	978.8	967.4	976.0	954.9	978.8	963.5	965.2	967.4	962.9	950.4	944.7
15°	1327.9	1296.6	1311.4	1274.9	1311.4	1306.3	1286.3	1285.2	1273.2	1252.2	1239.6
17.5°	1791.4	1799.9	1789.1	1767.5	1815.9	1802.8	1774.3	1768.6	1745.8	1688.3	1687.2
20°	2464.5	2453.1	2471.3	2403.0	2465.0	2404.7	2396.7	2380.7	2342.0	2261.7	2249.2
22.5°	3326.0	3332.2	3299.8	3252.5	3328.8	3235.4	3207.0	3168.8	3098.2	2974.7	2935.9
25°	4517.2	4509.2	4467.1	4388.5	4470.0	4319.1	4247.9	4169.3	4037.8	3845.3	3752.5
27.5°	5555.3	5587.7	5559.8	5480.1	5534.2	5385.6	5221.6	5171.5	4993.2	4750.7	4583.3
30°	5998.3	6013.7	6001.7	5940.8	5960.1	5837.7	5675.4	5616.2	5433.4	5203.9	4987.0
32.5°	5937.3	5944.8	5947.0	5865.6	5869.0	5753.4	5583.7	5496.0	5296.8	5075.8	4816.7
35°	5361.7	5392.4	5412.3	5336.0	5260.3	5145.3	4952.8	4816.7	4607.2	4405.6	4140.8
37.5°	4152.2	4190.9	4221.7	4156.8	4120.9	3982.0	3822.0	3716.6	3572.0	3453.5	3265.6
40°	3039.0	3046.4	3065.2	3031.6	2975.8	2938.8	2847.1	2787.3	2699.6	2635.8	2511.1
42.5°	2258.9	2254.9	2268.0	2249.2	2247.5	2191.7	2133.6	2098.3	2068.1	2000.9	1913.3
45°	1643.9	1645.1	1657.6	1645.6	1613.7	1601.8	1563.6	1531.7	1491.9	1470.8	1401.3
47.5°	1117.8	1121.2	1129.7	1122.9	1093.9	1089.3	1064.8	1032.9	1032.4	999.9	939.0
50°	496.0	497.1	507.4	505.1	470.3	474.9	459.0	429.9	437.9	418.5	371.8
52.5°	164.6	165.1	166.8	165.7	160.0	160.0	156.0	155.5	150.9	146.3	136.1
55°	84.3	84.3	85.4	84.8	82.0	82.0	77.4	80.3	78.0	76.3	70.0
57.5°	35.9	35.9	36.4	36.4	34.7	36.4	34.7	34.7	33.6	33.0	30.7
60°	16.5	16.5	16.5	16.5	15.9	17.1	15.9	15.9	15.9	15.4	14.2
62.5°	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.0	8.0	8.0	7.4
65°	4.0	4.0	4.0	4.0	4.0	4.6	4.0	4.0	4.0	4.0	4.0
67.5°	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3	1.7	1.7	1.7
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.6
72.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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°	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0
2.5°	85.4	82.6	86.6	83.1	85.4	83.1	80.3	81.4	65.5	54.7	48.4
5°	238.0	229.5	236.9	229.5	230.0	226.1	215.2	214.1	127.0	62.1	46.1
7.5°	448.1	447.0	456.1	446.4	445.3	435.6	415.7	407.7	230.0	72.9	42.7
10°	711.8	695.3	703.2	693.0	689.6	671.9	643.4	628.1	342.2	83.7	38.7
12.5°	928.7	922.5	928.2	918.5	915.1	891.1	857.5	837.0	457.2	90.0	34.7
15°	1212.3	1199.8	1203.8	1183.8	1173.6	1128.0	1070.5	1032.9	559.2	89.4	31.9
17.5°	1645.1	1620.6	1618.3	1584.1	1559.1	1476.5	1373.4	1296.0	633.8	82.6	30.7
20°	2187.1	2142.7	2127.9	2073.8	2031.7	1895.0	1736.2	1610.3	680.5	73.5	35.3
22.5°	2836.9	2758.8	2715.0	2628.4	2556.1	2336.9	2104.0	1915.5	701.0	70.6	50.7
25°	3594.2	3460.4	3367.6	3231.5	3109.6	2773.1	2446.2	2182.0	701.0	91.7	118.4
27.5°	4362.3	4151.1	3980.3	3781.5	3596.5	3119.3	2697.9	2354.0	683.9	114.5	108.2
30°	4751.2	4491.6	4259.3	4026.9	3794.6	3221.2	2754.3	2375.1	619.5	67.2	38.2
32.5°	4586.1	4312.2	4055.4	3830.5	3601.0	3041.3	2601.7	2235.5	520.5	39.3	24.5
35°	3952.9	3715.5	3492.3	3324.3	3145.5	2703.6	2310.1	1991.3	414.0	30.7	16.5
37.5°	3155.2	2993.4	2834.6	2727.0	2598.8	2266.9	1949.7	1688.3	296.1	22.2	10.2
40°	2447.4	2336.9	2225.9	2157.5	2067.0	1825.0	1577.9	1370.0	174.8	15.4	6.8
42.5°	1874.5	1798.2	1715.7	1668.4	1603.5	1423.0	1229.9	1083.0	80.9	10.8	5.1
45°	1378.0	1321.6	1258.4	1228.2	1182.7	1063.7	935.6	831.9	45.6	8.0	3.4
47.5°	927.6	877.5	818.8	800.0	756.2	652.0	521.0	419.1	30.2	5.7	2.8
50°	369.0	336.0	316.0	289.8	264.2	221.5	165.7	132.1	18.2	4.6	2.3
52.5°	135.5	128.1	124.7	117.9	112.2	100.2	84.8	73.5	10.8	3.4	1.7
55°	70.6	66.1	63.8	61.5	58.1	51.2	42.7	36.4	6.8	2.3	1.7
57.5°	30.7	29.0	29.6	27.3	25.6	23.3	20.5	17.7	4.6	2.3	1.7
60°	14.8	13.7	14.2	13.1	12.5	12.0	10.8	9.1	2.8	1.7	1.1
62.5°	7.4	7.4	7.4	6.8	6.8	6.3	5.7	5.1	2.3	1.7	1.7
65°	4.0	3.4	4.0	3.4	3.4	3.4	2.8	2.8	1.7	1.7	1.7
67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.1	1.7	1.7
70°	1.1	1.1	1.1	1.1	1.1	1.1	0.6	1.1	1.1	1.7	1.7
72.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.1	1.7	1.7
75°	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	1.1	1.7	1.7
77.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.7	1.7
80°	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	1.1	1.7	1.7
82.5°	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	1.1	1.7	1.7
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.7	1.7
87.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.7	1.7
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°	49.0	49.0	49.0	49.0
2.5°	41.0	36.4	33.0	32.5
5°	34.7	29.0	25.1	24.5
7.5°	29.6	23.3	19.9	19.4
10°	26.2	19.9	16.5	15.9
12.5°	23.3	17.7	15.4	14.8
15°	21.6	17.7	17.1	17.7
17.5°	23.3	23.9	26.2	29.0
20°	38.7	55.2	71.7	83.7
22.5°	87.1	161.1	213.5	238.6
25°	164.6	186.2	186.8	178.2
27.5°	89.4	71.2	63.8	60.4
30°	35.3	33.6	33.6	33.0
32.5°	23.3	21.6	21.1	20.5
35°	14.2	12.5	12.0	12.0
37.5°	9.1	8.0	7.4	6.8
40°	6.3	5.1	4.6	4.0
42.5°	4.6	3.4	2.3	2.3
45°	3.4	2.3	1.1	1.1
47.5°	2.8	1.7	0.6	0.6
50°	2.3	1.1	0.6	0.0
52.5°	1.7	1.1	0.0	0.0
55°	1.7	1.1	0.0	0.0
57.5°	1.7	1.1	0.0	0.0
60°	1.7	1.1	0.0	0.0
62.5°	1.7	1.1	0.0	0.0
65°	1.7	1.1	0.6	0.0
67.5°	2.3	1.1	0.6	0.0
70°	2.3	1.1	0.6	0.0
72.5°	2.3	1.1	0.6	0.0
75°	2.3	1.7	0.6	0.0
77.5°	2.3	1.7	0.6	0.0
80°	2.3	1.7	0.6	0.0
82.5°	2.3	1.7	0.6	0.0
85°	2.3	1.7	0.6	0.6
87.5°	2.3	1.7	0.6	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)