

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: **FLDSQ4C50D010 FEU4C509027 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: FLDSQ4C50D010 FEU4C509027 F4LC-SQ-LI
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

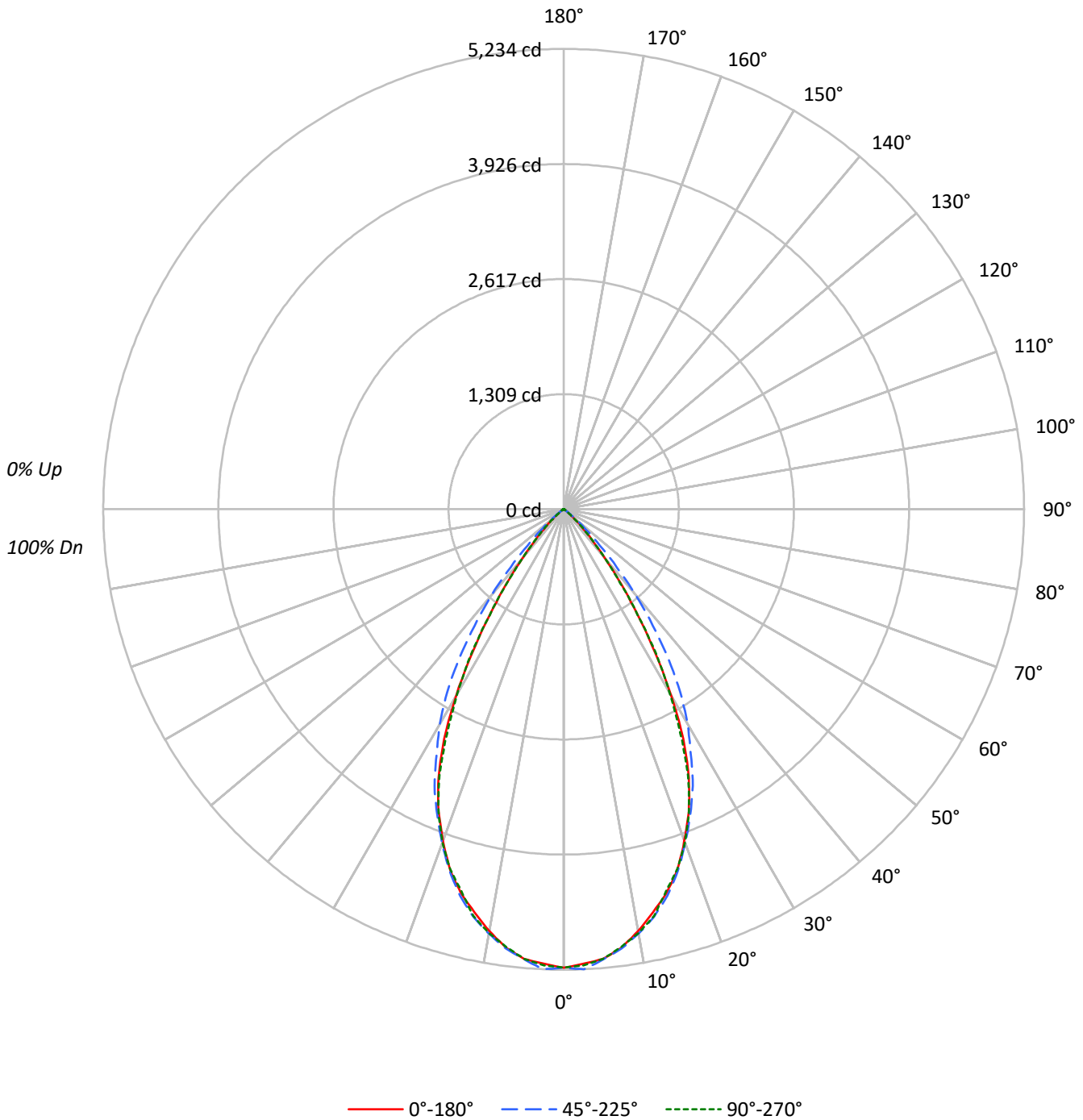
Lumens per Lamp: N/A
 Luminaire Lumens: 4811.0 lumens
 Efficiency: N/A
 Efficacy: 82.4 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 58.4
 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: FLDSQ4C50D010 FEU4C509027 F4LC-SQ-LI

Luminous Intensity Polar Plot



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C50D010 FEU4C509027 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	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	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°	502813	502813	502813
5°	497034	497673	497034
10°	477160	480079	479433
15°	451095	454402	448778
20°	411680	414730	413724
25°	358463	369748	355993
30°	272590	313535	268534
35°	171586	243734	173141
40°	92579	160961	90903
45°	43816	79513	43366
50°	16407	29812	16407
55°	7789	9471	7250
60°	5114	4477	5114
65°	3014	3014	3014
70°	1862	2821	1862
75°	1268	1268	1268
80°	1889	1889	1889
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C50D010 FEU4C509027 F4LC-SQ-LI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	483.2	10.0
10°-20°	1266.2	26.3
20°-30°	1546.8	32.2
30°-40°	1081.9	22.5
40°-50°	354.6	7.4
50°-60°	56.4	1.2
60°-70°	15.4	0.3
70°-80°	5.2	0.1
80°-90°	1.4	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°	3296.2	68.5
0°-40°	4378.1	91.0
0°-60°	4789.0	99.5
0°-90°	4811.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4811.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5211	5211	5211	5211	5211	
5°	5132	5133	5138	5107	5132	481
15°	4516	4534	4549	4519	4493	1260
25°	3367	3418	3473	3410	3344	1512
35°	1457	1720	2069	1693	1470	930
45°	321	396	583	391	318	269
55°	46	50	56	50	43	46
65°	13	17	13	17	13	15
75°	3	3	3	3	3	5
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C50D010 FEU4C509027 F4LC-SQ-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	5211.1	5211.1	5211.1	5211.1	5211.1	5211.1	5211.1	5211.1	5211.1	5211.1	5211.1
2.5°	5171.3	5207.8	5197.8	5221.1	5221.1	5194.6	5201.2	5211.1	5224.3	5234.3	5154.7
5°	5131.6	5164.7	5134.9	5168.0	5148.1	5118.4	5168.0	5141.5	5158.1	5138.2	5151.5
7.5°	5025.7	5078.7	5019.1	5058.8	5045.6	5028.9	5048.8	5042.2	5052.2	5035.6	4999.2
10°	4870.1	4913.2	4873.4	4929.6	4903.2	4886.7	4903.2	4919.8	4916.4	4899.9	4919.8
12.5°	4691.3	4740.9	4721.0	4754.1	4724.4	4724.4	4764.1	4754.1	4757.5	4744.3	4767.4
15°	4515.8	4552.3	4522.4	4565.5	4552.3	4515.8	4532.3	4532.3	4558.9	4548.9	4522.4
17.5°	4297.4	4327.1	4294.0	4304.0	4290.7	4284.1	4353.6	4307.2	4333.7	4313.8	4317.2
20°	4009.3	4022.6	4012.6	4039.0	4022.6	4042.4	4035.8	4029.2	4029.2	4039.0	4015.9
22.5°	3717.9	3717.9	3727.9	3734.5	3747.8	3727.9	3767.6	3734.5	3737.8	3761.0	3754.4
25°	3367.0	3357.0	3380.3	3413.4	3426.6	3410.0	3463.0	3436.5	3456.3	3473.0	3436.5
27.5°	2940.0	2940.0	2963.1	3019.4	3029.3	3049.1	3122.0	3122.0	3148.4	3125.3	3151.8
30°	2446.6	2483.1	2512.8	2585.6	2608.8	2651.9	2728.0	2764.5	2824.1	2814.1	2800.8
32.5°	1940.1	1989.8	1993.0	2069.2	2132.1	2204.9	2307.6	2393.6	2436.7	2466.4	2433.3
35°	1456.7	1486.5	1513.0	1566.0	1671.9	1768.0	1860.6	1973.2	2049.4	2069.2	2039.4
37.5°	1066.1	1072.7	1099.2	1148.8	1228.2	1321.0	1433.6	1556.0	1635.6	1665.3	1632.2
40°	735.0	741.6	754.8	797.9	864.1	930.3	1019.8	1145.5	1218.4	1277.9	1234.8
42.5°	493.3	499.9	513.1	546.2	582.7	645.5	715.1	794.5	864.1	890.6	867.4
45°	321.1	321.1	327.8	351.0	370.9	420.4	470.2	519.7	566.1	582.7	566.1
47.5°	188.7	192.0	198.6	215.2	238.3	258.2	294.7	327.8	341.0	354.2	347.6
50°	109.3	109.3	119.2	129.2	145.6	158.9	172.1	185.4	192.0	198.6	192.0
52.5°	59.6	63.0	66.2	69.6	76.2	89.4	99.3	99.3	102.7	105.9	102.7
55°	46.3	46.3	46.3	46.3	49.7	49.7	49.7	53.0	53.0	56.3	53.0
57.5°	33.1	33.1	33.1	36.5	36.5	36.5	33.1	33.1	33.1	33.1	33.1
60°	26.5	26.5	26.5	26.5	26.5	26.5	26.5	23.2	23.2	23.2	23.2
62.5°	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9
65°	13.2	13.2	16.6	16.6	16.6	16.6	16.6	13.2	13.2	13.2	13.2
67.5°	10.0	10.0	10.0	10.0	13.2	13.2	10.0	10.0	10.0	10.0	10.0
70°	6.6	6.6	6.6	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
72.5°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
75°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
77.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
80°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	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°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
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: FLDSQ4C50D010 FEU4C509027 F4LC-SQ-LI

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	5211.1	5211.1	5211.1	5211.1	5211.1	5211.1	5211.1	5211.1
2.5°	5211.1	5154.7	5161.3	5191.2	5174.6	5191.2	5188.0	5188.0
5°	5154.7	5138.2	5111.8	5101.8	5121.6	5164.7	5158.1	5131.6
7.5°	5048.8	5005.8	5035.6	5048.8	5032.3	5058.8	5072.0	5015.7
10°	4923.0	4906.5	4899.9	4906.5	4899.9	4926.4	4893.3	4893.3
12.5°	4744.3	4717.8	4717.8	4757.5	4734.3	4714.4	4740.9	4737.7
15°	4565.5	4512.4	4512.4	4525.7	4535.7	4522.4	4525.7	4492.6
17.5°	4300.6	4284.1	4260.9	4297.4	4307.2	4294.0	4304.0	4287.4
20°	4052.3	4052.3	4009.3	4025.8	4039.0	4049.0	4055.7	4029.2
22.5°	3734.5	3741.1	3711.3	3744.4	3754.4	3721.3	3727.9	3721.3
25°	3443.1	3439.9	3416.6	3403.4	3410.0	3396.8	3393.5	3343.8
27.5°	3122.0	3088.9	3039.3	3052.5	2996.2	2949.8	2949.8	2873.6
30°	2774.3	2718.1	2651.9	2585.6	2536.0	2483.1	2453.2	2410.2
32.5°	2367.1	2291.1	2208.3	2118.8	2062.6	1983.2	1940.1	1963.3
35°	1963.3	1850.6	1738.1	1648.8	1562.6	1516.3	1463.3	1469.9
37.5°	1572.6	1413.7	1314.4	1218.4	1145.5	1086.0	1062.7	1056.1
40°	1148.8	1023.0	923.7	854.1	804.5	758.2	731.7	721.7
42.5°	794.5	705.2	625.7	569.5	536.4	506.5	493.3	490.0
45°	516.5	463.5	410.6	370.9	344.4	324.5	321.1	317.8
47.5°	324.5	297.9	264.8	235.1	211.8	198.6	188.7	188.7
50°	185.4	175.5	158.9	142.4	129.2	122.5	112.5	109.3
52.5°	99.3	99.3	92.7	79.4	69.6	63.0	63.0	59.6
55°	53.0	53.0	49.7	49.7	46.3	46.3	46.3	43.1
57.5°	33.1	33.1	36.5	36.5	33.1	33.1	33.1	33.1
60°	23.2	26.5	26.5	26.5	26.5	26.5	26.5	26.5
62.5°	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9
65°	13.2	16.6	16.6	16.6	16.6	13.2	13.2	13.2
67.5°	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
70°	10.0	10.0	10.0	10.0	10.0	6.6	6.6	6.6
72.5°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
75°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
77.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
80°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
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°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)