

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P#

Luminaire Tested: **FLDSQ4C15D010 FEU4C159040 F4LC-CSSQ-MMS**

Issue Date: 12/13/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P#
 Test Lab: INNOVATION CENTER
 Issue Date: 12/13/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: FAIL-SAFE
 Catalog Number: FLDSQ4C15D010 FEU4C159040 F4LC-CSSQ-MMS
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

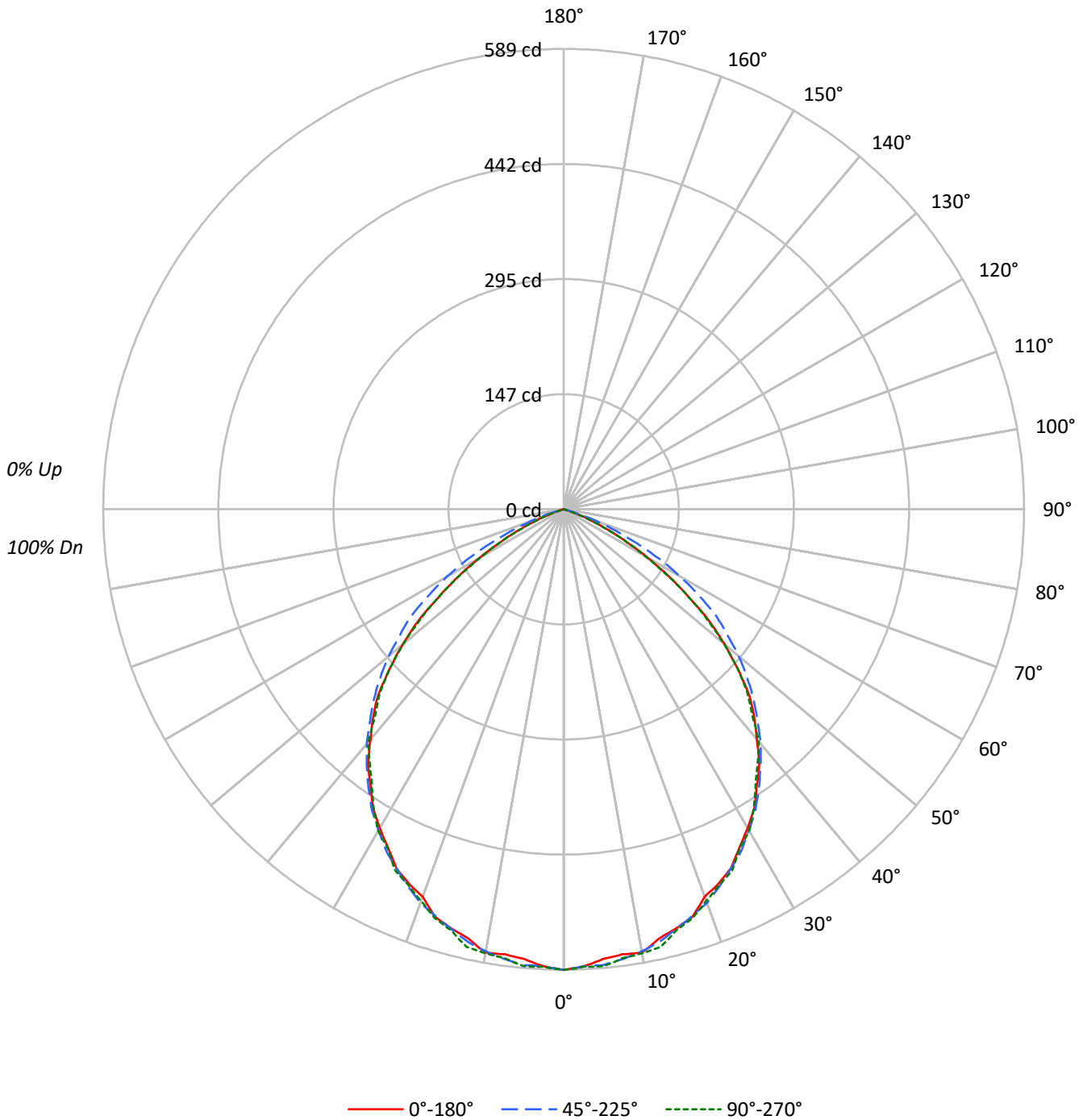
Lumens per Lamp: N/A
 Luminaire Lumens: 1259.0 lumens
 Efficiency: N/A
 Efficacy: 79.7 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 15.8
 Input Voltage (V):
 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

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	GONIO 1 IN0055	4/22/2021	10/22/2021
Power Meter	XITRON 2801 IN0197	12/1/2020	12/1/2021
AC Power Source	CHROMA 61505 IN0196	12/1/2020	12/1/2021
DC Power Supply	AGILENT E3634A IN0198	11/30/2020	11/30/2021
Room Thermometer	ONSET IN0143	12/1/2020	12/1/2021

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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	0		
RW	70	50	30	10	70	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	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45	39	35	33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42	36	32	31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	56871	56871	56871
5°	55955	56681	56836
10°	56435	56268	56513
15°	55440	55530	55690
20°	54154	55017	54760
25°	53924	53924	54275
30°	52421	52789	52889
35°	50780	51275	50391
40°	48405	49350	48922
45°	45808	46832	45344
50°	40335	43862	40094
55°	32669	40138	32820
60°	23910	33289	23428
65°	14521	23699	14155
70°	5671	12752	5445
75°	634	3430	634
80°	500	500	500
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	55.6	4.4
10°-20°	157.4	12.5
20°-30°	233.6	18.6
30°-40°	270.7	21.5
40°-50°	259.5	20.6
50°-60°	190.8	15.2
60°-70°	82.4	6.5
70°-80°	8.9	0.7
80°-90°	0.1	0.0
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°	446.6	35.5
0°-40°	717.3	57.0
0°-60°	1167.6	92.7
0°-90°	1259.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1259.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	589	589	589	589	589	
5°	578	584	585	586	587	55
15°	555	558	556	557	558	156
25°	506	506	506	507	510	232
35°	431	434	435	434	428	270
45°	336	336	343	338	332	255
55°	194	214	239	214	195	175
65°	64	80	104	79	62	65
75°	2	2	9	2	2	5
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159040 F4LC-CSSQ-MMS

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	589.4	589.4	589.4	589.4	589.4	589.4	589.4	589.4	589.4	589.4	589.4
2.5°	585.2	591.9	592.7	588.5	586.8	584.4	590.2	586.0	587.7	586.0	585.2
5°	577.7	585.2	586.0	586.0	584.4	583.5	586.0	585.2	584.4	582.7	585.2
7.5°	574.3	578.5	582.7	577.7	580.2	579.3	585.2	582.7	581.8	581.8	580.2
10°	576.0	575.1	578.5	573.5	575.1	573.5	578.5	578.5	576.8	575.1	574.3
12.5°	562.6	569.3	569.3	568.4	566.8	564.2	569.3	572.6	567.6	567.6	566.8
15°	555.0	556.7	557.5	557.5	556.7	558.4	560.9	557.5	558.4	554.2	555.9
17.5°	546.7	543.3	545.8	544.2	545.0	546.7	550.0	550.0	545.0	544.2	545.8
20°	527.4	537.5	538.3	533.3	534.1	534.1	540.0	535.0	538.3	534.1	535.8
22.5°	518.2	524.9	525.7	519.0	523.2	518.2	524.1	516.5	524.9	519.0	521.5
25°	506.5	505.7	508.2	504.8	505.7	505.7	509.8	506.5	509.0	505.7	506.5
27.5°	487.2	493.9	493.1	489.7	491.4	490.6	499.0	489.7	494.8	490.6	492.3
30°	470.5	476.4	474.7	471.3	471.3	468.8	478.0	475.5	474.7	474.7	473.8
32.5°	453.7	454.6	452.9	453.7	454.6	451.2	458.8	455.4	454.6	455.4	456.3
35°	431.1	431.1	432.8	430.3	433.7	433.7	440.4	436.2	435.3	432.8	435.3
37.5°	411.0	408.6	409.4	409.4	411.0	412.7	416.1	414.4	414.4	411.9	413.6
40°	384.3	382.6	385.1	385.1	387.6	387.6	391.0	389.3	391.8	391.8	391.8
42.5°	360.8	360.8	359.2	361.7	362.5	361.7	367.5	366.7	367.5	365.9	366.7
45°	335.7	335.7	334.0	333.2	337.4	336.5	343.2	340.7	344.1	342.4	343.2
47.5°	301.4	305.6	303.0	305.6	310.6	311.4	315.6	313.9	317.3	314.8	318.1
50°	268.7	268.7	271.2	274.6	279.6	280.5	285.5	288.8	290.5	291.3	292.2
52.5°	234.4	233.6	236.1	240.3	244.5	247.8	252.8	257.9	261.2	266.2	263.7
55°	194.2	195.9	198.4	203.4	210.1	214.3	218.5	225.2	231.1	233.6	238.6
57.5°	159.9	158.2	159.9	166.6	174.1	177.5	183.4	190.0	198.4	203.4	205.1
60°	123.9	124.7	126.4	132.3	138.1	143.2	145.7	156.5	164.1	169.1	172.5
62.5°	91.3	92.9	94.6	99.6	105.5	109.7	113.8	123.1	129.8	134.8	138.1
65°	63.6	64.5	67.0	69.5	75.3	79.5	82.9	90.4	97.1	101.3	103.8
67.5°	39.3	40.2	41.8	45.2	49.4	52.7	56.1	61.1	67.0	71.1	72.0
70°	20.1	20.9	21.8	24.3	27.6	29.3	31.8	36.0	40.2	43.5	45.2
72.5°	6.7	6.7	7.5	9.2	10.9	12.6	13.4	17.6	20.9	22.6	23.4
75°	1.7	1.7	1.7	1.7	1.7	2.5	2.5	5.0	6.7	8.4	9.2
77.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.7	1.7
80°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	589.4	589.4	589.4	589.4	589.4	589.4	589.4	589.4	589.4	589.4
2.5°	589.4	587.7	586.8	587.7	587.7	586.8	589.4	592.7	596.9	586.0
5°	588.5	586.8	588.5	583.5	586.0	584.4	587.7	586.8	590.2	586.8
7.5°	586.0	582.7	583.5	581.0	584.4	580.2	582.7	587.7	584.4	579.3
10°	577.7	576.0	581.8	573.5	571.8	575.1	581.8	576.8	575.1	576.8
12.5°	569.3	569.3	571.8	565.1	565.9	567.6	570.9	567.6	569.3	573.5
15°	560.1	558.4	562.6	557.5	556.7	555.0	558.4	558.4	560.1	557.5
17.5°	549.2	546.7	546.7	545.0	544.2	548.4	550.0	550.8	551.7	548.4
20°	535.8	535.0	537.5	535.0	535.8	536.6	536.6	535.0	542.5	533.3
22.5°	521.5	524.1	520.7	519.0	520.7	522.4	522.4	523.2	521.5	519.9
25°	507.3	509.0	509.8	504.8	507.3	504.8	510.7	511.5	508.2	509.8
27.5°	494.8	492.3	491.4	488.1	489.7	488.9	489.7	489.7	494.8	488.1
30°	475.5	473.0	473.8	471.3	472.2	471.3	472.2	472.2	475.5	474.7
32.5°	457.1	454.6	455.4	452.9	452.9	453.7	452.1	452.1	454.6	452.9
35°	439.5	433.7	434.5	433.7	434.5	431.1	431.1	430.3	432.0	427.8
37.5°	414.4	411.9	411.0	410.2	411.0	409.4	411.0	408.6	411.0	407.7
40°	391.8	390.1	391.0	385.9	385.9	386.8	385.1	384.3	385.1	388.4
42.5°	369.2	365.9	364.2	362.5	363.3	360.8	360.0	358.3	360.0	356.6
45°	342.4	342.4	341.6	337.4	338.2	338.2	334.9	331.5	332.3	332.3
47.5°	318.1	316.5	315.6	311.4	310.6	309.8	306.4	303.9	303.9	301.4
50°	291.3	289.7	287.2	283.0	281.3	276.3	273.8	270.4	267.1	267.1
52.5°	266.2	260.3	257.0	250.3	247.8	245.3	238.6	236.1	233.6	231.1
55°	236.1	231.1	224.4	216.8	213.5	209.3	202.6	197.6	194.2	195.1
57.5°	206.8	198.4	191.7	181.7	177.5	175.0	168.3	161.6	158.2	158.2
60°	170.8	164.1	155.7	146.5	143.2	139.0	130.6	126.4	123.9	121.4
62.5°	136.5	131.4	123.9	112.2	109.7	105.5	99.6	94.6	92.1	92.1
65°	102.1	97.1	90.4	82.0	78.7	75.3	70.3	65.3	62.8	62.0
67.5°	72.0	66.1	60.3	53.6	51.1	49.4	44.4	41.0	39.3	38.5
70°	43.5	40.2	36.0	31.0	28.5	26.8	23.4	20.9	20.1	19.3
72.5°	22.6	20.1	16.7	13.4	11.7	10.0	8.4	6.7	5.9	5.9
75°	8.4	6.7	4.2	2.5	1.7	1.7	1.7	1.7	1.7	1.7
77.5°	1.7	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
80°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	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
87.5°	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

(END OF REPORT)