

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 FEU4C059035 F4LC-SQ-LI**

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 FEU4C059035 F4LC-SQ-LI  
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

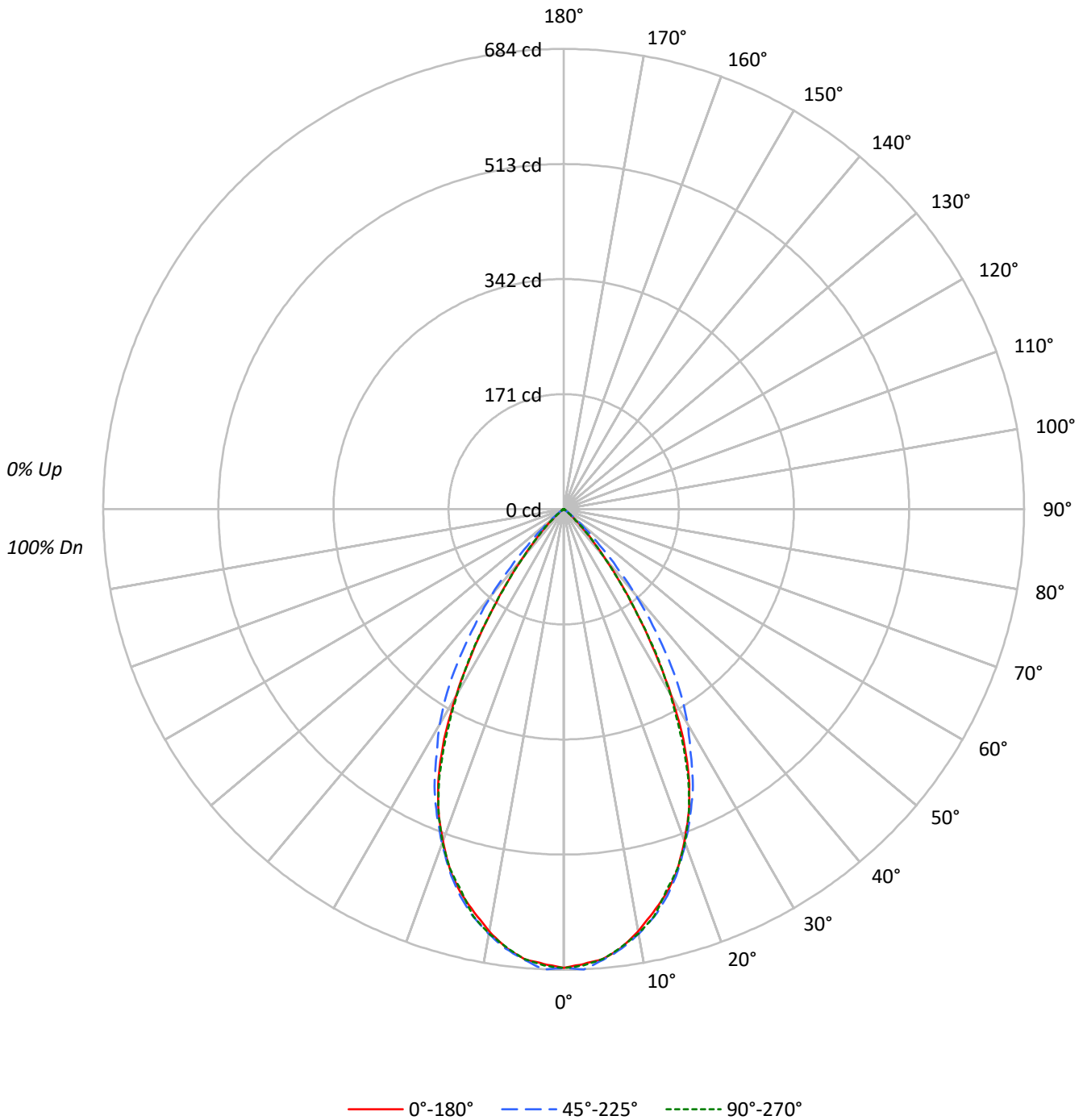
Lumens per Lamp: N/A  
 Luminaire Lumens: 629.0 lumens  
 Efficiency: N/A  
 Efficacy: 87.4 lumens/watt  
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 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



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**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	65
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°	65738	65738	65738
5°	64982	65069	64982
10°	62382	62764	62686
15°	58977	59406	58677
20°	53826	54226	54093
25°	46865	48345	46546
30°	35642	40990	35107
35°	22427	31863	22639
40°	12104	21047	11890
45°	5731	10398	5663
50°	2147	3903	2147
55°	1026	1245	942
60°	675	579	675
65°	388	388	388
70°	254	367	254
75°	149	149	149
80°	222	222	222
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	63.2	10.0
10°-20°	165.5	26.3
20°-30°	202.2	32.2
30°-40°	141.4	22.5
40°-50°	46.4	7.4
50°-60°	7.4	1.2
60°-70°	2.0	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°	431.0	68.5
0°-40°	572.4	91.0
0°-60°	626.1	99.5
0°-90°	629.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	629.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	681	681	681	681	681	
5°	671	671	672	668	671	63
15°	590	593	595	591	587	165
25°	440	447	454	446	437	198
35°	190	225	270	221	192	122
45°	42	52	76	51	42	35
55°	6	6	7	6	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 FEU4C059035 F4LC-SQ-LI

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	681.3	681.3	681.3	681.3	681.3	681.3	681.3	681.3	681.3	681.3	681.3
2.5°	676.1	680.9	679.6	682.6	682.6	679.1	680.0	681.3	683.0	684.3	673.9
5°	670.9	675.2	671.3	675.7	673.1	669.2	675.7	672.2	674.4	671.8	673.5
7.5°	657.1	664.0	656.2	661.4	659.7	657.5	660.1	659.2	660.5	658.4	653.6
10°	636.7	642.4	637.2	644.5	641.0	638.9	641.0	643.2	642.8	640.6	643.2
12.5°	613.4	619.8	617.2	621.6	617.7	617.7	622.9	621.6	622.0	620.3	623.3
15°	590.4	595.2	591.3	596.9	595.2	590.4	592.6	592.6	596.0	594.7	591.3
17.5°	561.8	565.7	561.4	562.7	561.0	560.1	569.2	563.1	566.6	564.0	564.4
20°	524.2	525.9	524.6	528.1	525.9	528.5	527.6	526.8	526.8	528.1	525.1
22.5°	486.1	486.1	487.4	488.3	490.0	487.4	492.6	488.3	488.7	491.7	490.9
25°	440.2	438.9	441.9	446.3	448.0	445.8	452.8	449.3	451.9	454.1	449.3
27.5°	384.4	384.4	387.4	394.8	396.1	398.7	408.2	408.2	411.6	408.6	412.1
30°	319.9	324.6	328.5	338.0	341.1	346.7	356.7	361.4	369.2	367.9	366.2
32.5°	253.7	260.2	260.6	270.5	278.8	288.3	301.7	312.9	318.6	322.5	318.1
35°	190.4	194.4	197.8	204.7	218.6	231.1	243.3	258.0	267.9	270.5	266.6
37.5°	139.4	140.2	143.7	150.2	160.6	172.7	187.4	203.4	213.8	217.7	213.4
40°	96.1	97.0	98.7	104.3	113.0	121.6	133.3	149.8	159.3	167.1	161.4
42.5°	64.5	65.4	67.1	71.4	76.2	84.4	93.5	103.9	113.0	116.4	113.4
45°	42.0	42.0	42.9	45.9	48.5	55.0	61.5	68.0	74.0	76.2	74.0
47.5°	24.7	25.1	26.0	28.1	31.2	33.8	38.5	42.9	44.6	46.3	45.4
50°	14.3	14.3	15.6	16.9	19.0	20.8	22.5	24.2	25.1	26.0	25.1
52.5°	7.8	8.2	8.7	9.1	10.0	11.7	13.0	13.0	13.4	13.8	13.4
55°	6.1	6.1	6.1	6.1	6.5	6.5	6.5	6.9	6.9	7.4	6.9
57.5°	4.3	4.3	4.3	4.8	4.8	4.8	4.3	4.3	4.3	4.3	4.3
60°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.0	3.0	3.0	3.0
62.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
65°	1.7	1.7	2.2	2.2	2.2	2.2	2.2	1.7	1.7	1.7	1.7
67.5°	1.3	1.3	1.3	1.3	1.7	1.7	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°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.4	0.4	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	0.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	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°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	681.3	681.3	681.3	681.3	681.3	681.3	681.3	681.3
2.5°	681.3	673.9	674.8	678.7	676.5	678.7	678.3	678.3
5°	673.9	671.8	668.3	667.0	669.6	675.2	674.4	670.9
7.5°	660.1	654.5	658.4	660.1	657.9	661.4	663.1	655.8
10°	643.6	641.5	640.6	641.5	640.6	644.1	639.8	639.8
12.5°	620.3	616.8	616.8	622.0	619.0	616.4	619.8	619.4
15°	596.9	590.0	590.0	591.7	593.0	591.3	591.7	587.4
17.5°	562.3	560.1	557.1	561.8	563.1	561.4	562.7	560.5
20°	529.8	529.8	524.2	526.3	528.1	529.4	530.2	526.8
22.5°	488.3	489.1	485.2	489.5	490.9	486.5	487.4	486.5
25°	450.2	449.7	446.7	445.0	445.8	444.1	443.7	437.2
27.5°	408.2	403.8	397.4	399.1	391.7	385.7	385.7	375.7
30°	362.7	355.4	346.7	338.0	331.6	324.6	320.7	315.1
32.5°	309.5	299.5	288.7	277.0	269.7	259.3	253.7	256.7
35°	256.7	242.0	227.2	215.6	204.3	198.2	191.3	192.2
37.5°	205.6	184.8	171.8	159.3	149.8	142.0	138.9	138.1
40°	150.2	133.7	120.8	111.7	105.2	99.1	95.7	94.4
42.5°	103.9	92.2	81.8	74.5	70.1	66.2	64.5	64.1
45°	67.5	60.6	53.7	48.5	45.0	42.4	42.0	41.5
47.5°	42.4	38.9	34.6	30.7	27.7	26.0	24.7	24.7
50°	24.2	22.9	20.8	18.6	16.9	16.0	14.7	14.3
52.5°	13.0	13.0	12.1	10.4	9.1	8.2	8.2	7.8
55°	6.9	6.9	6.5	6.5	6.1	6.1	6.1	5.6
57.5°	4.3	4.3	4.8	4.8	4.3	4.3	4.3	4.3
60°	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5
62.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
65°	1.7	2.2	2.2	2.2	2.2	1.7	1.7	1.7
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°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	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
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°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)