

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

Summary

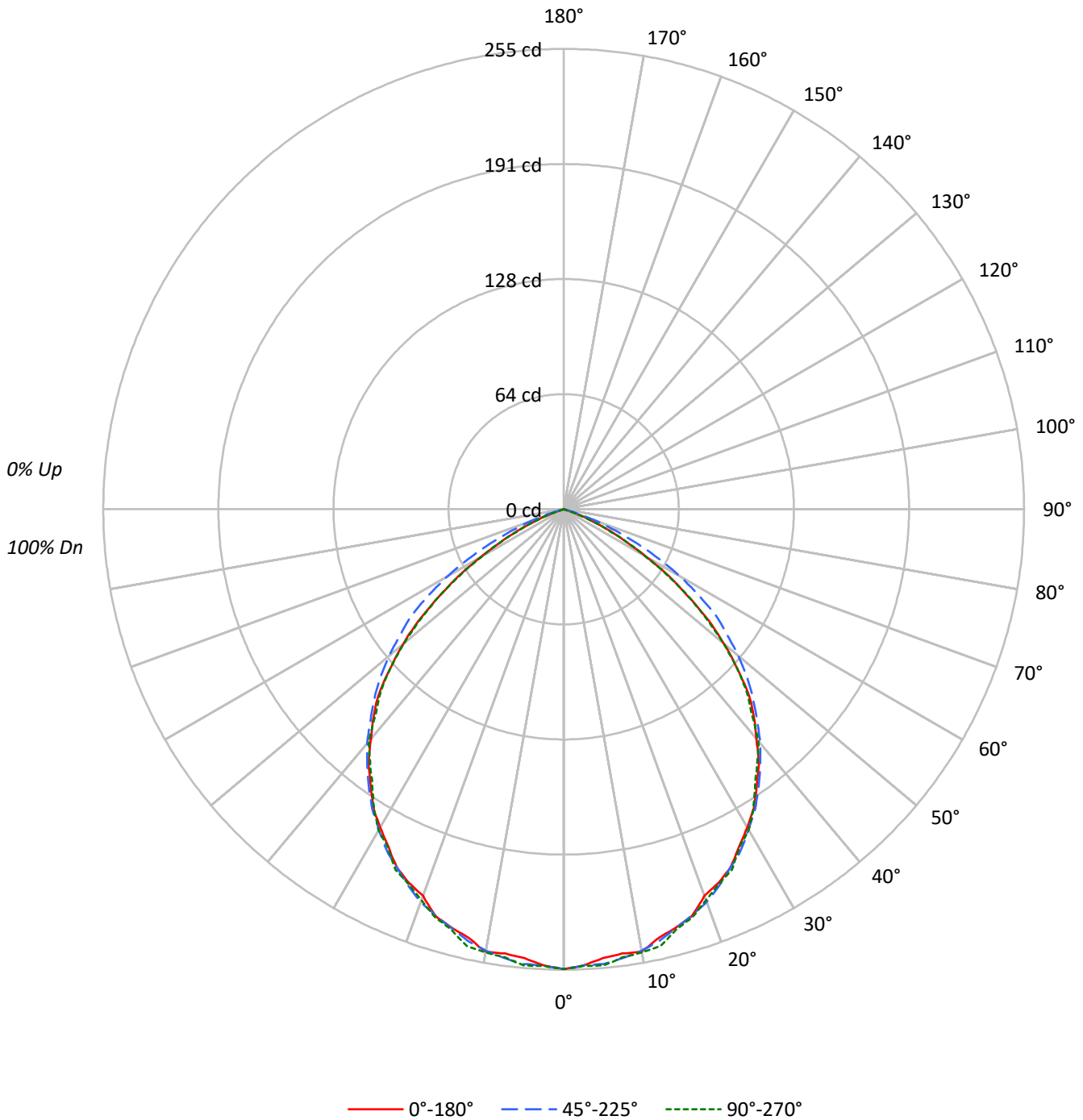
Lumens per Lamp: N/A
 Luminaire Lumens: 544.0 lumens
 Efficiency: N/A
 Efficacy: 75.6 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C05D010 FEU4C059050 F4LC-CSSQ-MMS

Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C05D010 FEU4C059050 F4LC-CSSQ-MMS

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°	24576	24576	24576
5°	24176	24486	24563
10°	24387	24318	24416
15°	23954	23994	24064
20°	23401	23771	23658
25°	23294	23294	23454
30°	22651	22807	22851
35°	21944	22157	21768
40°	20909	21325	21136
45°	19786	20236	19595
50°	17428	18944	17323
55°	14114	17344	14181
60°	10324	14377	10131
65°	6279	10251	6119
70°	2454	5501	2342
75°	261	1491	261
80°	222	222	222
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C05D010 FEU4C059050 F4LC-CSSQ-MMS

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	24.0	4.4
10°-20°	68.0	12.5
20°-30°	100.9	18.6
30°-40°	116.9	21.5
40°-50°	112.1	20.6
50°-60°	82.4	15.2
60°-70°	35.6	6.5
70°-80°	3.9	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°	193.0	35.5
0°-40°	309.9	57.0
0°-60°	504.5	92.7
0°-90°	544.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	544.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	255	255	255	255	255	
5°	250	252	253	253	254	24
15°	240	241	240	241	241	68
25°	219	218	219	219	220	100
35°	186	187	188	188	185	116
45°	145	145	148	146	144	110
55°	84	93	103	92	84	76
65°	28	34	45	34	27	28
75°	1	1	4	1	1	2
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C05D010 FEU4C059050 F4LC-CSSQ-MMS

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	254.7	254.7	254.7	254.7	254.7	254.7	254.7	254.7	254.7	254.7	254.7
2.5°	252.8	255.7	256.1	254.3	253.6	252.5	255.0	253.2	253.9	253.2	252.8
5°	249.6	252.8	253.2	253.2	252.5	252.1	253.2	252.8	252.5	251.8	252.8
7.5°	248.2	250.0	251.8	249.6	250.7	250.3	252.8	251.8	251.4	251.4	250.7
10°	248.9	248.5	250.0	247.8	248.5	247.8	250.0	250.0	249.2	248.5	248.2
12.5°	243.1	246.0	246.0	245.6	244.9	243.8	246.0	247.4	245.2	245.2	244.9
15°	239.8	240.6	240.9	240.9	240.6	241.3	242.4	240.9	241.3	239.5	240.2
17.5°	236.2	234.8	235.8	235.1	235.5	236.2	237.7	237.7	235.5	235.1	235.8
20°	227.9	232.2	232.6	230.4	230.8	230.8	233.3	231.2	232.6	230.8	231.5
22.5°	223.9	226.8	227.2	224.3	226.1	223.9	226.4	223.2	226.8	224.3	225.4
25°	218.8	218.5	219.6	218.1	218.5	218.5	220.3	218.8	219.9	218.5	218.8
27.5°	210.5	213.4	213.1	211.6	212.3	212.0	215.6	211.6	213.8	212.0	212.7
30°	203.3	205.8	205.1	203.7	203.7	202.6	206.5	205.5	205.1	205.1	204.7
32.5°	196.1	196.4	195.7	196.1	196.4	195.0	198.2	196.8	196.4	196.8	197.1
35°	186.3	186.3	187.0	185.9	187.4	187.4	190.3	188.5	188.1	187.0	188.1
37.5°	177.6	176.5	176.9	176.9	177.6	178.3	179.8	179.1	179.1	178.0	178.7
40°	166.0	165.3	166.4	166.4	167.5	167.5	168.9	168.2	169.3	169.3	169.3
42.5°	155.9	155.9	155.2	156.3	156.6	156.3	158.8	158.4	158.8	158.1	158.4
45°	145.0	145.0	144.3	144.0	145.8	145.4	148.3	147.2	148.7	147.9	148.3
47.5°	130.2	132.0	130.9	132.0	134.2	134.6	136.4	135.6	137.1	136.0	137.5
50°	116.1	116.1	117.2	118.6	120.8	121.2	123.4	124.8	125.5	125.9	126.2
52.5°	101.3	100.9	102.0	103.8	105.6	107.1	109.2	111.4	112.9	115.0	113.9
55°	83.9	84.6	85.7	87.9	90.8	92.6	94.4	97.3	99.8	100.9	103.1
57.5°	69.1	68.4	69.1	72.0	75.2	76.7	79.2	82.1	85.7	87.9	88.6
60°	53.5	53.9	54.6	57.2	59.7	61.9	62.9	67.6	70.9	73.1	74.5
62.5°	39.4	40.2	40.9	43.1	45.6	47.4	49.2	53.2	56.1	58.2	59.7
65°	27.5	27.9	28.9	30.0	32.6	34.4	35.8	39.1	42.0	43.8	44.9
67.5°	17.0	17.4	18.1	19.5	21.3	22.8	24.2	26.4	28.9	30.7	31.1
70°	8.7	9.0	9.4	10.5	11.9	12.7	13.7	15.6	17.4	18.8	19.5
72.5°	2.9	2.9	3.3	4.0	4.7	5.4	5.8	7.6	9.0	9.8	10.1
75°	0.7	0.7	0.7	0.7	0.7	1.1	1.1	2.2	2.9	3.6	4.0
77.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.7
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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C05D010 FEU4C059050 F4LC-CSSQ-MMS

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	254.7	254.7	254.7	254.7	254.7	254.7	254.7	254.7	254.7	254.7
2.5°	254.7	253.9	253.6	253.9	253.9	253.6	254.7	256.1	257.9	253.2
5°	254.3	253.6	254.3	252.1	253.2	252.5	253.9	253.6	255.0	253.6
7.5°	253.2	251.8	252.1	251.0	252.5	250.7	251.8	253.9	252.5	250.3
10°	249.6	248.9	251.4	247.8	247.1	248.5	251.4	249.2	248.5	249.2
12.5°	246.0	246.0	247.1	244.2	244.5	245.2	246.7	245.2	246.0	247.8
15°	242.0	241.3	243.1	240.9	240.6	239.8	241.3	241.3	242.0	240.9
17.5°	237.3	236.2	236.2	235.5	235.1	236.9	237.7	238.0	238.4	236.9
20°	231.5	231.2	232.2	231.2	231.5	231.9	231.9	231.2	234.4	230.4
22.5°	225.4	226.4	225.0	224.3	225.0	225.7	225.7	226.1	225.4	224.6
25°	219.2	219.9	220.3	218.1	219.2	218.1	220.7	221.0	219.6	220.3
27.5°	213.8	212.7	212.3	210.9	211.6	211.3	211.6	211.6	213.8	210.9
30°	205.5	204.4	204.7	203.7	204.0	203.7	204.0	204.0	205.5	205.1
32.5°	197.5	196.4	196.8	195.7	195.7	196.1	195.3	195.3	196.4	195.7
35°	189.9	187.4	187.7	187.4	187.7	186.3	186.3	185.9	186.7	184.8
37.5°	179.1	178.0	177.6	177.3	177.6	176.9	177.6	176.5	177.6	176.2
40°	169.3	168.6	168.9	166.8	166.8	167.1	166.4	166.0	166.4	167.8
42.5°	159.5	158.1	157.4	156.6	157.0	155.9	155.5	154.8	155.5	154.1
45°	147.9	147.9	147.6	145.8	146.1	146.1	144.7	143.2	143.6	143.6
47.5°	137.5	136.7	136.4	134.6	134.2	133.8	132.4	131.3	131.3	130.2
50°	125.9	125.2	124.1	122.3	121.5	119.4	118.3	116.8	115.4	115.4
52.5°	115.0	112.5	111.0	108.2	107.1	106.0	103.1	102.0	100.9	99.8
55°	102.0	99.8	97.0	93.7	92.2	90.4	87.5	85.4	83.9	84.3
57.5°	89.3	85.7	82.8	78.5	76.7	75.6	72.7	69.8	68.4	68.4
60°	73.8	70.9	67.3	63.3	61.9	60.1	56.4	54.6	53.5	52.5
62.5°	59.0	56.8	53.5	48.5	47.4	45.6	43.1	40.9	39.8	39.8
65°	44.1	42.0	39.1	35.5	34.0	32.6	30.4	28.2	27.1	26.8
67.5°	31.1	28.6	26.0	23.2	22.1	21.3	19.2	17.7	17.0	16.6
70°	18.8	17.4	15.6	13.4	12.3	11.6	10.1	9.0	8.7	8.3
72.5°	9.8	8.7	7.2	5.8	5.1	4.3	3.6	2.9	2.5	2.5
75°	3.6	2.9	1.8	1.1	0.7	0.7	0.7	0.7	0.7	0.7
77.5°	0.7	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)