

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-SQ-LI**

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

Summary

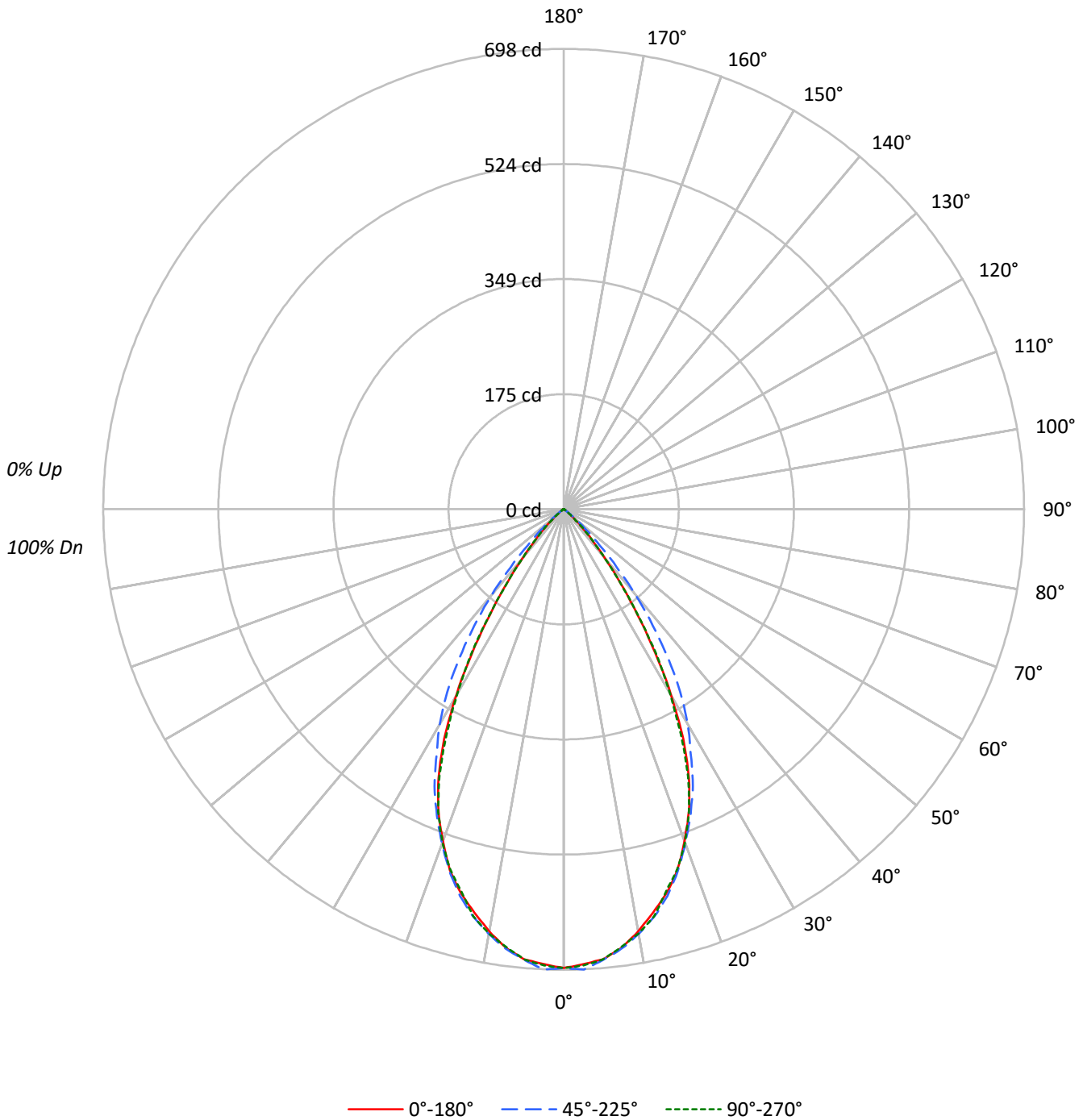
Lumens per Lamp: N/A
 Luminaire Lumens: 642.1 lumens
 Efficiency: N/A
 Efficacy: 89.2 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C05D010 FEU4C059050 F4LC-SQ-LI

Luminous Intensity Polar Plot



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C05D010 FEU4C059050 F4LC-SQ-LI

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	113	111	108	106	111	108	106	104	104	103	101		101	99	98		97	96	95	93
2	108	103	99	95	105	101	97	94	98	95	92		95	92	90		92	90	88	87
3	102	96	91	87	100	94	90	86	92	88	84		89	86	83		87	84	82	80
4	97	89	84	79	95	88	83	79	86	81	78		84	80	77		82	79	76	75
5	92	83	77	73	90	82	77	73	81	76	72		79	75	71		77	74	71	69
6	87	78	72	68	86	77	71	67	76	71	67		74	70	66		73	69	66	64
7	83	73	67	63	81	73	67	63	71	66	62		70	65	62		69	65	62	60
8	79	69	63	59	77	68	62	58	67	62	58		66	61	58		65	61	58	56
9	75	65	59	55	74	64	59	55	63	58	55		63	58	54		62	57	54	53
10	71	61	55	51	70	61	55	51	60	55	51		59	54	51		58	54	51	50

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	67098	67098	67098
5°	66328	66415	66328
10°	63676	64067	63979
15°	60195	60635	59886
20°	54935	55345	55212
25°	47834	49335	47504
30°	36377	41837	35831
35°	22899	32522	23111
40°	12356	21476	12130
45°	5854	10616	5786
50°	2192	3978	2192
55°	1043	1262	976
60°	675	598	675
65°	411	411	411
70°	254	367	254
75°	186	186	186
80°	278	278	278
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C05D010 FEU4C059050 F4LC-SQ-LI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	64.5	10.0
10°-20°	169.0	26.3
20°-30°	206.4	32.1
30°-40°	144.4	22.5
40°-50°	47.3	7.4
50°-60°	7.5	1.2
60°-70°	2.1	0.3
70°-80°	0.7	0.1
80°-90°	0.2	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°	439.9	68.5
0°-40°	584.2	91.0
0°-60°	639.1	99.5
0°-90°	642.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	642.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	695	695	695	695	695	
5°	685	685	686	681	685	64
15°	603	605	607	603	600	168
25°	449	456	463	455	446	202
35°	194	230	276	226	196	124
45°	43	53	78	52	42	36
55°	6	7	8	7	6	6
65°	2	2	2	2	2	2
75°	0	0	0	0	0	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C05D010 FEU4C059050 F4LC-SQ-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	695.4	695.4	695.4	695.4	695.4	695.4	695.4	695.4	695.4	695.4	695.4
2.5°	690.1	695.0	693.6	696.7	696.7	693.2	694.1	695.4	697.2	698.5	687.9
5°	684.8	689.2	685.2	689.6	687.0	683.0	689.6	686.1	688.3	685.7	687.4
7.5°	670.7	677.7	669.8	675.1	673.3	671.1	673.7	672.9	674.2	672.0	667.1
10°	649.9	655.6	650.3	657.8	654.3	652.1	654.3	656.5	656.1	653.9	656.5
12.5°	626.0	632.6	630.0	634.4	630.4	630.4	635.7	634.4	634.9	633.1	636.2
15°	602.6	607.5	603.5	609.2	607.5	602.6	604.8	604.8	608.4	607.0	603.5
17.5°	573.5	577.4	573.0	574.3	572.6	571.7	581.0	574.8	578.3	575.7	576.1
20°	535.0	536.8	535.5	539.0	536.8	539.4	538.6	537.7	537.7	539.0	535.9
22.5°	496.1	496.1	497.5	498.3	500.1	497.5	502.8	498.3	498.8	501.9	501.0
25°	449.3	448.0	451.1	455.5	457.3	455.0	462.1	458.6	461.2	463.4	458.6
27.5°	392.3	392.3	395.4	402.9	404.2	406.9	416.6	416.6	420.1	417.1	420.6
30°	326.5	331.3	335.3	345.0	348.1	353.9	364.0	368.9	376.9	375.5	373.8
32.5°	258.9	265.5	266.0	276.1	284.5	294.2	307.9	319.4	325.2	329.1	324.7
35°	194.4	198.4	201.9	209.0	223.1	235.9	248.3	263.3	273.5	276.1	272.1
37.5°	142.3	143.1	146.7	153.3	163.9	176.3	191.3	207.6	218.3	222.2	217.8
40°	98.1	99.0	100.7	106.5	115.3	124.1	136.1	152.9	162.6	170.5	164.8
42.5°	65.8	66.7	68.5	72.9	77.8	86.1	95.4	106.0	115.3	118.8	115.7
45°	42.9	42.9	43.7	46.8	49.5	56.1	62.7	69.4	75.5	77.8	75.5
47.5°	25.2	25.6	26.5	28.7	31.8	34.5	39.3	43.7	45.5	47.3	46.4
50°	14.6	14.6	15.9	17.2	19.4	21.2	23.0	24.7	25.6	26.5	25.6
52.5°	8.0	8.4	8.8	9.3	10.2	11.9	13.3	13.3	13.7	14.1	13.7
55°	6.2	6.2	6.2	6.2	6.6	6.6	6.6	7.1	7.1	7.5	7.1
57.5°	4.4	4.4	4.4	4.9	4.9	4.9	4.4	4.4	4.4	4.4	4.4
60°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.1	3.1	3.1	3.1
62.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
65°	1.8	1.8	2.2	2.2	2.2	2.2	2.2	1.8	1.8	1.8	1.8
67.5°	1.3	1.3	1.3	1.3	1.8	1.8	1.3	1.3	1.3	1.3	1.3
70°	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
75°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	0.5	0.5	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	0.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	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°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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: FLDSQ4C05D010 FEU4C059050 F4LC-SQ-LI

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	695.4	695.4	695.4	695.4	695.4	695.4	695.4	695.4
2.5°	695.4	687.9	688.8	692.7	690.5	692.7	692.3	692.3
5°	687.9	685.7	682.1	680.8	683.5	689.2	688.3	684.8
7.5°	673.7	668.0	672.0	673.7	671.5	675.1	676.8	669.3
10°	656.9	654.7	653.9	654.7	653.9	657.4	653.0	653.0
12.5°	633.1	629.6	629.6	634.9	631.8	629.1	632.6	632.2
15°	609.2	602.2	602.2	603.9	605.3	603.5	603.9	599.5
17.5°	573.9	571.7	568.6	573.5	574.8	573.0	574.3	572.1
20°	540.8	540.8	535.0	537.2	539.0	540.3	541.2	537.7
22.5°	498.3	499.2	495.2	499.7	501.0	496.6	497.5	496.6
25°	459.5	459.0	455.9	454.2	455.0	453.3	452.8	446.2
27.5°	416.6	412.2	405.6	407.3	399.8	393.6	393.6	383.5
30°	370.2	362.7	353.9	345.0	338.4	331.3	327.4	321.6
32.5°	315.9	305.7	294.7	282.7	275.2	264.6	258.9	262.0
35°	262.0	247.0	231.9	220.0	208.5	202.3	195.3	196.2
37.5°	209.9	188.7	175.4	162.6	152.9	144.9	141.8	140.9
40°	153.3	136.5	123.3	114.0	107.4	101.2	97.6	96.3
42.5°	106.0	94.1	83.5	76.0	71.6	67.6	65.8	65.4
45°	68.9	61.9	54.8	49.5	46.0	43.3	42.9	42.4
47.5°	43.3	39.8	35.3	31.4	28.3	26.5	25.2	25.2
50°	24.7	23.4	21.2	19.0	17.2	16.4	15.0	14.6
52.5°	13.3	13.3	12.4	10.6	9.3	8.4	8.4	8.0
55°	7.1	7.1	6.6	6.6	6.2	6.2	6.2	5.8
57.5°	4.4	4.4	4.9	4.9	4.4	4.4	4.4	4.4
60°	3.1	3.5	3.5	3.5	3.5	3.5	3.5	3.5
62.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
65°	1.8	2.2	2.2	2.2	2.2	1.8	1.8	1.8
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
70°	1.3	1.3	1.3	1.3	1.3	0.9	0.9	0.9
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
75°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	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
82.5°	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
87.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)