

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 FEU4C059050 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: FLDSQ4C05D010 FEU4C059050 F4LC-DFSSQ-MW  
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

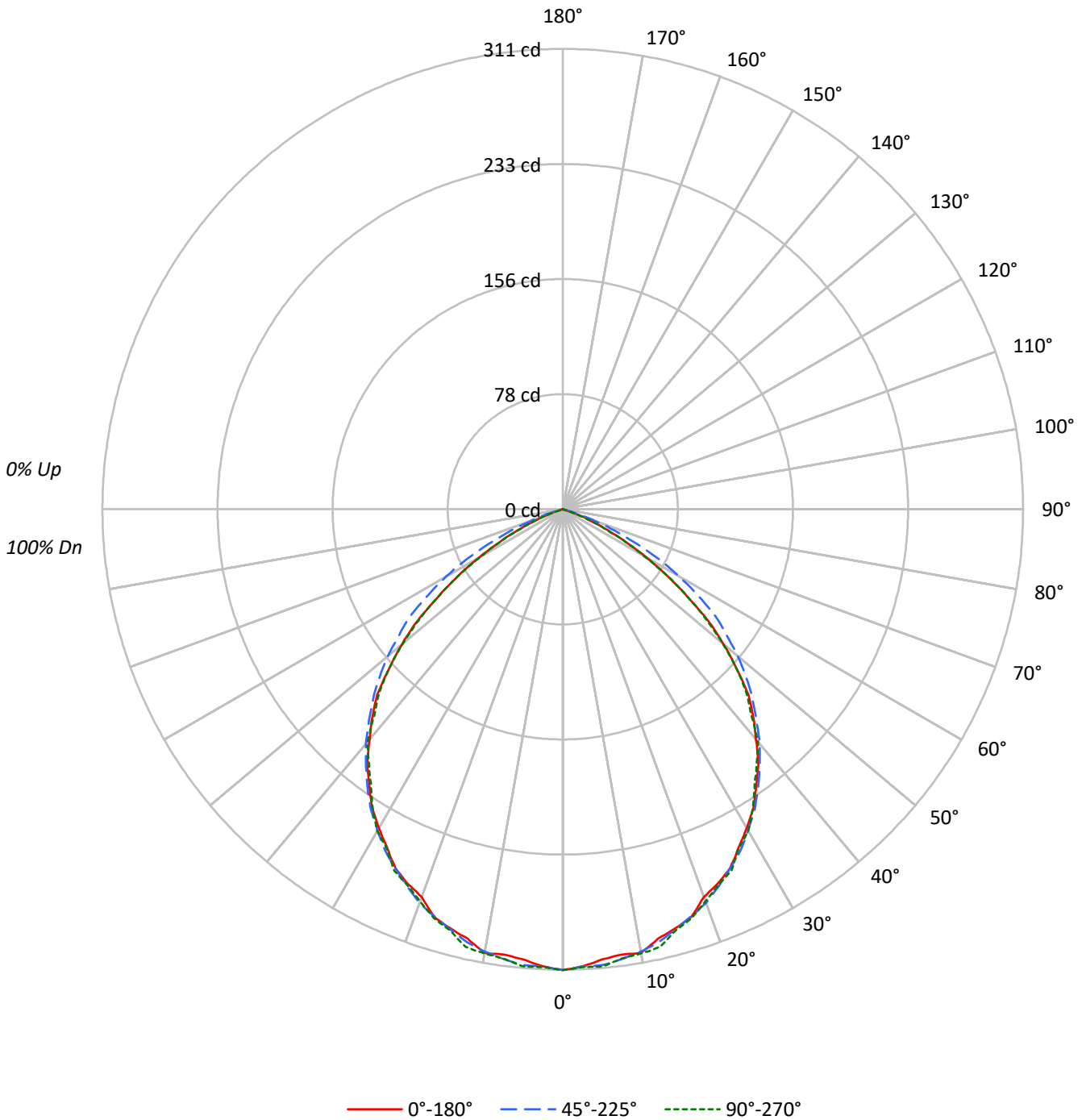
Lumens per Lamp: N/A  
 Luminaire Lumens: 665.0 lumens  
 Efficiency: N/A  
 Efficacy: 92.4 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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 FEU4C059050 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°	30037	30037	30037
5°	29551	29939	30026
10°	29805	29726	29854
15°	29289	29328	29418
20°	28607	29059	28925
25°	28479	28479	28671
30°	27687	27887	27932
35°	26821	27080	26621
40°	25569	26061	25846
45°	24194	24739	23948
50°	21316	23162	21181
55°	17260	21196	17327
60°	12621	17580	12370
65°	7671	12512	7466
70°	2990	6743	2878
75°	336	1827	336
80°	278	278	278
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	29.4	4.4
10°-20°	83.2	12.5
20°-30°	123.4	18.6
30°-40°	143.0	21.5
40°-50°	137.1	20.6
50°-60°	100.8	15.2
60°-70°	43.5	6.5
70°-80°	4.7	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°	235.9	35.5
0°-40°	378.9	57.0
0°-60°	616.7	92.7
0°-90°	665.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	665.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	311	311	311	311	311	
5°	305	308	309	310	310	29
15°	293	295	294	294	294	83
25°	268	267	268	268	269	122
35°	228	229	230	230	226	142
45°	177	178	181	179	176	135
55°	103	113	126	113	103	92
65°	34	42	55	42	33	35
75°	1	1	5	1	1	3
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C05D010 FEU4C059050 F4LC-DFSSQ-MW

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	311.3	311.3	311.3	311.3	311.3	311.3	311.3	311.3	311.3	311.3	311.3
2.5°	309.1	312.6	313.1	310.9	310.0	308.7	311.7	309.5	310.4	309.5	309.1
5°	305.1	309.1	309.5	309.5	308.7	308.2	309.5	309.1	308.7	307.8	309.1
7.5°	303.4	305.6	307.8	305.1	306.4	306.0	309.1	307.8	307.3	307.3	306.4
10°	304.2	303.8	305.6	302.9	303.8	302.9	305.6	305.6	304.7	303.8	303.4
12.5°	297.1	300.7	300.7	300.2	299.4	298.0	300.7	302.5	299.8	299.8	299.4
15°	293.2	294.1	294.5	294.5	294.1	294.9	296.3	294.5	294.9	292.7	293.6
17.5°	288.8	287.0	288.3	287.4	287.9	288.8	290.5	290.5	287.9	287.4	288.3
20°	278.6	283.9	284.3	281.7	282.1	282.1	285.2	282.6	284.3	282.1	283.0
22.5°	273.7	277.2	277.7	274.2	276.4	273.7	276.8	272.8	277.2	274.2	275.5
25°	267.5	267.1	268.4	266.6	267.1	267.1	269.3	267.5	268.9	267.1	267.5
27.5°	257.4	260.9	260.4	258.7	259.6	259.1	263.6	258.7	261.3	259.1	260.0
30°	248.5	251.6	250.7	249.0	249.0	247.6	252.5	251.2	250.7	250.7	250.3
32.5°	239.7	240.1	239.2	239.7	240.1	238.3	242.3	240.5	240.1	240.5	241.0
35°	227.7	227.7	228.6	227.3	229.1	229.1	232.6	230.4	229.9	228.6	229.9
37.5°	217.1	215.8	216.2	216.2	217.1	218.0	219.8	218.9	218.9	217.6	218.4
40°	203.0	202.1	203.4	203.4	204.7	204.7	206.5	205.6	206.9	206.9	206.9
42.5°	190.6	190.6	189.7	191.0	191.5	191.0	194.1	193.7	194.1	193.2	193.7
45°	177.3	177.3	176.4	176.0	178.2	177.8	181.3	180.0	181.7	180.8	181.3
47.5°	159.2	161.4	160.1	161.4	164.1	164.5	166.7	165.8	167.6	166.3	168.0
50°	142.0	142.0	143.3	145.0	147.7	148.1	150.8	152.6	153.4	153.9	154.3
52.5°	123.8	123.4	124.7	126.9	129.1	130.9	133.5	136.2	138.0	140.6	139.3
55°	102.6	103.5	104.8	107.5	111.0	113.2	115.4	118.9	122.1	123.4	126.0
57.5°	84.5	83.6	84.5	88.0	92.0	93.7	96.8	100.4	104.8	107.5	108.3
60°	65.4	65.9	66.8	69.9	73.0	75.6	76.9	82.7	86.7	89.3	91.1
62.5°	48.2	49.1	50.0	52.6	55.7	57.9	60.1	65.0	68.5	71.2	73.0
65°	33.6	34.0	35.4	36.7	39.8	42.0	43.8	47.8	51.3	53.5	54.8
67.5°	20.8	21.2	22.1	23.9	26.1	27.9	29.6	32.3	35.4	37.6	38.0
70°	10.6	11.1	11.5	12.8	14.6	15.5	16.8	19.0	21.2	23.0	23.9
72.5°	3.5	3.5	4.0	4.9	5.8	6.6	7.1	9.3	11.1	11.9	12.4
75°	0.9	0.9	0.9	0.9	0.9	1.3	1.3	2.7	3.5	4.4	4.9
77.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.9	0.9
80°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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°	311.3	311.3	311.3	311.3	311.3	311.3	311.3	311.3	311.3	311.3
2.5°	311.3	310.4	310.0	310.4	310.4	310.0	311.3	313.1	315.3	309.5
5°	310.9	310.0	310.9	308.2	309.5	308.7	310.4	310.0	311.7	310.0
7.5°	309.5	307.8	308.2	306.9	308.7	306.4	307.8	310.4	308.7	306.0
10°	305.1	304.2	307.3	302.9	302.0	303.8	307.3	304.7	303.8	304.7
12.5°	300.7	300.7	302.0	298.5	298.9	299.8	301.6	299.8	300.7	302.9
15°	295.8	294.9	297.1	294.5	294.1	293.2	294.9	294.9	295.8	294.5
17.5°	290.1	288.8	288.8	287.9	287.4	289.6	290.5	291.0	291.4	289.6
20°	283.0	282.6	283.9	282.6	283.0	283.5	283.5	282.6	286.5	281.7
22.5°	275.5	276.8	275.0	274.2	275.0	275.9	275.9	276.4	275.5	274.6
25°	268.0	268.9	269.3	266.6	268.0	266.6	269.7	270.2	268.4	269.3
27.5°	261.3	260.0	259.6	257.8	258.7	258.2	258.7	258.7	261.3	257.8
30°	251.2	249.8	250.3	249.0	249.4	249.0	249.4	249.4	251.2	250.7
32.5°	241.4	240.1	240.5	239.2	239.2	239.7	238.8	238.8	240.1	239.2
35°	232.1	229.1	229.5	229.1	229.5	227.7	227.7	227.3	228.2	226.0
37.5°	218.9	217.6	217.1	216.7	217.1	216.2	217.1	215.8	217.1	215.3
40°	206.9	206.1	206.5	203.9	203.9	204.3	203.4	203.0	203.4	205.2
42.5°	195.0	193.2	192.4	191.5	191.9	190.6	190.1	189.3	190.1	188.4
45°	180.8	180.8	180.4	178.2	178.6	178.6	176.9	175.1	175.5	175.5
47.5°	168.0	167.2	166.7	164.5	164.1	163.6	161.8	160.5	160.5	159.2
50°	153.9	153.0	151.7	149.5	148.6	145.9	144.6	142.8	141.1	141.1
52.5°	140.6	137.5	135.7	132.2	130.9	129.6	126.0	124.7	123.4	122.1
55°	124.7	122.1	118.5	114.5	112.8	110.5	107.0	104.4	102.6	103.0
57.5°	109.2	104.8	101.3	96.0	93.7	92.4	88.9	85.3	83.6	83.6
60°	90.2	86.7	82.3	77.4	75.6	73.4	69.0	66.8	65.4	64.1
62.5°	72.1	69.4	65.4	59.2	57.9	55.7	52.6	50.0	48.6	48.6
65°	53.9	51.3	47.8	43.3	41.6	39.8	37.1	34.5	33.2	32.7
67.5°	38.0	34.9	31.8	28.3	27.0	26.1	23.4	21.7	20.8	20.3
70°	23.0	21.2	19.0	16.4	15.0	14.1	12.4	11.1	10.6	10.2
72.5°	11.9	10.6	8.8	7.1	6.2	5.3	4.4	3.5	3.1	3.1
75°	4.4	3.5	2.2	1.3	0.9	0.9	0.9	0.9	0.9	0.9
77.5°	0.9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)