

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 FEU4C159050 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 FEU4C159050 F4LC-CSSQ-MMS
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

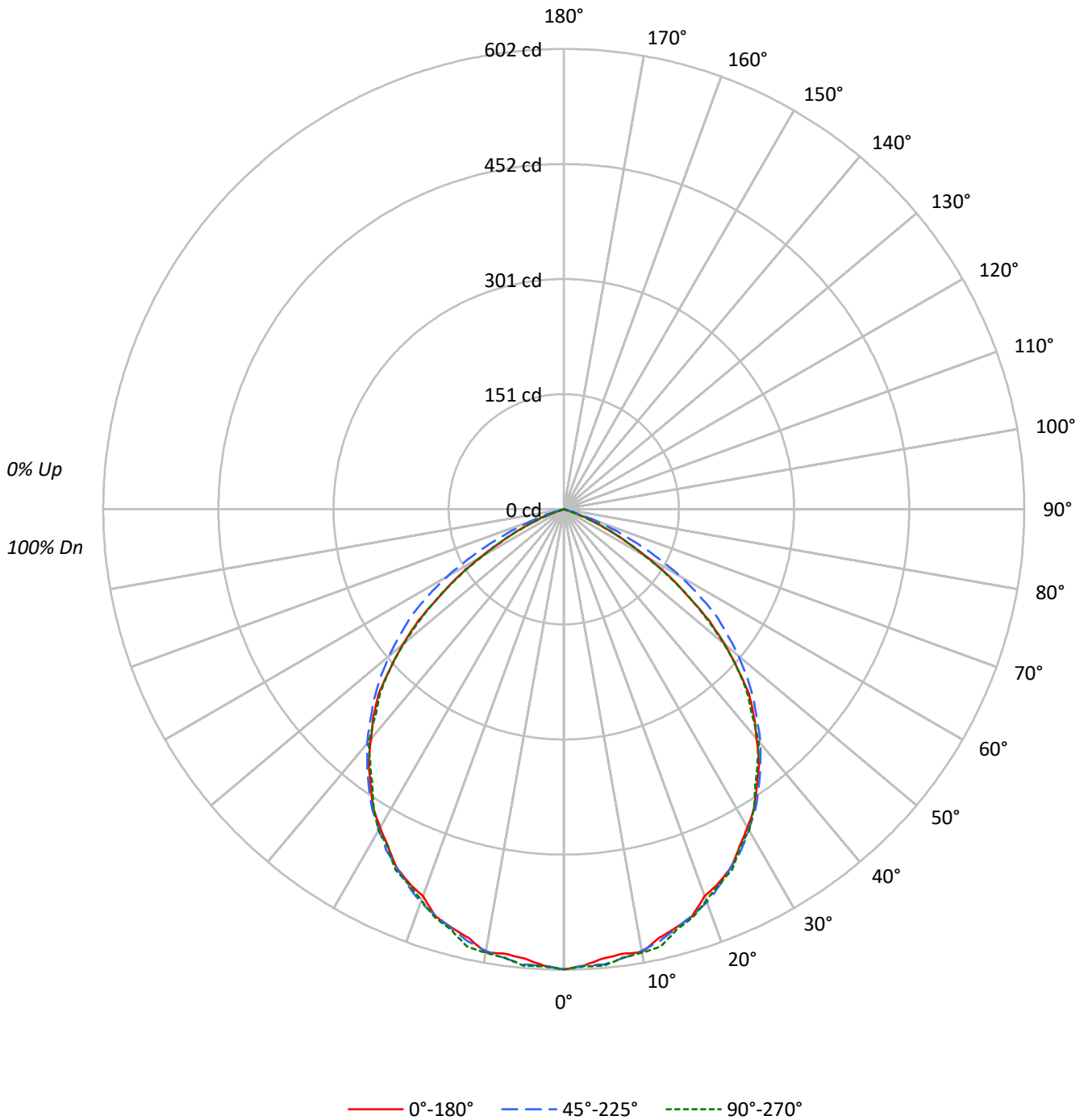
Lumens per Lamp: N/A
 Luminaire Lumens: 1285.0 lumens
 Efficiency: N/A
 Efficacy: 81.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	58038	58038	58038
5°	57107	57853	58018
10°	57601	57434	57679
15°	56589	56669	56849
20°	55273	56146	55889
25°	55031	55031	55404
30°	53502	53881	53981
35°	51828	52335	51428
40°	49400	50370	49942
45°	46750	47801	46286
50°	41175	44763	40920
55°	33342	40962	33493
60°	24392	33964	23910
65°	14817	24178	14429
70°	5783	13034	5558
75°	634	3504	634
80°	500	500	500
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	56.8	4.4
10°-20°	160.7	12.5
20°-30°	238.4	18.6
30°-40°	276.2	21.5
40°-50°	264.9	20.6
50°-60°	194.7	15.2
60°-70°	84.1	6.5
70°-80°	9.1	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°	455.9	35.5
0°-40°	732.1	57.0
0°-60°	1191.7	92.7
0°-90°	1285.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1285.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	602	602	602	602	602	
5°	590	596	597	598	599	56
15°	566	570	567	568	569	160
25°	517	516	517	518	520	237
35°	440	443	444	443	437	275
45°	343	344	350	345	339	260
55°	198	219	244	218	199	178
65°	65	81	106	80	63	67
75°	2	3	9	2	2	5
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	601.5	601.5	601.5	601.5	601.5	601.5	601.5	601.5	601.5	601.5	601.5
2.5°	597.3	604.1	605.0	600.7	599.0	596.4	602.4	598.1	599.8	598.1	597.3
5°	589.6	597.3	598.1	598.1	596.4	595.6	598.1	597.3	596.4	594.7	597.3
7.5°	586.2	590.4	594.7	589.6	592.1	591.3	597.3	594.7	593.8	593.8	592.1
10°	587.9	587.0	590.4	585.3	587.0	585.3	590.4	590.4	588.7	587.0	586.2
12.5°	574.2	581.0	581.0	580.2	578.5	575.9	581.0	584.5	579.3	579.3	578.5
15°	566.5	568.2	569.1	569.1	568.2	569.9	572.5	569.1	569.9	565.6	567.3
17.5°	558.0	554.6	557.1	555.4	556.3	558.0	561.4	561.4	556.3	555.4	557.1
20°	538.3	548.6	549.4	544.3	545.1	545.1	551.1	546.0	549.4	545.1	546.8
22.5°	528.9	535.7	536.6	529.8	534.0	528.9	534.9	527.2	535.7	529.8	532.3
25°	516.9	516.1	518.6	515.2	516.1	516.1	520.4	516.9	519.5	516.1	516.9
27.5°	497.3	504.1	503.3	499.9	501.6	500.7	509.3	499.9	505.0	500.7	502.4
30°	480.2	486.2	484.5	481.1	481.1	478.5	487.9	485.3	484.5	484.5	483.6
32.5°	463.1	464.0	462.3	463.1	464.0	460.6	468.2	464.8	464.0	464.8	465.7
35°	440.0	440.0	441.7	439.2	442.6	442.6	449.4	445.2	444.3	441.7	444.3
37.5°	419.5	417.0	417.8	417.8	419.5	421.2	424.7	422.9	422.9	420.4	422.1
40°	392.2	390.5	393.0	393.0	395.6	395.6	399.0	397.3	399.9	399.9	399.9
42.5°	368.3	368.3	366.6	369.1	370.0	369.1	375.1	374.2	375.1	373.4	374.2
45°	342.6	342.6	340.9	340.1	344.3	343.5	350.3	347.8	351.2	349.5	350.3
47.5°	307.6	311.9	309.3	311.9	317.0	317.9	322.1	320.4	323.8	321.3	324.7
50°	274.3	274.3	276.8	280.3	285.4	286.3	291.4	294.8	296.5	297.3	298.2
52.5°	239.3	238.4	241.0	245.2	249.5	252.9	258.1	263.2	266.6	271.7	269.1
55°	198.2	199.9	202.5	207.6	214.5	218.7	223.0	229.8	235.8	238.4	243.5
57.5°	163.2	161.5	163.2	170.0	177.7	181.1	187.1	194.0	202.5	207.6	209.3
60°	126.4	127.3	129.0	135.0	141.0	146.1	148.7	159.8	167.5	172.6	176.0
62.5°	93.2	94.9	96.6	101.7	107.7	111.9	116.2	125.6	132.4	137.6	141.0
65°	64.9	65.8	68.4	70.9	76.9	81.2	84.6	92.3	99.1	103.4	105.9
67.5°	40.2	41.0	42.7	46.2	50.4	53.8	57.2	62.4	68.4	72.6	73.5
70°	20.5	21.4	22.2	24.8	28.2	29.9	32.5	36.7	41.0	44.4	46.2
72.5°	6.8	6.8	7.7	9.4	11.1	12.8	13.7	18.0	21.4	23.1	23.9
75°	1.7	1.7	1.7	1.7	1.7	2.6	2.6	5.1	6.8	8.5	9.4
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°	601.5	601.5	601.5	601.5	601.5	601.5	601.5	601.5	601.5	601.5
2.5°	601.5	599.8	599.0	599.8	599.8	599.0	601.5	605.0	609.2	598.1
5°	600.7	599.0	600.7	595.6	598.1	596.4	599.8	599.0	602.4	599.0
7.5°	598.1	594.7	595.6	593.0	596.4	592.1	594.7	599.8	596.4	591.3
10°	589.6	587.9	593.8	585.3	583.6	587.0	593.8	588.7	587.0	588.7
12.5°	581.0	581.0	583.6	576.8	577.6	579.3	582.7	579.3	581.0	585.3
15°	571.6	569.9	574.2	569.1	568.2	566.5	569.9	569.9	571.6	569.1
17.5°	560.5	558.0	558.0	556.3	555.4	559.7	561.4	562.2	563.1	559.7
20°	546.8	546.0	548.6	546.0	546.8	547.7	547.7	546.0	553.7	544.3
22.5°	532.3	534.9	531.5	529.8	531.5	533.2	533.2	534.0	532.3	530.6
25°	517.8	519.5	520.4	515.2	517.8	515.2	521.2	522.1	518.6	520.4
27.5°	505.0	502.4	501.6	498.1	499.9	499.0	499.9	499.9	505.0	498.1
30°	485.3	482.8	483.6	481.1	481.9	481.1	481.9	481.9	485.3	484.5
32.5°	466.5	464.0	464.8	462.3	462.3	463.1	461.4	461.4	464.0	462.3
35°	448.6	442.6	443.4	442.6	443.4	440.0	440.0	439.2	440.9	436.6
37.5°	422.9	420.4	419.5	418.7	419.5	417.8	419.5	417.0	419.5	416.1
40°	399.9	398.2	399.0	393.9	393.9	394.7	393.0	392.2	393.0	396.5
42.5°	376.8	373.4	371.7	370.0	370.8	368.3	367.4	365.7	367.4	364.0
45°	349.5	349.5	348.6	344.3	345.2	345.2	341.8	338.4	339.2	339.2
47.5°	324.7	323.0	322.1	317.9	317.0	316.2	312.7	310.2	310.2	307.6
50°	297.3	295.6	293.1	288.8	287.1	282.0	279.4	276.0	272.6	272.6
52.5°	271.7	265.7	262.3	255.5	252.9	250.3	243.5	241.0	238.4	235.8
55°	241.0	235.8	229.0	221.3	217.9	213.6	206.8	201.6	198.2	199.1
57.5°	211.1	202.5	195.7	185.4	181.1	178.6	171.7	164.9	161.5	161.5
60°	174.3	167.5	158.9	149.5	146.1	141.9	133.3	129.0	126.4	123.9
62.5°	139.3	134.2	126.4	114.5	111.9	107.7	101.7	96.6	94.0	94.0
65°	104.2	99.1	92.3	83.7	80.3	76.9	71.8	66.7	64.1	63.2
67.5°	73.5	67.5	61.5	54.7	52.1	50.4	45.3	41.9	40.2	39.3
70°	44.4	41.0	36.7	31.6	29.0	27.3	23.9	21.4	20.5	19.7
72.5°	23.1	20.5	17.1	13.7	12.0	10.2	8.5	6.8	6.0	6.0
75°	8.5	6.8	4.3	2.6	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)