

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 FEU4C059027 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 FEU4C059027 F4LC-CSSQ-MW
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

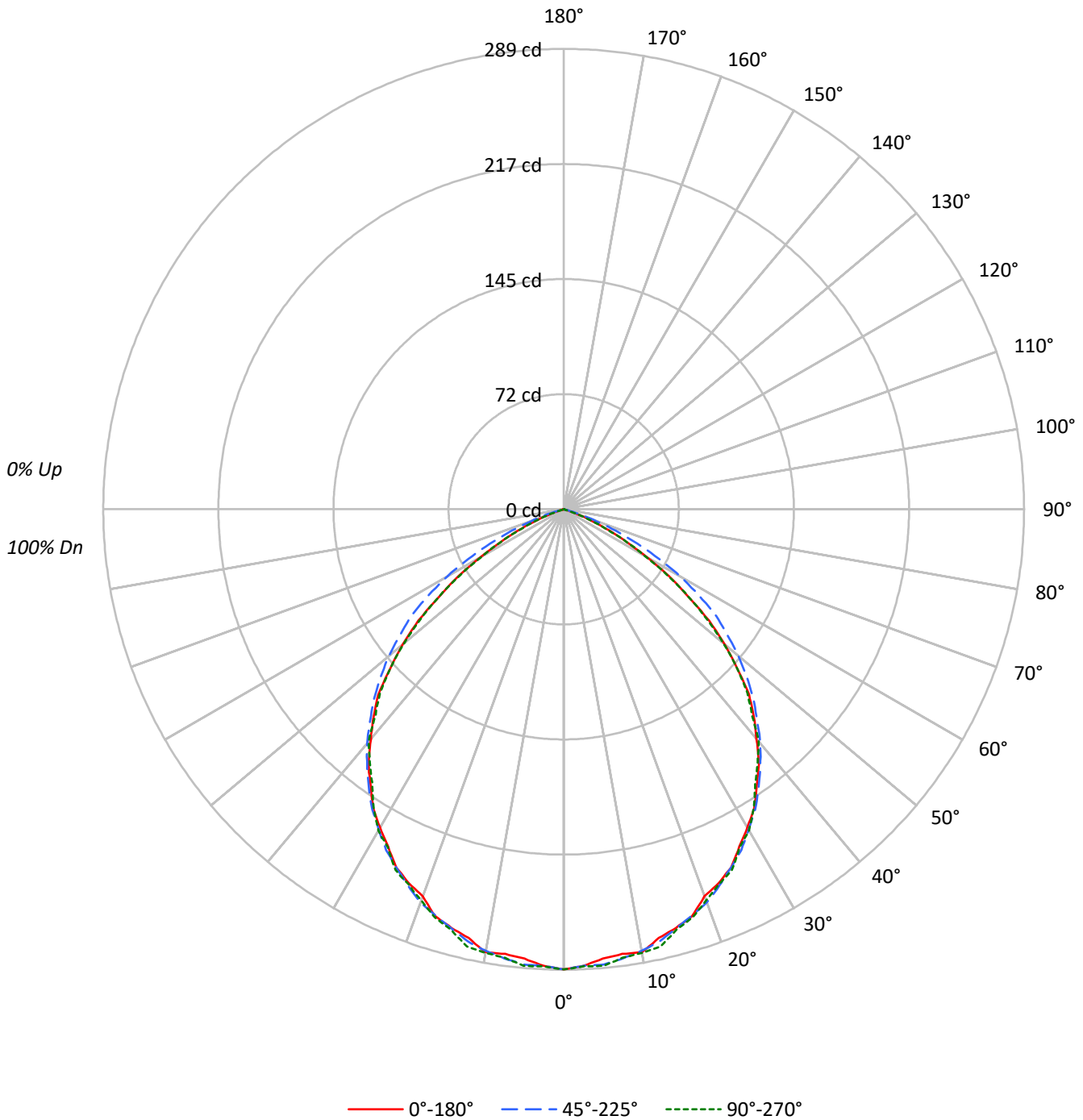
Lumens per Lamp: N/A
 Luminaire Lumens: 617.0 lumens
 Efficiency: N/A
 Efficacy: 85.7 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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



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CATALOG NUMBER: FLDSQ4C05D010 FEU4C059027 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	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	34
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°	27866	27866	27866
5°	27420	27779	27856
10°	27659	27581	27698
15°	27171	27211	27291
20°	26543	26964	26841
25°	26424	26424	26605
30°	25692	25871	25915
35°	24889	25125	24689
40°	23718	24184	23982
45°	22447	22952	22229
50°	19769	21496	19649
55°	16015	19665	16082
60°	11714	16307	11482
65°	7123	11621	6941
70°	2765	6263	2652
75°	298	1678	298
80°	222	222	222
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	27.3	4.4
10°-20°	77.2	12.5
20°-30°	114.5	18.6
30°-40°	132.6	21.5
40°-50°	127.2	20.6
50°-60°	93.5	15.2
60°-70°	40.4	6.5
70°-80°	4.4	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°	218.9	35.5
0°-40°	351.5	57.0
0°-60°	572.2	92.7
0°-90°	617.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	617.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	289	289	289	289	289	
5°	283	286	287	287	288	27
15°	272	274	272	273	273	77
25°	248	248	248	249	250	114
35°	211	212	213	213	210	132
45°	164	165	168	166	163	125
55°	95	105	117	105	96	86
65°	31	39	51	39	30	32
75°	1	1	4	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°	288.8	288.8	288.8	288.8	288.8	288.8	288.8	288.8	288.8	288.8	288.8
2.5°	286.8	290.1	290.5	288.4	287.6	286.4	289.2	287.2	288.0	287.2	286.8
5°	283.1	286.8	287.2	287.2	286.4	286.0	287.2	286.8	286.4	285.6	286.8
7.5°	281.5	283.5	285.6	283.1	284.3	283.9	286.8	285.6	285.1	285.1	284.3
10°	282.3	281.9	283.5	281.0	281.9	281.0	283.5	283.5	282.7	281.9	281.5
12.5°	275.7	279.0	279.0	278.6	277.8	276.5	279.0	280.6	278.2	278.2	277.8
15°	272.0	272.8	273.2	273.2	272.8	273.7	274.9	273.2	273.7	271.6	272.4
17.5°	267.9	266.3	267.5	266.7	267.1	267.9	269.6	269.6	267.1	266.7	267.5
20°	258.5	263.4	263.8	261.4	261.8	261.8	264.6	262.2	263.8	261.8	262.6
22.5°	254.0	257.2	257.7	254.4	256.4	254.0	256.8	253.1	257.2	254.4	255.6
25°	248.2	247.8	249.0	247.4	247.8	247.8	249.9	248.2	249.4	247.8	248.2
27.5°	238.8	242.1	241.6	240.0	240.8	240.4	244.5	240.0	242.5	240.4	241.2
30°	230.6	233.4	232.6	231.0	231.0	229.7	234.3	233.0	232.6	232.6	232.2
32.5°	222.4	222.8	222.0	222.4	222.8	221.1	224.8	223.2	222.8	223.2	223.6
35°	211.3	211.3	212.1	210.9	212.5	212.5	215.8	213.7	213.3	212.1	213.3
37.5°	201.4	200.2	200.6	200.6	201.4	202.3	203.9	203.1	203.1	201.9	202.7
40°	188.3	187.5	188.7	188.7	190.0	190.0	191.6	190.8	192.0	192.0	192.0
42.5°	176.8	176.8	176.0	177.2	177.7	177.2	180.1	179.7	180.1	179.3	179.7
45°	164.5	164.5	163.7	163.3	165.3	164.9	168.2	167.0	168.6	167.8	168.2
47.5°	147.7	149.7	148.5	149.7	152.2	152.6	154.7	153.9	155.5	154.3	155.9
50°	131.7	131.7	132.9	134.6	137.0	137.4	139.9	141.5	142.4	142.8	143.2
52.5°	114.9	114.5	115.7	117.7	119.8	121.4	123.9	126.4	128.0	130.5	129.2
55°	95.2	96.0	97.2	99.7	103.0	105.0	107.1	110.4	113.2	114.5	116.9
57.5°	78.4	77.5	78.4	81.6	85.3	87.0	89.9	93.1	97.2	99.7	100.5
60°	60.7	61.1	62.0	64.8	67.7	70.2	71.4	76.7	80.4	82.9	84.5
62.5°	44.7	45.5	46.4	48.8	51.7	53.7	55.8	60.3	63.6	66.1	67.7
65°	31.2	31.6	32.8	34.0	36.9	39.0	40.6	44.3	47.6	49.6	50.9
67.5°	19.3	19.7	20.5	22.2	24.2	25.8	27.5	29.9	32.8	34.9	35.3
70°	9.8	10.3	10.7	11.9	13.5	14.4	15.6	17.6	19.7	21.3	22.2
72.5°	3.3	3.3	3.7	4.5	5.3	6.2	6.6	8.6	10.3	11.1	11.5
75°	0.8	0.8	0.8	0.8	0.8	1.2	1.2	2.5	3.3	4.1	4.5
77.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	0.8
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°	288.8	288.8	288.8	288.8	288.8	288.8	288.8	288.8	288.8	288.8
2.5°	288.8	288.0	287.6	288.0	288.0	287.6	288.8	290.5	292.5	287.2
5°	288.4	287.6	288.4	286.0	287.2	286.4	288.0	287.6	289.2	287.6
7.5°	287.2	285.6	286.0	284.7	286.4	284.3	285.6	288.0	286.4	283.9
10°	283.1	282.3	285.1	281.0	280.2	281.9	285.1	282.7	281.9	282.7
12.5°	279.0	279.0	280.2	276.9	277.3	278.2	279.8	278.2	279.0	281.0
15°	274.5	273.7	275.7	273.2	272.8	272.0	273.7	273.7	274.5	273.2
17.5°	269.1	267.9	267.9	267.1	266.7	268.7	269.6	270.0	270.4	268.7
20°	262.6	262.2	263.4	262.2	262.6	263.0	263.0	262.2	265.9	261.4
22.5°	255.6	256.8	255.2	254.4	255.2	256.0	256.0	256.4	255.6	254.8
25°	248.6	249.4	249.9	247.4	248.6	247.4	250.3	250.7	249.0	249.9
27.5°	242.5	241.2	240.8	239.2	240.0	239.6	240.0	240.0	242.5	239.2
30°	233.0	231.8	232.2	231.0	231.4	231.0	231.4	231.4	233.0	232.6
32.5°	224.0	222.8	223.2	222.0	222.0	222.4	221.5	221.5	222.8	222.0
35°	215.4	212.5	212.9	212.5	212.9	211.3	211.3	210.9	211.7	209.6
37.5°	203.1	201.9	201.4	201.0	201.4	200.6	201.4	200.2	201.4	199.8
40°	192.0	191.2	191.6	189.1	189.1	189.5	188.7	188.3	188.7	190.4
42.5°	180.9	179.3	178.5	177.7	178.1	176.8	176.4	175.6	176.4	174.8
45°	167.8	167.8	167.4	165.3	165.8	165.8	164.1	162.5	162.9	162.9
47.5°	155.9	155.1	154.7	152.6	152.2	151.8	150.2	148.9	148.9	147.7
50°	142.8	141.9	140.7	138.7	137.8	135.4	134.2	132.5	130.9	130.9
52.5°	130.5	127.6	125.9	122.7	121.4	120.2	116.9	115.7	114.5	113.2
55°	115.7	113.2	110.0	106.3	104.6	102.6	99.3	96.8	95.2	95.6
57.5°	101.3	97.2	94.0	89.0	87.0	85.7	82.5	79.2	77.5	77.5
60°	83.7	80.4	76.3	71.8	70.2	68.1	64.0	62.0	60.7	59.5
62.5°	66.9	64.4	60.7	55.0	53.7	51.7	48.8	46.4	45.1	45.1
65°	50.1	47.6	44.3	40.2	38.6	36.9	34.5	32.0	30.8	30.4
67.5°	35.3	32.4	29.5	26.3	25.0	24.2	21.7	20.1	19.3	18.9
70°	21.3	19.7	17.6	15.2	13.9	13.1	11.5	10.3	9.8	9.4
72.5°	11.1	9.8	8.2	6.6	5.7	4.9	4.1	3.3	2.9	2.9
75°	4.1	3.3	2.1	1.2	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.8	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)