

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: **FLDSQ4C55D010 FEU4C559050 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: FLDSQ4C55D010 FEU4C559050 F4LC-SQ-LI  
 Description: 4 INCH 5500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

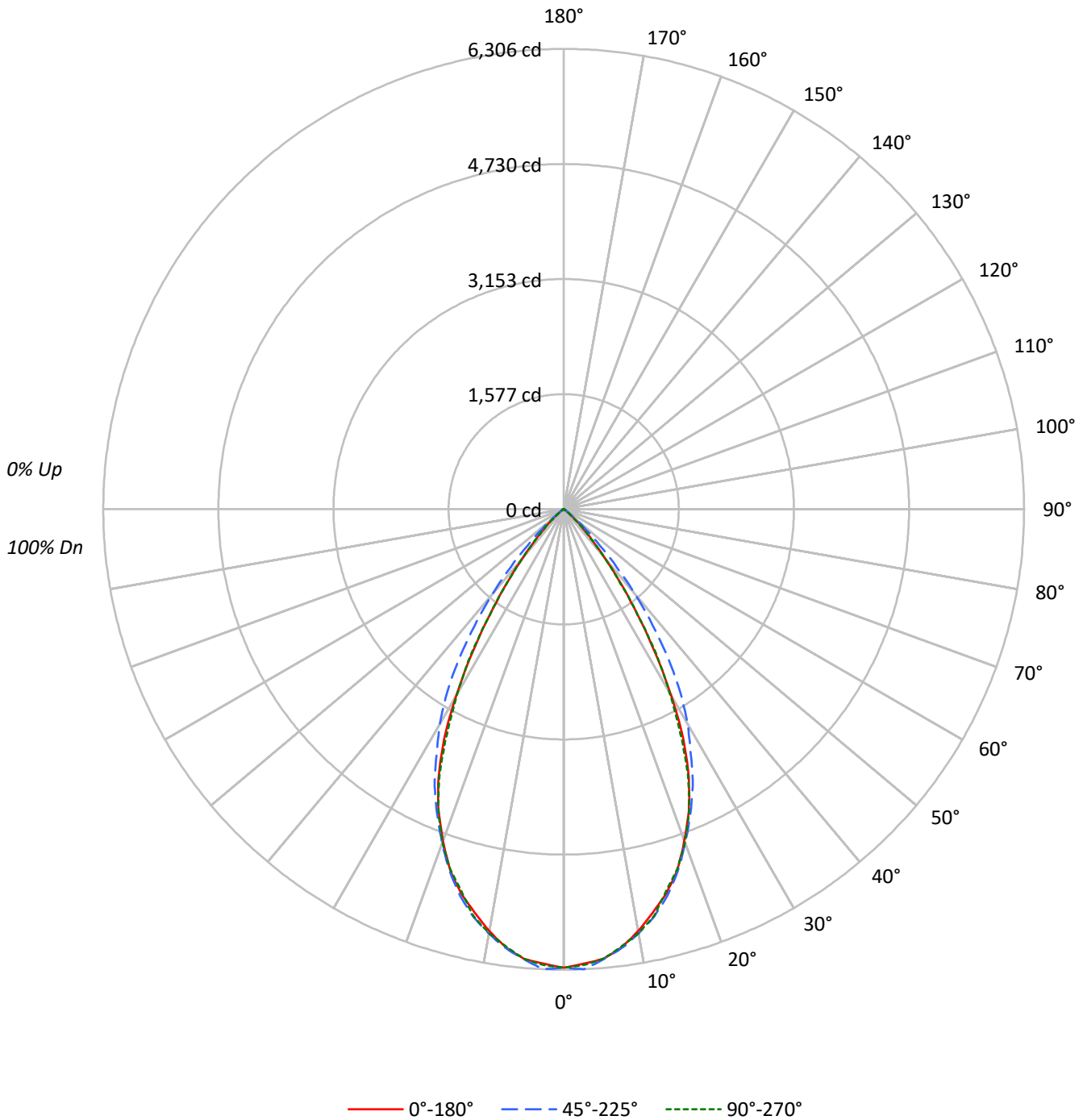
Lumens per Lamp: N/A  
 Luminaire Lumens: 5796.0 lumens  
 Efficiency: N/A  
 Efficacy: 90.7 lumens/watt  
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 63.9  
 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	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°	605757	605757	605757
5°	598802	599567	598802
10°	574853	578370	577587
15°	543456	547442	540659
20°	495971	499647	498425
25°	431859	445444	428878
30°	328398	377722	323518
35°	206712	293642	208596
40°	111523	193924	109520
45°	52795	95792	52235
50°	19769	35921	19769
55°	9387	11422	8731
60°	6156	5403	6156
65°	3653	3653	3653
70°	2257	3385	2257
75°	1528	1528	1528
80°	2278	2278	2278
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	582.1	10.0
10°-20°	1525.5	26.3
20°-30°	1863.5	32.2
30°-40°	1303.4	22.5
40°-50°	427.1	7.4
50°-60°	67.9	1.2
60°-70°	18.5	0.3
70°-80°	6.2	0.1
80°-90°	1.7	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°	3971.1	68.5
0°-40°	5274.5	91.0
0°-60°	5769.5	99.5
0°-90°	5796.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5796.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	6278	6278	6278	6278	6278	
5°	6182	6184	6190	6152	6182	580
15°	5440	5462	5480	5444	5412	1518
25°	4056	4118	4184	4108	4028	1822
35°	1755	2072	2493	2040	1771	1120
45°	387	477	702	471	383	325
55°	56	60	68	60	52	55
65°	16	20	16	20	16	18
75°	4	4	4	4	4	6
85°	0	0	0	0	0	2
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C55D010 FEU4C559050 F4LC-SQ-LI

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	6278.0	6278.0	6278.0	6278.0	6278.0	6278.0	6278.0	6278.0	6278.0	6278.0	6278.0
2.5°	6230.1	6274.1	6262.0	6290.0	6290.0	6258.1	6266.1	6278.0	6293.9	6306.0	6210.1
5°	6182.3	6222.1	6186.2	6226.1	6202.1	6166.3	6226.1	6194.1	6214.2	6190.2	6206.2
7.5°	6054.7	6118.5	6046.7	6094.5	6078.6	6058.6	6082.5	6074.5	6086.6	6066.5	6022.8
10°	5867.2	5919.1	5871.2	5938.9	5907.0	5887.2	5907.0	5927.0	5923.0	5903.1	5927.0
12.5°	5651.8	5711.6	5687.6	5727.5	5691.7	5691.7	5739.5	5727.5	5731.6	5715.6	5743.5
15°	5440.4	5484.3	5448.4	5500.3	5484.3	5440.4	5460.2	5460.2	5492.3	5480.3	5448.4
17.5°	5177.2	5213.0	5173.1	5185.2	5169.2	5161.2	5244.9	5189.1	5221.0	5197.1	5201.1
20°	4830.2	4846.1	4834.1	4866.0	4846.1	4870.1	4862.1	4854.1	4854.1	4866.0	4838.2
22.5°	4479.1	4479.1	4491.1	4499.1	4515.1	4491.1	4539.0	4499.1	4503.0	4531.0	4523.0
25°	4056.4	4044.4	4072.4	4112.2	4128.2	4108.2	4172.0	4140.1	4164.0	4184.0	4140.1
27.5°	3541.9	3541.9	3569.7	3637.6	3649.5	3673.4	3761.2	3761.2	3793.1	3765.2	3797.1
30°	2947.5	2991.4	3027.3	3115.0	3143.0	3194.9	3286.5	3330.5	3402.3	3390.2	3374.3
32.5°	2337.3	2397.2	2401.1	2492.9	2568.6	2656.3	2780.0	2883.7	2935.6	2971.4	2931.5
35°	1754.9	1790.9	1822.8	1886.6	2014.2	2129.9	2241.6	2377.2	2469.0	2492.9	2456.9
37.5°	1284.4	1292.3	1324.2	1384.0	1479.7	1591.5	1727.1	1874.6	1970.4	2006.2	1966.4
40°	885.4	893.4	909.4	961.3	1041.0	1120.8	1228.5	1380.1	1467.8	1539.6	1487.7
42.5°	594.3	602.2	618.2	658.1	702.0	777.7	861.5	957.2	1041.0	1072.9	1044.9
45°	386.9	386.9	394.9	422.9	446.8	506.5	566.4	626.2	682.0	702.0	682.0
47.5°	227.4	231.3	239.3	259.3	287.1	311.0	355.0	394.9	410.8	426.8	418.8
50°	131.7	131.7	143.6	155.6	175.5	191.4	207.4	223.3	231.3	239.3	231.3
52.5°	71.8	75.8	79.8	83.8	91.8	107.7	119.6	119.6	123.7	127.6	123.7
55°	55.8	55.8	55.8	55.8	59.9	59.9	59.9	63.8	63.8	67.9	63.8
57.5°	39.9	39.9	39.9	43.9	43.9	43.9	39.9	39.9	39.9	39.9	39.9
60°	31.9	31.9	31.9	31.9	31.9	31.9	31.9	28.0	28.0	28.0	28.0
62.5°	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9
65°	16.0	16.0	20.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0	16.0
67.5°	12.0	12.0	12.0	12.0	16.0	16.0	12.0	12.0	12.0	12.0	12.0
70°	8.0	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
72.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
75°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
77.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
80°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	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°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
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°	6278.0	6278.0	6278.0	6278.0	6278.0	6278.0	6278.0	6278.0
2.5°	6278.0	6210.1	6218.1	6254.0	6234.0	6254.0	6250.1	6250.1
5°	6210.1	6190.2	6158.3	6146.3	6170.2	6222.1	6214.2	6182.3
7.5°	6082.5	6030.7	6066.5	6082.5	6062.6	6094.5	6110.5	6042.6
10°	5931.0	5911.1	5903.1	5911.1	5903.1	5935.0	5895.1	5895.1
12.5°	5715.6	5683.7	5683.7	5731.6	5703.6	5679.7	5711.6	5707.6
15°	5500.3	5436.3	5436.3	5452.3	5464.3	5448.4	5452.3	5412.4
17.5°	5181.1	5161.2	5133.3	5177.2	5189.1	5173.1	5185.2	5165.2
20°	4881.9	4881.9	4830.2	4850.0	4866.0	4878.0	4886.0	4854.1
22.5°	4499.1	4507.1	4471.1	4511.0	4523.0	4483.2	4491.1	4483.2
25°	4148.0	4144.1	4116.1	4100.2	4108.2	4092.2	4088.3	4028.4
27.5°	3761.2	3721.3	3661.5	3677.5	3609.6	3553.8	3553.8	3462.0
30°	3342.4	3274.6	3194.9	3115.0	3055.2	2991.4	2955.5	2903.7
32.5°	2851.8	2760.1	2660.4	2552.6	2484.9	2389.2	2337.3	2365.3
35°	2365.3	2229.5	2094.0	1986.4	1882.5	1826.7	1762.9	1770.9
37.5°	1894.6	1703.2	1583.5	1467.8	1380.1	1308.3	1280.3	1272.3
40°	1384.0	1232.4	1112.8	1029.0	969.3	913.4	881.5	869.5
42.5°	957.2	849.6	753.8	686.0	646.2	610.2	594.3	590.3
45°	622.2	558.4	494.6	446.8	414.9	391.0	386.9	382.8
47.5°	391.0	358.9	319.0	283.2	255.2	239.3	227.4	227.4
50°	223.3	211.4	191.4	171.6	155.6	147.6	135.6	131.7
52.5°	119.6	119.6	111.7	95.7	83.8	75.8	75.8	71.8
55°	63.8	63.8	59.9	59.9	55.8	55.8	55.8	51.9
57.5°	39.9	39.9	43.9	43.9	39.9	39.9	39.9	39.9
60°	28.0	31.9	31.9	31.9	31.9	31.9	31.9	31.9
62.5°	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9
65°	16.0	20.0	20.0	20.0	20.0	16.0	16.0	16.0
67.5°	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
70°	12.0	12.0	12.0	12.0	12.0	8.0	8.0	8.0
72.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
75°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
77.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
80°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
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°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)