

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: **FLDSQ4C08D010 FEU4C089030 F4LC-DFSSQ-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: FLDSQ4C08D010 FEU4C089030 F4LC-DFSSQ-MW  
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

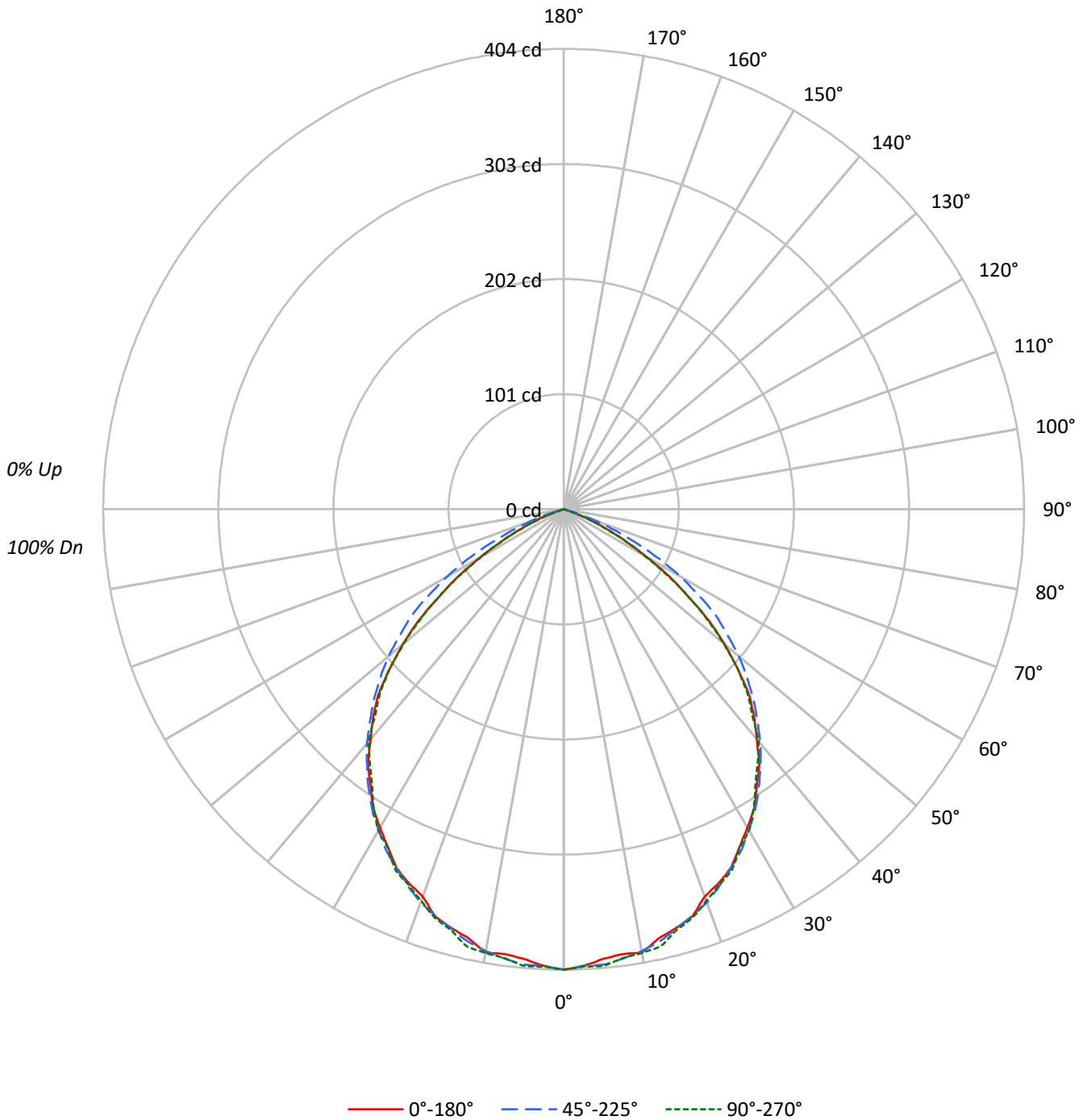
Lumens per Lamp: N/A  
 Luminaire Lumens: 863.0 lumens  
 Efficiency: N/A  
 Efficacy: 87.2 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 9.9  
 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: FLDSQ4C08D010 FEU4C089030 F4LC-DFSSQ-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	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°	38982	38982	38982
5°	38356	38850	38966
10°	38681	38574	38740
15°	38009	38059	38179
20°	37119	37715	37540
25°	36964	36964	37209
30°	35932	36188	36255
35°	34807	35149	34536
40°	33177	33832	33542
45°	31399	32108	31085
50°	27650	30067	27485
55°	22391	27505	22491
60°	16384	22810	16056
65°	9954	16256	9703
70°	3893	8746	3724
75°	410	2349	410
80°	333	333	333
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	38.1	4.4
10°-20°	107.9	12.5
20°-30°	160.1	18.6
30°-40°	185.5	21.5
40°-50°	177.9	20.6
50°-60°	130.8	15.2
60°-70°	56.5	6.5
70°-80°	6.1	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°	306.2	35.5
0°-40°	491.7	57.0
0°-60°	800.3	92.7
0°-90°	863.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	863.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	404	404	404	404	404	
5°	396	400	401	402	402	38
15°	380	383	381	382	382	107
25°	347	347	347	348	350	159
35°	296	297	298	298	293	185
45°	230	231	235	232	228	175
55°	133	147	164	146	134	120
65°	44	54	71	54	42	45
75°	1	2	6	1	1	4
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089030 F4LC-DFSSQ-MW

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	404.0	404.0	404.0	404.0	404.0	404.0	404.0	404.0	404.0	404.0	404.0
2.5°	401.1	405.7	406.3	403.4	402.3	400.6	404.6	401.7	402.8	401.7	401.1
5°	396.0	401.1	401.7	401.7	400.6	400.0	401.7	401.1	400.6	399.4	401.1
7.5°	393.7	396.5	399.4	396.0	397.7	397.1	401.1	399.4	398.8	398.8	397.7
10°	394.8	394.2	396.5	393.1	394.2	393.1	396.5	396.5	395.4	394.2	393.7
12.5°	385.6	390.2	390.2	389.6	388.5	386.8	390.2	392.5	389.1	389.1	388.5
15°	380.5	381.6	382.2	382.2	381.6	382.8	384.5	382.2	382.8	379.9	381.0
17.5°	374.7	372.4	374.1	373.0	373.6	374.7	377.0	377.0	373.6	373.0	374.1
20°	361.5	368.4	369.0	365.6	366.1	366.1	370.1	366.7	369.0	366.1	367.3
22.5°	355.2	359.8	360.4	355.8	358.6	355.2	359.2	354.1	359.8	355.8	357.5
25°	347.2	346.6	348.3	346.0	346.6	346.6	349.5	347.2	348.9	346.6	347.2
27.5°	334.0	338.6	338.0	335.7	336.8	336.3	342.0	335.7	339.1	336.3	337.4
30°	322.5	326.5	325.4	323.1	323.1	321.3	327.7	325.9	325.4	325.4	324.8
32.5°	311.0	311.6	310.5	311.0	311.6	309.3	314.5	312.2	311.6	312.2	312.8
35°	295.5	295.5	296.7	295.0	297.3	297.3	301.8	299.0	298.4	296.7	298.4
37.5°	281.8	280.0	280.6	280.6	281.8	282.9	285.2	284.1	284.1	282.3	283.5
40°	263.4	262.3	264.0	264.0	265.7	265.7	268.0	266.8	268.6	268.6	268.6
42.5°	247.3	247.3	246.2	247.9	248.5	247.9	251.9	251.3	251.9	250.8	251.3
45°	230.1	230.1	229.0	228.4	231.3	230.7	235.3	233.5	235.8	234.7	235.3
47.5°	206.6	209.5	207.7	209.5	212.9	213.5	216.3	215.2	217.5	215.8	218.1
50°	184.2	184.2	185.9	188.2	191.7	192.2	195.7	198.0	199.1	199.7	200.3
52.5°	160.7	160.1	161.8	164.7	167.6	169.9	173.3	176.7	179.0	182.5	180.8
55°	133.1	134.3	136.0	139.4	144.0	146.9	149.8	154.4	158.4	160.1	163.5
57.5°	109.6	108.5	109.6	114.2	119.4	121.7	125.7	130.3	136.0	139.4	140.6
60°	84.9	85.5	86.7	90.7	94.7	98.1	99.9	107.3	112.5	115.9	118.2
62.5°	62.6	63.7	64.9	68.3	72.3	75.2	78.0	84.4	88.9	92.4	94.7
65°	43.6	44.2	45.9	47.6	51.6	54.5	56.8	62.0	66.6	69.4	71.2
67.5°	27.0	27.5	28.7	31.0	33.9	36.2	38.4	41.9	45.9	48.8	49.4
70°	13.8	14.4	14.9	16.6	18.9	20.1	21.8	24.7	27.5	29.8	31.0
72.5°	4.6	4.6	5.2	6.3	7.5	8.6	9.2	12.1	14.4	15.5	16.1
75°	1.1	1.1	1.1	1.1	1.1	1.7	1.7	3.4	4.6	5.7	6.3
77.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.1	1.1
80°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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°	404.0	404.0	404.0	404.0	404.0	404.0	404.0	404.0	404.0	404.0
2.5°	404.0	402.8	402.3	402.8	402.8	402.3	404.0	406.3	409.1	401.7
5°	403.4	402.3	403.4	400.0	401.7	400.6	402.8	402.3	404.6	402.3
7.5°	401.7	399.4	400.0	398.3	400.6	397.7	399.4	402.8	400.6	397.1
10°	396.0	394.8	398.8	393.1	391.9	394.2	398.8	395.4	394.2	395.4
12.5°	390.2	390.2	391.9	387.4	387.9	389.1	391.4	389.1	390.2	393.1
15°	383.9	382.8	385.6	382.2	381.6	380.5	382.8	382.8	383.9	382.2
17.5°	376.4	374.7	374.7	373.6	373.0	375.9	377.0	377.6	378.2	375.9
20°	367.3	366.7	368.4	366.7	367.3	367.8	367.8	366.7	371.9	365.6
22.5°	357.5	359.2	356.9	355.8	356.9	358.1	358.1	358.6	357.5	356.4
25°	347.8	348.9	349.5	346.0	347.8	346.0	350.1	350.6	348.3	349.5
27.5°	339.1	337.4	336.8	334.6	335.7	335.1	335.7	335.7	339.1	334.6
30°	325.9	324.2	324.8	323.1	323.6	323.1	323.6	323.6	325.9	325.4
32.5°	313.3	311.6	312.2	310.5	310.5	311.0	309.9	309.9	311.6	310.5
35°	301.3	297.3	297.8	297.3	297.8	295.5	295.5	295.0	296.1	293.2
37.5°	284.1	282.3	281.8	281.2	281.8	280.6	281.8	280.0	281.8	279.5
40°	268.6	267.4	268.0	264.5	264.5	265.1	264.0	263.4	264.0	266.3
42.5°	253.1	250.8	249.6	248.5	249.0	247.3	246.8	245.6	246.8	244.5
45°	234.7	234.7	234.1	231.3	231.8	231.8	229.5	227.2	227.8	227.8
47.5°	218.1	216.9	216.3	213.5	212.9	212.3	210.0	208.3	208.3	206.6
50°	199.7	198.5	196.8	194.0	192.8	189.4	187.7	185.4	183.1	183.1
52.5°	182.5	178.5	176.2	171.6	169.9	168.1	163.5	161.8	160.1	158.4
55°	161.8	158.4	153.8	148.6	146.3	143.5	138.9	135.4	133.1	133.7
57.5°	141.7	136.0	131.4	124.5	121.7	119.9	115.3	110.7	108.5	108.5
60°	117.1	112.5	106.7	100.4	98.1	95.3	89.5	86.7	84.9	83.2
62.5°	93.5	90.1	84.9	76.9	75.2	72.3	68.3	64.9	63.1	63.1
65°	70.0	66.6	62.0	56.2	53.9	51.6	48.2	44.8	43.0	42.5
67.5°	49.4	45.3	41.3	36.7	35.0	33.9	30.4	28.1	27.0	26.4
70°	29.8	27.5	24.7	21.2	19.5	18.4	16.1	14.4	13.8	13.2
72.5°	15.5	13.8	11.5	9.2	8.0	6.9	5.7	4.6	4.0	4.0
75°	5.7	4.6	2.9	1.7	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	1.1	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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)