

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: P563850

Luminaire Tested: **FLDSQ4C05D010 FEU4C059030 F4LC-CSSQ-MW-D2W**

Issue Date: 12/13/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P563850
 Test Lab: INNOVATION CENTER
 Issue Date: 12/13/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: FAIL-SAFE
 Catalog Number: FLDSQ4C05D010 FEU4C059030 F4LC-CSSQ-MW-D2W
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH, DIM TO WARM
 Light Source: -
 Ballast/Driver: -

Summary

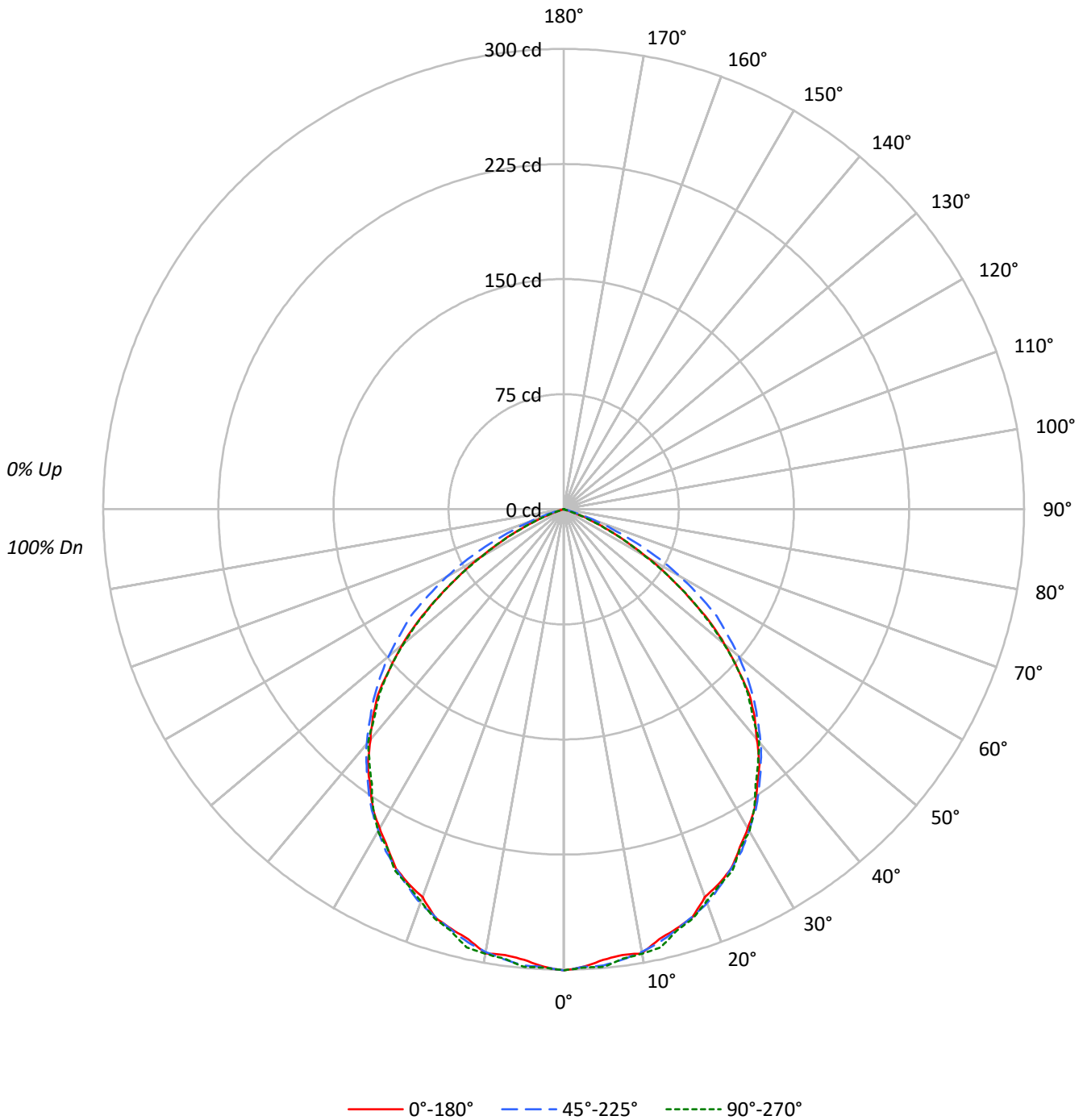
Lumens per Lamp: N/A
 Luminaire Lumens: 642.0 lumens
 Efficiency: N/A
 Efficacy: 89.2 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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: P563850

CATALOG NUMBER: FLDSQ4C05D010 FEU4C059030 F4LC-CSSQ-MW-D2W

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	33				33
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°	28995	28995	28995
5°	28534	28902	28989
10°	28776	28698	28815
15°	28270	28320	28399
20°	27611	28053	27919
25°	27500	27500	27681
30°	26729	26918	26974
35°	25891	26150	25690
40°	24675	25166	24952
45°	23361	23880	23129
50°	20565	22366	20445
55°	16654	20473	16738
60°	12196	16963	11945
65°	7397	12078	7215
70°	2878	6517	2765
75°	336	1752	336
80°	222	222	222
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	28.4	4.4
10°-20°	80.3	12.5
20°-30°	119.1	18.6
30°-40°	138.0	21.5
40°-50°	132.3	20.6
50°-60°	97.3	15.2
60°-70°	42.0	6.5
70°-80°	4.5	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°	227.8	35.5
0°-40°	365.8	57.0
0°-60°	595.4	92.7
0°-90°	642.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	642.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	300	300	300	300	300	
5°	295	298	298	299	299	28
15°	283	285	284	284	284	80
25°	258	258	258	259	260	118
35°	220	221	222	222	218	137
45°	171	172	175	172	170	130
55°	99	109	122	109	100	89
65°	32	40	53	40	32	33
75°	1	1	5	1	1	3
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P563850
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	300.5	300.5	300.5	300.5	300.5	300.5	300.5	300.5	300.5	300.5	300.5
2.5°	298.4	301.8	302.2	300.1	299.3	298.0	301.0	298.8	299.7	298.8	298.4
5°	294.6	298.4	298.8	298.8	298.0	297.5	298.8	298.4	298.0	297.1	298.4
7.5°	292.9	295.0	297.1	294.6	295.8	295.4	298.4	297.1	296.7	296.7	295.8
10°	293.7	293.3	295.0	292.4	293.3	292.4	295.0	295.0	294.1	293.3	292.9
12.5°	286.9	290.3	290.3	289.9	289.0	287.7	290.3	292.0	289.4	289.4	289.0
15°	283.0	283.9	284.3	284.3	283.9	284.7	286.0	284.3	284.7	282.6	283.5
17.5°	278.8	277.1	278.3	277.5	277.9	278.8	280.5	280.5	277.9	277.5	278.3
20°	268.9	274.1	274.5	271.9	272.4	272.4	275.4	272.8	274.5	272.4	273.2
22.5°	264.2	267.7	268.1	264.7	266.8	264.2	267.2	263.4	267.7	264.7	265.9
25°	258.3	257.8	259.1	257.4	257.8	257.8	260.0	258.3	259.6	257.8	258.3
27.5°	248.5	251.9	251.4	249.7	250.6	250.2	254.4	249.7	252.3	250.2	251.0
30°	239.9	242.9	242.1	240.3	240.3	239.1	243.8	242.5	242.1	242.1	241.6
32.5°	231.4	231.8	231.0	231.4	231.8	230.1	233.9	232.2	231.8	232.2	232.7
35°	219.8	219.8	220.7	219.4	221.1	221.1	224.5	222.4	222.0	220.7	222.0
37.5°	209.6	208.3	208.7	208.7	209.6	210.5	212.2	211.3	211.3	210.0	210.9
40°	195.9	195.1	196.4	196.4	197.7	197.7	199.4	198.5	199.8	199.8	199.8
42.5°	184.0	184.0	183.1	184.4	184.9	184.4	187.4	187.0	187.4	186.6	187.0
45°	171.2	171.2	170.3	169.9	172.0	171.6	175.0	173.7	175.4	174.6	175.0
47.5°	153.7	155.8	154.5	155.8	158.4	158.8	160.9	160.1	161.8	160.5	162.2
50°	137.0	137.0	138.3	140.0	142.6	143.0	145.6	147.3	148.1	148.6	149.0
52.5°	119.5	119.1	120.4	122.5	124.7	126.4	128.9	131.5	133.2	135.8	134.5
55°	99.0	99.9	101.2	103.7	107.2	109.3	111.4	114.8	117.8	119.1	121.7
57.5°	81.5	80.7	81.5	84.9	88.8	90.5	93.5	96.9	101.2	103.7	104.6
60°	63.2	63.6	64.5	67.5	70.4	73.0	74.3	79.8	83.7	86.2	87.9
62.5°	46.5	47.4	48.2	50.8	53.8	55.9	58.1	62.8	66.2	68.7	70.4
65°	32.4	32.9	34.2	35.4	38.4	40.5	42.3	46.1	49.5	51.7	52.9
67.5°	20.1	20.5	21.3	23.1	25.2	26.9	28.6	31.2	34.2	36.3	36.7
70°	10.2	10.7	11.1	12.4	14.1	14.9	16.2	18.4	20.5	22.2	23.1
72.5°	3.4	3.4	3.8	4.7	5.6	6.4	6.8	9.0	10.7	11.5	11.9
75°	0.9	0.9	0.9	0.9	0.9	1.3	1.3	2.6	3.4	4.3	4.7
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°	300.5	300.5	300.5	300.5	300.5	300.5	300.5	300.5	300.5	300.5
2.5°	300.5	299.7	299.3	299.7	299.7	299.3	300.5	302.2	304.4	298.8
5°	300.1	299.3	300.1	297.5	298.8	298.0	299.7	299.3	301.0	299.3
7.5°	298.8	297.1	297.5	296.3	298.0	295.8	297.1	299.7	298.0	295.4
10°	294.6	293.7	296.7	292.4	291.6	293.3	296.7	294.1	293.3	294.1
12.5°	290.3	290.3	291.6	288.2	288.6	289.4	291.1	289.4	290.3	292.4
15°	285.6	284.7	286.9	284.3	283.9	283.0	284.7	284.7	285.6	284.3
17.5°	280.0	278.8	278.8	277.9	277.5	279.6	280.5	280.9	281.3	279.6
20°	273.2	272.8	274.1	272.8	273.2	273.6	273.6	272.8	276.6	271.9
22.5°	265.9	267.2	265.5	264.7	265.5	266.4	266.4	266.8	265.9	265.1
25°	258.7	259.6	260.0	257.4	258.7	257.4	260.4	260.8	259.1	260.0
27.5°	252.3	251.0	250.6	248.9	249.7	249.3	249.7	249.7	252.3	248.9
30°	242.5	241.2	241.6	240.3	240.8	240.3	240.8	240.8	242.5	242.1
32.5°	233.1	231.8	232.2	231.0	231.0	231.4	230.5	230.5	231.8	231.0
35°	224.1	221.1	221.6	221.1	221.6	219.8	219.8	219.4	220.3	218.1
37.5°	211.3	210.0	209.6	209.2	209.6	208.7	209.6	208.3	209.6	207.9
40°	199.8	198.9	199.4	196.8	196.8	197.2	196.4	195.9	196.4	198.1
42.5°	188.3	186.6	185.7	184.9	185.3	184.0	183.6	182.7	183.6	181.9
45°	174.6	174.6	174.2	172.0	172.5	172.5	170.8	169.1	169.5	169.5
47.5°	162.2	161.4	160.9	158.8	158.4	158.0	156.2	155.0	155.0	153.7
50°	148.6	147.7	146.4	144.3	143.4	140.9	139.6	137.9	136.2	136.2
52.5°	135.8	132.8	131.1	127.6	126.4	125.1	121.7	120.4	119.1	117.8
55°	120.4	117.8	114.4	110.6	108.9	106.7	103.3	100.7	99.0	99.5
57.5°	105.4	101.2	97.8	92.6	90.5	89.2	85.8	82.4	80.7	80.7
60°	87.1	83.7	79.4	74.7	73.0	70.9	66.6	64.5	63.2	61.9
62.5°	69.6	67.0	63.2	57.2	55.9	53.8	50.8	48.2	47.0	47.0
65°	52.1	49.5	46.1	41.8	40.1	38.4	35.9	33.3	32.0	31.6
67.5°	36.7	33.7	30.7	27.3	26.0	25.2	22.6	20.9	20.1	19.6
70°	22.2	20.5	18.4	15.8	14.5	13.7	11.9	10.7	10.2	9.8
72.5°	11.5	10.2	8.5	6.8	6.0	5.1	4.3	3.4	3.0	3.0
75°	4.3	3.4	2.1	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)