

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 FEU4C059027 F4LC-CSSQ-MMS**

Issue Date: 12/13/2022

Tested By:

Approved By:



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**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 FEU4C059027 F4LC-CSSQ-MMS  
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

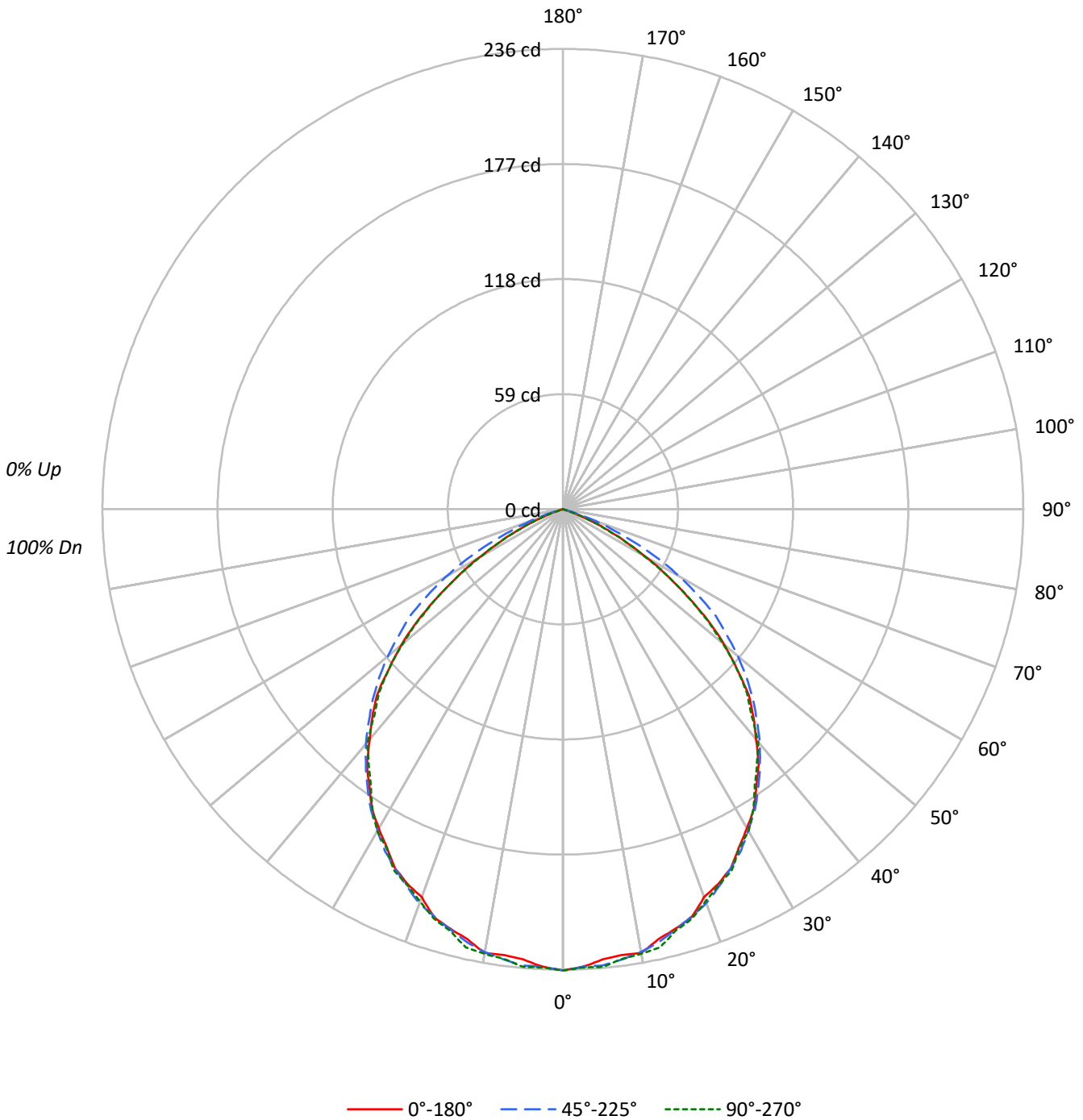
Lumens per Lamp: N/A  
 Luminaire Lumens: 505.0 lumens  
 Efficiency: N/A  
 Efficacy: 70.1 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 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: P#

CATALOG NUMBER: FLDSQ4C05D010 FEU4C059027 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	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45	39	35	33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42	36	32	31

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	22810	22810	22810
5°	22442	22732	22800
10°	22633	22574	22672
15°	22236	22276	22336
20°	21727	22066	21964
25°	21633	21633	21772
30°	21024	21180	21214
35°	20366	20566	20213
40°	19410	19788	19624
45°	18381	18790	18190
50°	16182	17593	16077
55°	13105	16099	13155
60°	9591	13354	9398
65°	5822	9498	5685
70°	2285	5106	2172
75°	261	1379	261
80°	167	167	167
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	22.3	4.4
10°-20°	63.1	12.5
20°-30°	93.7	18.6
30°-40°	108.6	21.5
40°-50°	104.1	20.6
50°-60°	76.5	15.2
60°-70°	33.1	6.5
70°-80°	3.6	0.7
80°-90°	0.0	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°	179.2	35.5
0°-40°	287.7	57.0
0°-60°	468.3	92.7
0°-90°	505.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	505.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	236	236	236	236	236	
5°	232	234	235	235	235	22
15°	223	224	223	223	224	63
25°	203	203	203	204	204	93
35°	173	174	175	174	172	108
45°	135	135	138	136	133	102
55°	78	86	96	86	78	70
65°	26	32	42	32	25	26
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 FEU4C059027 F4LC-CSSQ-MMS

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	236.4	236.4	236.4	236.4	236.4	236.4	236.4	236.4	236.4	236.4	236.4
2.5°	234.7	237.4	237.7	236.1	235.4	234.4	236.7	235.1	235.7	235.1	234.7
5°	231.7	234.7	235.1	235.1	234.4	234.0	235.1	234.7	234.4	233.7	234.7
7.5°	230.4	232.0	233.7	231.7	232.7	232.4	234.7	233.7	233.4	233.4	232.7
10°	231.0	230.7	232.0	230.0	230.7	230.0	232.0	232.0	231.4	230.7	230.4
12.5°	225.7	228.3	228.3	228.0	227.3	226.3	228.3	229.7	227.7	227.7	227.3
15°	222.6	223.3	223.6	223.6	223.3	224.0	225.0	223.6	224.0	222.3	223.0
17.5°	219.3	217.9	218.9	218.3	218.6	219.3	220.6	220.6	218.6	218.3	218.9
20°	211.6	215.6	215.9	213.9	214.2	214.2	216.6	214.6	215.9	214.2	214.9
22.5°	207.9	210.5	210.9	208.2	209.9	207.9	210.2	207.2	210.5	208.2	209.2
25°	203.2	202.8	203.8	202.5	202.8	202.8	204.5	203.2	204.2	202.8	203.2
27.5°	195.4	198.1	197.8	196.4	197.1	196.8	200.1	196.4	198.5	196.8	197.5
30°	188.7	191.1	190.4	189.1	189.1	188.0	191.7	190.7	190.4	190.4	190.1
32.5°	182.0	182.3	181.7	182.0	182.3	181.0	184.0	182.7	182.3	182.7	183.0
35°	172.9	172.9	173.6	172.6	173.9	173.9	176.6	174.9	174.6	173.6	174.6
37.5°	164.9	163.9	164.2	164.2	164.9	165.5	166.9	166.2	166.2	165.2	165.9
40°	154.1	153.5	154.5	154.5	155.5	155.5	156.8	156.1	157.1	157.1	157.1
42.5°	144.7	144.7	144.1	145.1	145.4	145.1	147.4	147.1	147.4	146.7	147.1
45°	134.7	134.7	134.0	133.7	135.3	135.0	137.7	136.7	138.0	137.3	137.7
47.5°	120.9	122.6	121.6	122.6	124.6	124.9	126.6	125.9	127.3	126.3	127.6
50°	107.8	107.8	108.8	110.1	112.2	112.5	114.5	115.9	116.5	116.9	117.2
52.5°	94.0	93.7	94.7	96.4	98.1	99.4	101.4	103.4	104.8	106.8	105.8
55°	77.9	78.6	79.6	81.6	84.3	86.0	87.6	90.3	92.7	93.7	95.7
57.5°	64.1	63.5	64.1	66.8	69.8	71.2	73.5	76.2	79.6	81.6	82.3
60°	49.7	50.0	50.7	53.1	55.4	57.4	58.4	62.8	65.8	67.8	69.2
62.5°	36.6	37.3	38.0	40.0	42.3	44.0	45.7	49.4	52.0	54.1	55.4
65°	25.5	25.9	26.9	27.9	30.2	31.9	33.2	36.3	39.0	40.6	41.6
67.5°	15.8	16.1	16.8	18.1	19.8	21.2	22.5	24.5	26.9	28.5	28.9
70°	8.1	8.4	8.7	9.7	11.1	11.8	12.8	14.4	16.1	17.5	18.1
72.5°	2.7	2.7	3.0	3.7	4.4	5.0	5.4	7.1	8.4	9.1	9.4
75°	0.7	0.7	0.7	0.7	0.7	1.0	1.0	2.0	2.7	3.4	3.7
77.5°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	0.7
80°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
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°	236.4	236.4	236.4	236.4	236.4	236.4	236.4	236.4	236.4	236.4
2.5°	236.4	235.7	235.4	235.7	235.7	235.4	236.4	237.7	239.4	235.1
5°	236.1	235.4	236.1	234.0	235.1	234.4	235.7	235.4	236.7	235.4
7.5°	235.1	233.7	234.0	233.0	234.4	232.7	233.7	235.7	234.4	232.4
10°	231.7	231.0	233.4	230.0	229.4	230.7	233.4	231.4	230.7	231.4
12.5°	228.3	228.3	229.4	226.7	227.0	227.7	229.0	227.7	228.3	230.0
15°	224.7	224.0	225.7	223.6	223.3	222.6	224.0	224.0	224.7	223.6
17.5°	220.3	219.3	219.3	218.6	218.3	220.0	220.6	221.0	221.3	220.0
20°	214.9	214.6	215.6	214.6	214.9	215.3	215.3	214.6	217.6	213.9
22.5°	209.2	210.2	208.9	208.2	208.9	209.5	209.5	209.9	209.2	208.5
25°	203.5	204.2	204.5	202.5	203.5	202.5	204.8	205.2	203.8	204.5
27.5°	198.5	197.5	197.1	195.8	196.4	196.1	196.4	196.4	198.5	195.8
30°	190.7	189.7	190.1	189.1	189.4	189.1	189.4	189.4	190.7	190.4
32.5°	183.3	182.3	182.7	181.7	181.7	182.0	181.3	181.3	182.3	181.7
35°	176.3	173.9	174.3	173.9	174.3	172.9	172.9	172.6	173.3	171.6
37.5°	166.2	165.2	164.9	164.5	164.9	164.2	164.9	163.9	164.9	163.5
40°	157.1	156.5	156.8	154.8	154.8	155.1	154.5	154.1	154.5	155.8
42.5°	148.1	146.7	146.1	145.4	145.7	144.7	144.4	143.7	144.4	143.0
45°	137.3	137.3	137.0	135.3	135.7	135.7	134.3	133.0	133.3	133.3
47.5°	127.6	126.9	126.6	124.9	124.6	124.3	122.9	121.9	121.9	120.9
50°	116.9	116.2	115.2	113.5	112.8	110.8	109.8	108.5	107.1	107.1
52.5°	106.8	104.4	103.1	100.4	99.4	98.4	95.7	94.7	93.7	92.7
55°	94.7	92.7	90.0	87.0	85.6	83.9	81.3	79.2	77.9	78.2
57.5°	82.9	79.6	76.9	72.9	71.2	70.2	67.5	64.8	63.5	63.5
60°	68.5	65.8	62.5	58.8	57.4	55.7	52.4	50.7	49.7	48.7
62.5°	54.7	52.7	49.7	45.0	44.0	42.3	40.0	38.0	36.9	36.9
65°	41.0	39.0	36.3	32.9	31.6	30.2	28.2	26.2	25.2	24.9
67.5°	28.9	26.5	24.2	21.5	20.5	19.8	17.8	16.5	15.8	15.4
70°	17.5	16.1	14.4	12.4	11.4	10.7	9.4	8.4	8.1	7.7
72.5°	9.1	8.1	6.7	5.4	4.7	4.0	3.4	2.7	2.4	2.4
75°	3.4	2.7	1.7	1.0	0.7	0.7	0.7	0.7	0.7	0.7
77.5°	0.7	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
80°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
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)