

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 FEU4C159035 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 FEU4C159035 F4LC-CSSQ-MMS
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

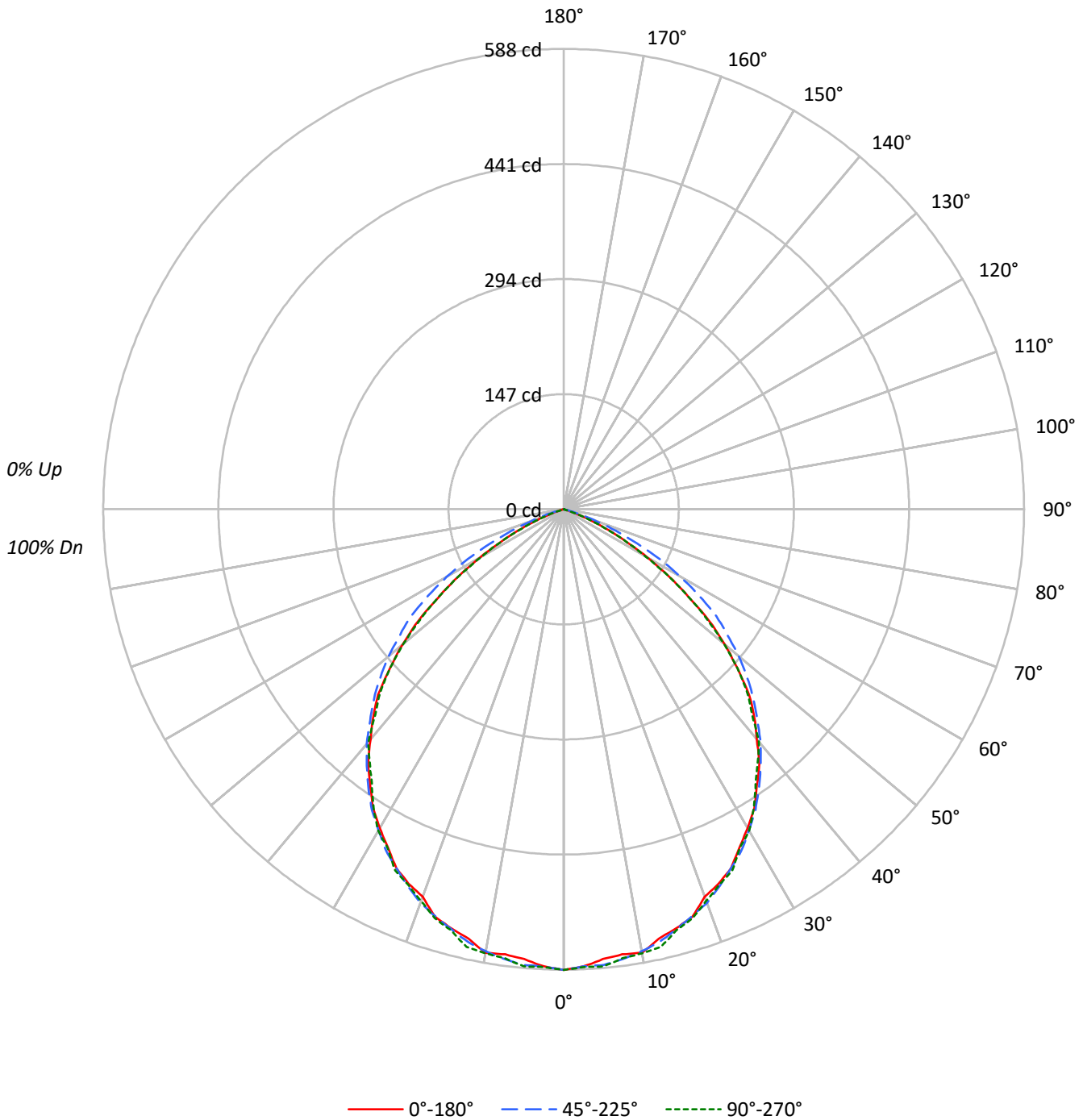
Lumens per Lamp: N/A
 Luminaire Lumens: 1257.0 lumens
 Efficiency: N/A
 Efficacy: 79.6 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89				89
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77				77
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67				67
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59				59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	52				52
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46				46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41				41
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37				37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33				33
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	31				31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	56774	56774	56774
5°	55858	56584	56749
10°	56347	56180	56425
15°	55361	55440	55610
20°	54072	54924	54668
25°	53839	53839	54190
30°	52332	52711	52800
35°	50697	51192	50309
40°	48330	49274	48846
45°	45740	46763	45276
50°	40275	43787	40019
55°	32618	40071	32770
60°	23871	33231	23389
65°	14498	23653	14133
70°	5671	12752	5417
75°	634	3430	634
80°	500	500	500
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	55.5	4.4
10°-20°	157.2	12.5
20°-30°	233.2	18.6
30°-40°	270.2	21.5
40°-50°	259.1	20.6
50°-60°	190.5	15.2
60°-70°	82.3	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°	445.9	35.5
0°-40°	716.2	57.0
0°-60°	1165.7	92.7
0°-90°	1257.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1257.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	588	588	588	588	588	
5°	577	583	584	585	586	55
15°	554	558	555	556	557	156
25°	506	505	506	506	509	232
35°	430	433	435	434	427	269
45°	335	336	343	338	332	255
55°	194	214	238	213	195	174
65°	64	79	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 FEU4C159035 F4LC-CSSQ-MMS

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	588.4	588.4	588.4	588.4	588.4	588.4	588.4	588.4	588.4	588.4	588.4
2.5°	584.2	590.9	591.8	587.6	585.9	583.4	589.3	585.1	586.8	585.1	584.2
5°	576.7	584.2	585.1	585.1	583.4	582.6	585.1	584.2	583.4	581.8	584.2
7.5°	573.4	577.6	581.8	576.7	579.2	578.4	584.2	581.8	580.9	580.9	579.2
10°	575.1	574.2	577.6	572.5	574.2	572.5	577.6	577.6	575.9	574.2	573.4
12.5°	561.7	568.4	568.4	567.5	565.9	563.3	568.4	571.7	566.7	566.7	565.9
15°	554.2	555.8	556.7	556.7	555.8	557.5	560.0	556.7	557.5	553.3	555.0
17.5°	545.8	542.5	545.0	543.3	544.1	545.8	549.2	549.2	544.1	543.3	545.0
20°	526.6	536.6	537.5	532.4	533.3	533.3	539.1	534.1	537.5	533.3	534.9
22.5°	517.4	524.1	524.9	518.2	522.4	517.4	523.2	515.7	524.1	518.2	520.7
25°	505.7	504.9	507.3	504.0	504.9	504.9	509.0	505.7	508.2	504.9	505.7
27.5°	486.5	493.2	492.3	489.0	490.6	489.8	498.2	489.0	494.0	489.8	491.5
30°	469.7	475.6	473.9	470.6	470.6	468.1	477.3	474.7	473.9	473.9	473.1
32.5°	453.0	453.9	452.2	453.0	453.9	450.5	458.0	454.7	453.9	454.7	455.5
35°	430.4	430.4	432.1	429.6	433.0	433.0	439.7	435.5	434.6	432.1	434.6
37.5°	410.4	407.9	408.7	408.7	410.4	412.1	415.4	413.7	413.7	411.2	412.9
40°	383.7	382.0	384.5	384.5	387.0	387.0	390.3	388.7	391.2	391.2	391.2
42.5°	360.3	360.3	358.6	361.1	361.9	361.1	366.9	366.1	366.9	365.3	366.1
45°	335.2	335.2	333.5	332.7	336.8	336.0	342.7	340.2	343.5	341.8	342.7
47.5°	300.9	305.1	302.6	305.1	310.1	310.9	315.1	313.4	316.8	314.3	317.6
50°	268.3	268.3	270.8	274.2	279.2	280.0	285.0	288.4	290.0	290.9	291.7
52.5°	234.0	233.2	235.7	239.9	244.1	247.4	252.4	257.4	260.8	265.8	263.3
55°	193.9	195.6	198.1	203.1	209.8	214.0	218.2	224.8	230.7	233.2	238.2
57.5°	159.6	158.0	159.6	166.3	173.9	177.2	183.1	189.7	198.1	203.1	204.8
60°	123.7	124.5	126.2	132.1	137.9	142.9	145.4	156.3	163.8	168.8	172.2
62.5°	91.1	92.8	94.5	99.5	105.3	109.5	113.7	122.9	129.6	134.6	137.9
65°	63.5	64.4	66.9	69.4	75.2	79.4	82.7	90.3	97.0	101.1	103.6
67.5°	39.3	40.1	41.8	45.2	49.3	52.7	56.0	61.0	66.9	71.0	71.9
70°	20.1	20.9	21.7	24.2	27.6	29.3	31.8	35.9	40.1	43.4	45.2
72.5°	6.7	6.7	7.5	9.2	10.9	12.5	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°	588.4	588.4	588.4	588.4	588.4	588.4	588.4	588.4	588.4	588.4
2.5°	588.4	586.8	585.9	586.8	586.8	585.9	588.4	591.8	595.9	585.1
5°	587.6	585.9	587.6	582.6	585.1	583.4	586.8	585.9	589.3	585.9
7.5°	585.1	581.8	582.6	580.1	583.4	579.2	581.8	586.8	583.4	578.4
10°	576.7	575.1	580.9	572.5	570.9	574.2	580.9	575.9	574.2	575.9
12.5°	568.4	568.4	570.9	564.2	565.0	566.7	570.0	566.7	568.4	572.5
15°	559.2	557.5	561.7	556.7	555.8	554.2	557.5	557.5	559.2	556.7
17.5°	548.3	545.8	545.8	544.1	543.3	547.5	549.2	550.0	550.8	547.5
20°	534.9	534.1	536.6	534.1	534.9	535.8	535.8	534.1	541.6	532.4
22.5°	520.7	523.2	519.9	518.2	519.9	521.6	521.6	522.4	520.7	519.0
25°	506.5	508.2	509.0	504.0	506.5	504.0	509.9	510.7	507.3	509.0
27.5°	494.0	491.5	490.6	487.3	489.0	488.1	489.0	489.0	494.0	487.3
30°	474.7	472.3	473.1	470.6	471.4	470.6	471.4	471.4	474.7	473.9
32.5°	456.4	453.9	454.7	452.2	452.2	453.0	451.3	451.3	453.9	452.2
35°	438.8	433.0	433.8	433.0	433.8	430.4	430.4	429.6	431.3	427.1
37.5°	413.7	411.2	410.4	409.6	410.4	408.7	410.4	407.9	410.4	407.0
40°	391.2	389.5	390.3	385.3	385.3	386.1	384.5	383.7	384.5	387.8
42.5°	368.6	365.3	363.6	361.9	362.7	360.3	359.4	357.7	359.4	356.1
45°	341.8	341.8	341.0	336.8	337.7	337.7	334.3	331.0	331.8	331.8
47.5°	317.6	316.0	315.1	310.9	310.1	309.3	305.9	303.4	303.4	300.9
50°	290.9	289.2	286.7	282.5	280.8	275.8	273.3	270.0	266.6	266.6
52.5°	265.8	259.9	256.6	249.9	247.4	244.9	238.2	235.7	233.2	230.7
55°	235.7	230.7	224.0	216.5	213.1	208.9	202.3	197.2	193.9	194.8
57.5°	206.5	198.1	191.4	181.4	177.2	174.7	168.0	161.3	158.0	158.0
60°	170.5	163.8	155.5	146.3	142.9	138.8	130.4	126.2	123.7	121.2
62.5°	136.2	131.2	123.7	112.0	109.5	105.3	99.5	94.5	91.9	91.9
65°	102.0	97.0	90.3	81.9	78.6	75.2	70.2	65.2	62.7	61.9
67.5°	71.9	66.0	60.2	53.5	51.0	49.3	44.3	41.0	39.3	38.4
70°	43.4	40.1	35.9	30.9	28.4	26.7	23.4	20.9	20.1	19.2
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)