

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: **FLDSQ4C05D010 FEU4C059040 F4LC-CSSQ-MW**

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: FLDSQ4C05D010 FEU4C059040 F4LC-CSSQ-MW  
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

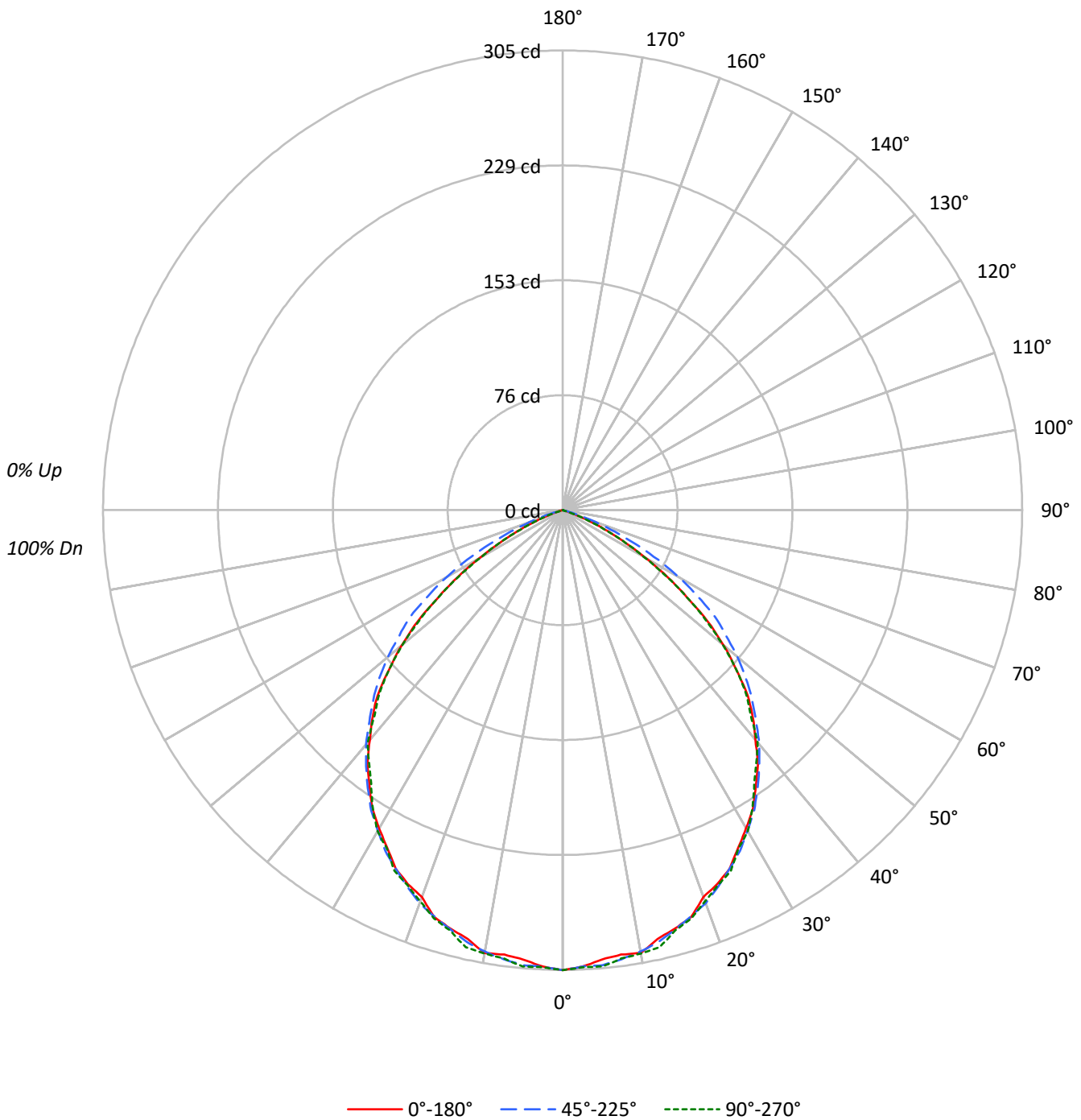
Lumens per Lamp: N/A  
 Luminaire Lumens: 652.0 lumens  
 Efficiency: N/A  
 Efficacy: 90.6 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 7.2  
 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



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C05D010 FEU4C059040 F4LC-CSSQ-MW

**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	34				34
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°	29448	29448	29448
5°	28980	29348	29435
10°	29227	29138	29266
15°	28709	28759	28839
20°	28042	28494	28361
25°	27925	27925	28106
30°	27141	27341	27386
35°	26303	26550	26091
40°	25066	25557	25343
45°	23716	24262	23484
50°	20895	22712	20760
55°	16923	20792	16991
60°	12389	17233	12138
65°	7534	12283	7329
70°	2934	6601	2821
75°	336	1789	336
80°	222	222	222
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	28.8	4.4
10°-20°	81.5	12.5
20°-30°	121.0	18.6
30°-40°	140.2	21.5
40°-50°	134.4	20.6
50°-60°	98.8	15.2
60°-70°	42.7	6.5
70°-80°	4.6	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°	231.3	35.5
0°-40°	371.5	57.0
0°-60°	604.7	92.7
0°-90°	652.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	652.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	305	305	305	305	305	
5°	299	302	303	304	304	29
15°	287	289	288	288	289	81
25°	262	262	262	263	264	120
35°	223	225	225	225	222	140
45°	174	174	178	175	172	132
55°	101	111	124	111	101	91
65°	33	41	54	41	32	34
75°	1	1	5	1	1	3
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°	305.2	305.2	305.2	305.2	305.2	305.2	305.2	305.2	305.2	305.2	305.2
2.5°	303.0	306.5	307.0	304.8	303.9	302.6	305.6	303.5	304.4	303.5	303.0
5°	299.2	303.0	303.5	303.5	302.6	302.2	303.5	303.0	302.6	301.8	303.0
7.5°	297.4	299.6	301.8	299.2	300.4	300.0	303.0	301.8	301.3	301.3	300.4
10°	298.3	297.8	299.6	297.0	297.8	297.0	299.6	299.6	298.7	297.8	297.4
12.5°	291.3	294.8	294.8	294.4	293.5	292.2	294.8	296.6	293.9	293.9	293.5
15°	287.4	288.3	288.7	288.7	288.3	289.2	290.5	288.7	289.2	287.0	287.9
17.5°	283.1	281.4	282.7	281.8	282.2	283.1	284.8	284.8	282.2	281.8	282.7
20°	273.1	278.3	278.8	276.2	276.6	276.6	279.6	277.0	278.8	276.6	277.5
22.5°	268.4	271.8	272.3	268.8	271.0	268.4	271.4	267.5	271.8	268.8	270.1
25°	262.3	261.9	263.2	261.4	261.9	261.9	264.0	262.3	263.6	261.9	262.3
27.5°	252.3	255.8	255.4	253.6	254.5	254.1	258.4	253.6	256.2	254.1	254.9
30°	243.6	246.7	245.8	244.1	244.1	242.8	247.6	246.2	245.8	245.8	245.4
32.5°	235.0	235.4	234.6	235.0	235.4	233.7	237.6	235.8	235.4	235.8	236.3
35°	223.3	223.3	224.1	222.8	224.6	224.6	228.0	225.9	225.4	224.1	225.4
37.5°	212.9	211.6	212.0	212.0	212.9	213.7	215.5	214.6	214.6	213.3	214.2
40°	199.0	198.1	199.4	199.4	200.7	200.7	202.5	201.6	202.9	202.9	202.9
42.5°	186.9	186.9	186.0	187.3	187.7	187.3	190.3	189.9	190.3	189.5	189.9
45°	173.8	173.8	173.0	172.6	174.7	174.3	177.8	176.4	178.2	177.3	177.8
47.5°	156.1	158.2	156.9	158.2	160.8	161.3	163.4	162.6	164.3	163.0	164.8
50°	139.2	139.2	140.5	142.2	144.8	145.2	147.8	149.6	150.4	150.9	151.3
52.5°	121.4	121.0	122.3	124.4	126.6	128.3	130.9	133.5	135.3	137.9	136.6
55°	100.6	101.4	102.8	105.4	108.8	111.0	113.2	116.6	119.7	121.0	123.6
57.5°	82.8	81.9	82.8	86.3	90.2	91.9	95.0	98.4	102.8	105.4	106.2
60°	64.2	64.6	65.5	68.5	71.5	74.1	75.4	81.1	85.0	87.6	89.3
62.5°	47.3	48.1	49.0	51.6	54.6	56.8	59.0	63.7	67.2	69.8	71.5
65°	33.0	33.4	34.7	36.0	39.0	41.2	42.9	46.8	50.3	52.5	53.8
67.5°	20.4	20.8	21.7	23.4	25.6	27.3	29.0	31.6	34.7	36.8	37.3
70°	10.4	10.8	11.3	12.6	14.3	15.2	16.5	18.6	20.8	22.5	23.4
72.5°	3.5	3.5	3.9	4.8	5.6	6.5	6.9	9.1	10.8	11.7	12.1
75°	0.9	0.9	0.9	0.9	0.9	1.3	1.3	2.6	3.5	4.3	4.8
77.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	0.9
80°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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°	305.2	305.2	305.2	305.2	305.2	305.2	305.2	305.2	305.2	305.2
2.5°	305.2	304.4	303.9	304.4	304.4	303.9	305.2	307.0	309.1	303.5
5°	304.8	303.9	304.8	302.2	303.5	302.6	304.4	303.9	305.6	303.9
7.5°	303.5	301.8	302.2	300.9	302.6	300.4	301.8	304.4	302.6	300.0
10°	299.2	298.3	301.3	297.0	296.1	297.8	301.3	298.7	297.8	298.7
12.5°	294.8	294.8	296.1	292.6	293.1	293.9	295.7	293.9	294.8	297.0
15°	290.0	289.2	291.3	288.7	288.3	287.4	289.2	289.2	290.0	288.7
17.5°	284.4	283.1	283.1	282.2	281.8	284.0	284.8	285.3	285.7	284.0
20°	277.5	277.0	278.3	277.0	277.5	277.9	277.9	277.0	280.9	276.2
22.5°	270.1	271.4	269.7	268.8	269.7	270.5	270.5	271.0	270.1	269.2
25°	262.7	263.6	264.0	261.4	262.7	261.4	264.5	264.9	263.2	264.0
27.5°	256.2	254.9	254.5	252.8	253.6	253.2	253.6	253.6	256.2	252.8
30°	246.2	245.0	245.4	244.1	244.5	244.1	244.5	244.5	246.2	245.8
32.5°	236.7	235.4	235.8	234.6	234.6	235.0	234.1	234.1	235.4	234.6
35°	227.6	224.6	225.0	224.6	225.0	223.3	223.3	222.8	223.7	221.5
37.5°	214.6	213.3	212.9	212.4	212.9	212.0	212.9	211.6	212.9	211.1
40°	202.9	202.0	202.5	199.9	199.9	200.3	199.4	199.0	199.4	201.2
42.5°	191.2	189.5	188.6	187.7	188.2	186.9	186.4	185.6	186.4	184.7
45°	177.3	177.3	176.9	174.7	175.2	175.2	173.4	171.7	172.1	172.1
47.5°	164.8	163.9	163.4	161.3	160.8	160.4	158.7	157.4	157.4	156.1
50°	150.9	150.0	148.7	146.5	145.7	143.1	141.8	140.0	138.3	138.3
52.5°	137.9	134.8	133.1	129.6	128.3	127.0	123.6	122.3	121.0	119.7
55°	122.3	119.7	116.2	112.3	110.6	108.4	104.9	102.3	100.6	101.0
57.5°	107.1	102.8	99.3	94.1	91.9	90.6	87.1	83.7	81.9	81.9
60°	88.4	85.0	80.6	75.9	74.1	72.0	67.6	65.5	64.2	62.9
62.5°	70.7	68.1	64.2	58.1	56.8	54.6	51.6	49.0	47.7	47.7
65°	52.9	50.3	46.8	42.5	40.8	39.0	36.4	33.8	32.5	32.1
67.5°	37.3	34.2	31.2	27.8	26.4	25.6	23.0	21.2	20.4	19.9
70°	22.5	20.8	18.6	16.0	14.7	13.9	12.1	10.8	10.4	10.0
72.5°	11.7	10.4	8.7	6.9	6.1	5.2	4.3	3.5	3.0	3.0
75°	4.3	3.5	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.9
77.5°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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)