

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 FEU4C089050 F4LC-CSSQ-MMS**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

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 FEU4C089050 F4LC-CSSQ-MMS
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

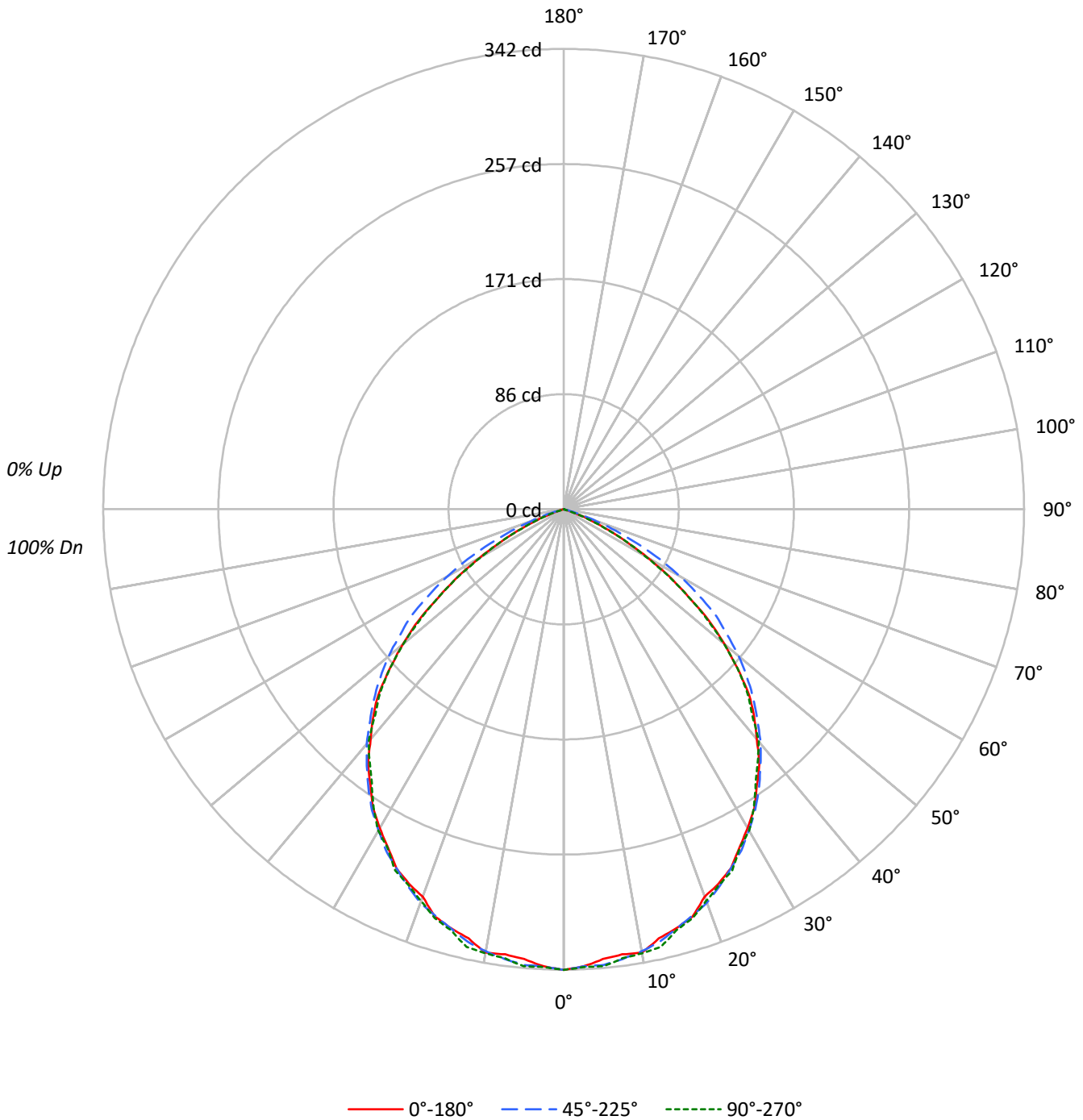
Lumens per Lamp: N/A
 Luminaire Lumens: 731.0 lumens
 Efficiency: N/A
 Efficacy: 74.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.87
 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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C08D010 FEU4C089050 F4LC-CSSQ-MMS

Luminous Intensity Polar Plot



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089050 F4LC-CSSQ-MMS

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	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	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	100	100	100	100	100	100	100	100	100	100																
	1	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89	89	89	89	89	89	89	89	89	89	89	89																
	2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77	77	77	77	77	77	77	77	77	77	77	77																
	3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67	67	67	67	67	67	67	67	67	67	67	67	67															
	4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59	59	59	59	59	59	59	59	59	59	59	59																
	5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	52	52	52	52	52	52	52	52	52	52	52	52	52															
	6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46	46	46	46	46	46	46	46	46	46	46	46	46															
	7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41	41	41	41	41	41	41	41	41	41	41	41	41															
	8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37	37	37	37	37	37	37	37	37	37	37	37	37															
	9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33	33	33	33	33	33	33	33	33	33	33	33	33															
	10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	31	31	31	31	31	31	31	31	31	31	31	31	31															

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	33018	33018	33018
5°	32486	32912	32999
10°	32764	32675	32813
15°	32195	32235	32335
20°	31441	31944	31790
25°	31311	31311	31513
30°	30439	30650	30706
35°	29483	29778	29259
40°	28101	28655	28403
45°	26595	27196	26336
50°	23417	25459	23282
55°	18976	23299	19060
60°	13875	19317	13605
65°	8425	13767	8219
70°	3301	7420	3160
75°	373	2013	373
80°	278	278	278
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089050 F4LC-CSSQ-MMS

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	32.3	4.4
10°-20°	91.4	12.5
20°-30°	135.6	18.6
30°-40°	157.1	21.5
40°-50°	150.7	20.6
50°-60°	110.8	15.2
60°-70°	47.8	6.5
70°-80°	5.2	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°	259.3	35.5
0°-40°	416.5	57.0
0°-60°	677.9	92.7
0°-90°	731.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	731.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	342	342	342	342	342	
5°	335	339	340	340	341	32
15°	322	324	323	323	324	91
25°	294	294	294	295	296	135
35°	250	252	253	252	248	157
45°	195	195	199	196	193	148
55°	113	124	138	124	113	101
65°	37	46	60	46	36	38
75°	1	2	5	1	1	3
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089050 F4LC-CSSQ-MMS

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2
2.5°	339.8	343.7	344.1	341.7	340.7	339.3	342.7	340.3	341.2	340.3	339.8
5°	335.4	339.8	340.3	340.3	339.3	338.8	340.3	339.8	339.3	338.3	339.8
7.5°	333.5	335.9	338.3	335.4	336.8	336.4	339.8	338.3	337.8	337.8	336.8
10°	334.4	333.9	335.9	333.0	333.9	333.0	335.9	335.9	334.9	333.9	333.5
12.5°	326.6	330.5	330.5	330.0	329.1	327.6	330.5	332.5	329.6	329.6	329.1
15°	322.3	323.2	323.7	323.7	323.2	324.2	325.7	323.7	324.2	321.8	322.7
17.5°	317.4	315.5	316.9	315.9	316.4	317.4	319.4	319.4	316.4	315.9	316.9
20°	306.2	312.1	312.6	309.6	310.1	310.1	313.5	310.6	312.6	310.1	311.1
22.5°	300.9	304.8	305.3	301.4	303.8	300.9	304.3	299.9	304.8	301.4	302.8
25°	294.1	293.6	295.0	293.1	293.6	293.6	296.0	294.1	295.5	293.6	294.1
27.5°	282.9	286.8	286.3	284.4	285.3	284.8	289.7	284.4	287.3	284.8	285.8
30°	273.2	276.6	275.6	273.7	273.7	272.2	277.6	276.1	275.6	275.6	275.1
32.5°	263.5	263.9	263.0	263.5	263.9	262.0	266.4	264.4	263.9	264.4	264.9
35°	250.3	250.3	251.3	249.8	251.8	251.8	255.7	253.2	252.8	251.3	252.8
37.5°	238.7	237.2	237.7	237.7	238.7	239.6	241.6	240.6	240.6	239.2	240.1
40°	223.1	222.1	223.6	223.6	225.1	225.1	227.0	226.0	227.5	227.5	227.5
42.5°	209.5	209.5	208.5	210.0	210.5	210.0	213.4	212.9	213.4	212.4	212.9
45°	194.9	194.9	193.9	193.5	195.9	195.4	199.3	197.8	199.8	198.8	199.3
47.5°	175.0	177.4	176.0	177.4	180.3	180.8	183.2	182.3	184.2	182.8	184.7
50°	156.0	156.0	157.5	159.4	162.3	162.8	165.8	167.7	168.7	169.1	169.6
52.5°	136.1	135.6	137.1	139.5	141.9	143.9	146.8	149.7	151.7	154.6	153.1
55°	112.8	113.7	115.2	118.1	122.0	124.4	126.9	130.8	134.2	135.6	138.5
57.5°	92.8	91.9	92.8	96.7	101.1	103.0	106.5	110.3	115.2	118.1	119.1
60°	71.9	72.4	73.4	76.8	80.2	83.1	84.6	90.9	95.3	98.2	100.1
62.5°	53.0	54.0	54.9	57.9	61.2	63.7	66.1	71.5	75.3	78.3	80.2
65°	36.9	37.4	38.9	40.3	43.7	46.2	48.1	52.5	56.4	58.8	60.3
67.5°	22.8	23.3	24.3	26.3	28.7	30.6	32.6	35.5	38.9	41.3	41.8
70°	11.7	12.2	12.6	14.1	16.0	17.0	18.5	20.9	23.3	25.3	26.3
72.5°	3.9	3.9	4.4	5.4	6.3	7.3	7.8	10.2	12.2	13.1	13.6
75°	1.0	1.0	1.0	1.0	1.0	1.5	1.5	2.9	3.9	4.9	5.4
77.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0
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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089050 F4LC-CSSQ-MMS

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2
2.5°	342.2	341.2	340.7	341.2	341.2	340.7	342.2	344.1	346.6	340.3
5°	341.7	340.7	341.7	338.8	340.3	339.3	341.2	340.7	342.7	340.7
7.5°	340.3	338.3	338.8	337.3	339.3	336.8	338.3	341.2	339.3	336.4
10°	335.4	334.4	337.8	333.0	332.0	333.9	337.8	334.9	333.9	334.9
12.5°	330.5	330.5	332.0	328.1	328.6	329.6	331.5	329.6	330.5	333.0
15°	325.2	324.2	326.6	323.7	323.2	322.3	324.2	324.2	325.2	323.7
17.5°	318.9	317.4	317.4	316.4	315.9	318.4	319.4	319.8	320.3	318.4
20°	311.1	310.6	312.1	310.6	311.1	311.6	311.6	310.6	315.0	309.6
22.5°	302.8	304.3	302.3	301.4	302.3	303.3	303.3	303.8	302.8	301.8
25°	294.6	295.5	296.0	293.1	294.6	293.1	296.5	297.0	295.0	296.0
27.5°	287.3	285.8	285.3	283.4	284.4	283.9	284.4	284.4	287.3	283.4
30°	276.1	274.6	275.1	273.7	274.1	273.7	274.1	274.1	276.1	275.6
32.5°	265.4	263.9	264.4	263.0	263.0	263.5	262.5	262.5	263.9	263.0
35°	255.2	251.8	252.3	251.8	252.3	250.3	250.3	249.8	250.8	248.4
37.5°	240.6	239.2	238.7	238.2	238.7	237.7	238.7	237.2	238.7	236.7
40°	227.5	226.5	227.0	224.1	224.1	224.6	223.6	223.1	223.6	225.5
42.5°	214.4	212.4	211.5	210.5	211.0	209.5	209.0	208.0	209.0	207.1
45°	198.8	198.8	198.3	195.9	196.4	196.4	194.4	192.5	193.0	193.0
47.5°	184.7	183.7	183.2	180.8	180.3	179.9	177.9	176.4	176.4	175.0
50°	169.1	168.2	166.7	164.3	163.3	160.4	159.0	157.0	155.1	155.1
52.5°	154.6	151.2	149.2	145.3	143.9	142.4	138.5	137.1	135.6	134.2
55°	137.1	134.2	130.3	125.9	124.0	121.5	117.6	114.7	112.8	113.3
57.5°	120.1	115.2	111.3	105.5	103.0	101.6	97.7	93.8	91.9	91.9
60°	99.2	95.3	90.4	85.1	83.1	80.7	75.8	73.4	71.9	70.5
62.5°	79.2	76.3	71.9	65.1	63.7	61.2	57.9	54.9	53.5	53.5
65°	59.3	56.4	52.5	47.6	45.7	43.7	40.8	37.9	36.5	36.0
67.5°	41.8	38.4	35.0	31.1	29.6	28.7	25.8	23.8	22.8	22.4
70°	25.3	23.3	20.9	18.0	16.5	15.5	13.6	12.2	11.7	11.2
72.5°	13.1	11.7	9.7	7.8	6.8	5.8	4.9	3.9	3.4	3.4
75°	4.9	3.9	2.4	1.5	1.0	1.0	1.0	1.0	1.0	1.0
77.5°	1.0	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)