

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: **FLDSQ4C25D010 FEU4C259030 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: FLDSQ4C25D010 FEU4C259030 F4LC-CSSQ-MMS  
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

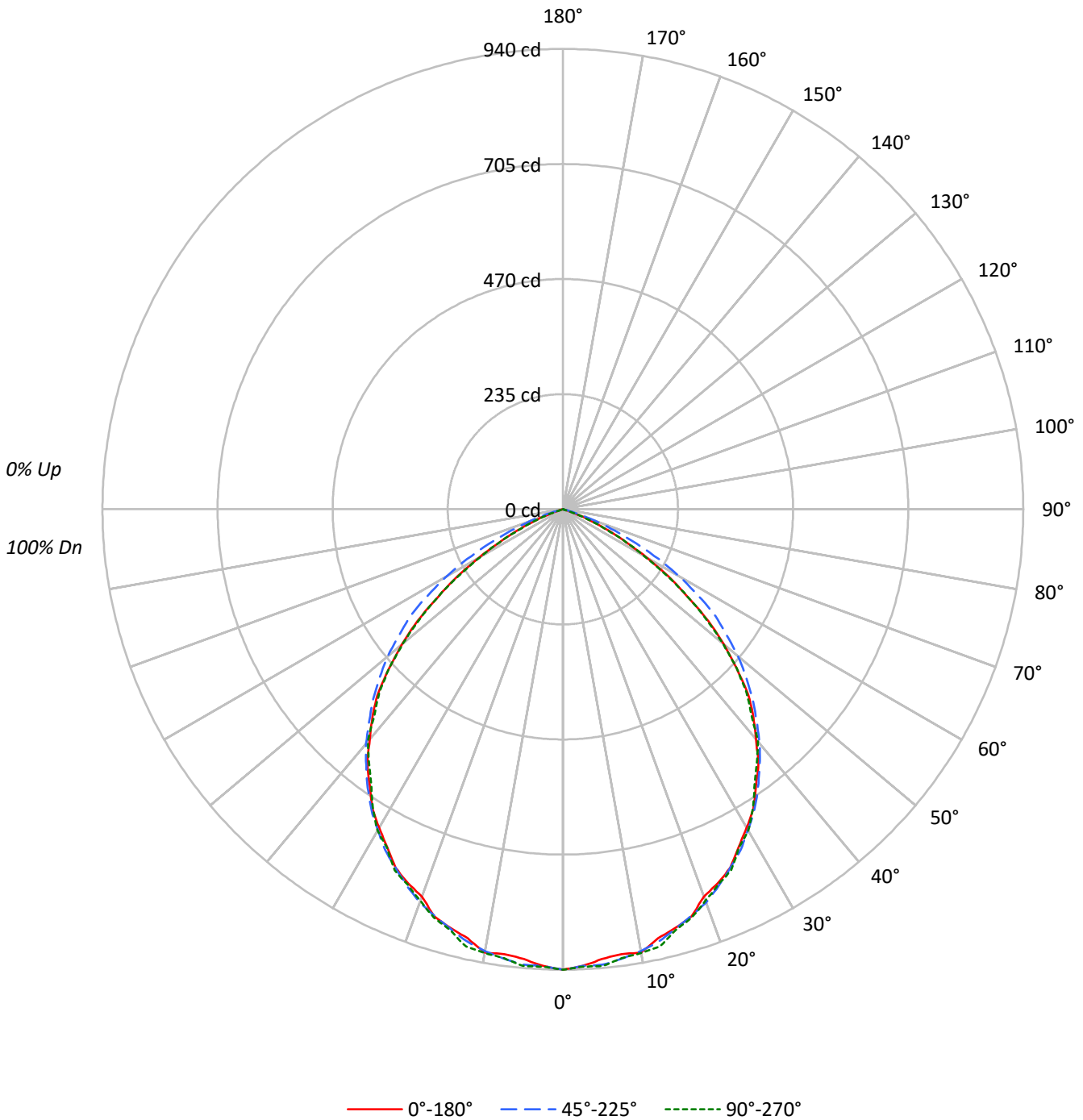
Lumens per Lamp: N/A  
 Luminaire Lumens: 2008.0 lumens  
 Efficiency: N/A  
 Efficacy: 63.7 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 31.5  
 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: FLDSQ4C25D010 FEU4C259030 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°	90700	90700	90700
5°	89235	90397	90659
10°	90012	89747	90139
15°	88435	88565	88825
20°	86376	87741	87341
25°	86001	86001	86566
30°	83606	84197	84353
35°	80993	81782	80369
40°	77199	78711	78031
45°	73058	74696	72335
50°	64337	69951	63947
55°	52116	64009	52334
60°	38132	53088	37360
65°	23174	37808	22557
70°	9028	20340	8661
75°	1007	5480	1007
80°	778	778	778
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	88.7	4.4
10°-20°	251.1	12.5
20°-30°	372.5	18.6
30°-40°	431.7	21.5
40°-50°	413.9	20.6
50°-60°	304.3	15.2
60°-70°	131.4	6.5
70°-80°	14.2	0.7
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°	712.3	35.5
0°-40°	1144.0	57.0
0°-60°	1862.2	92.7
0°-90°	2008.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2008.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	940	940	940	940	940	
5°	921	931	933	935	936	88
15°	885	891	887	888	889	250
25°	808	806	808	809	813	370
35°	688	692	694	693	682	430
45°	535	537	547	539	530	407
55°	310	342	380	340	311	279
65°	102	127	166	126	99	104
75°	3	4	15	3	3	8
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#  
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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	940.0	940.0	940.0	940.0	940.0	940.0	940.0	940.0	940.0	940.0	940.0
2.5°	933.3	944.0	945.3	938.6	936.0	932.0	941.3	934.7	937.3	934.7	933.3
5°	921.3	933.3	934.7	934.7	932.0	930.6	934.7	933.3	932.0	929.3	933.3
7.5°	916.0	922.6	929.3	921.3	925.3	924.0	933.3	929.3	928.0	928.0	925.3
10°	918.7	917.3	922.6	914.6	917.3	914.6	922.6	922.6	920.0	917.3	916.0
12.5°	897.2	907.9	907.9	906.6	903.9	899.9	907.9	913.3	905.3	905.3	903.9
15°	885.3	887.9	889.2	889.2	887.9	890.6	894.6	889.2	890.6	883.9	886.6
17.5°	871.9	866.6	870.5	867.9	869.2	871.9	877.2	877.2	869.2	867.9	870.5
20°	841.2	857.2	858.6	850.6	851.9	851.9	861.2	853.2	858.6	851.9	854.5
22.5°	826.5	837.2	838.5	827.8	834.5	826.5	835.8	823.8	837.2	827.8	831.8
25°	807.8	806.5	810.5	805.1	806.5	806.5	813.1	807.8	811.8	806.5	807.8
27.5°	777.1	787.8	786.4	781.1	783.8	782.5	795.8	781.1	789.1	782.5	785.1
30°	750.4	759.7	757.1	751.7	751.7	747.7	762.4	758.4	757.1	757.1	755.7
32.5°	723.7	725.0	722.4	723.7	725.0	719.7	731.7	726.3	725.0	726.3	727.7
35°	687.6	687.6	690.3	686.3	691.6	691.6	702.3	695.6	694.3	690.3	694.3
37.5°	655.6	651.6	652.9	652.9	655.6	658.3	663.6	660.9	660.9	656.9	659.6
40°	612.9	610.2	614.2	614.2	618.2	618.2	623.5	620.9	624.9	624.9	624.9
42.5°	575.5	575.5	572.8	576.8	578.2	576.8	586.2	584.8	586.2	583.5	584.8
45°	535.4	535.4	532.7	531.4	538.1	536.8	547.4	543.4	548.8	546.1	547.4
47.5°	480.7	487.4	483.3	487.4	495.4	496.7	503.4	500.7	506.0	502.1	507.4
50°	428.6	428.6	432.6	437.9	446.0	447.3	455.3	460.7	463.3	464.6	466.0
52.5°	373.9	372.5	376.5	383.2	389.9	395.2	403.2	411.2	416.6	424.6	420.6
55°	309.8	312.4	316.5	324.5	335.1	341.8	348.5	359.2	368.5	372.5	380.5
57.5°	255.0	252.3	255.0	265.7	277.7	283.1	292.4	303.1	316.5	324.5	327.1
60°	197.6	199.0	201.6	211.0	220.3	228.3	232.3	249.7	261.7	269.7	275.1
62.5°	145.6	148.2	150.9	158.9	168.2	174.9	181.6	196.3	207.0	215.0	220.3
65°	101.5	102.8	106.8	110.8	120.2	126.8	132.2	144.2	154.9	161.6	165.6
67.5°	62.8	64.1	66.7	72.1	78.8	84.1	89.5	97.5	106.8	113.5	114.8
70°	32.0	33.4	34.7	38.7	44.1	46.7	50.7	57.4	64.1	69.4	72.1
72.5°	10.7	10.7	12.0	14.7	17.4	20.0	21.4	28.1	33.4	36.1	37.4
75°	2.7	2.7	2.7	2.7	2.7	4.0	4.0	8.0	10.7	13.3	14.7
77.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.7	2.7
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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

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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	940.0	940.0	940.0	940.0	940.0	940.0	940.0	940.0	940.0	940.0
2.5°	940.0	937.3	936.0	937.3	937.3	936.0	940.0	945.3	952.0	934.7
5°	938.6	936.0	938.6	930.6	934.7	932.0	937.3	936.0	941.3	936.0
7.5°	934.7	929.3	930.6	926.7	932.0	925.3	929.3	937.3	932.0	924.0
10°	921.3	918.7	928.0	914.6	912.0	917.3	928.0	920.0	917.3	920.0
12.5°	907.9	907.9	912.0	901.3	902.6	905.3	910.6	905.3	907.9	914.6
15°	893.3	890.6	897.2	889.2	887.9	885.3	890.6	890.6	893.3	889.2
17.5°	875.9	871.9	871.9	869.2	867.9	874.6	877.2	878.6	879.9	874.6
20°	854.5	853.2	857.2	853.2	854.5	855.9	855.9	853.2	865.2	850.6
22.5°	831.8	835.8	830.5	827.8	830.5	833.2	833.2	834.5	831.8	829.1
25°	809.2	811.8	813.1	805.1	809.2	805.1	814.5	815.8	810.5	813.1
27.5°	789.1	785.1	783.8	778.4	781.1	779.8	781.1	781.1	789.1	778.4
30°	758.4	754.4	755.7	751.7	753.0	751.7	753.0	753.0	758.4	757.1
32.5°	729.0	725.0	726.3	722.4	722.4	723.7	721.0	721.0	725.0	722.4
35°	701.0	691.6	693.0	691.6	693.0	687.6	687.6	686.3	689.0	682.3
37.5°	660.9	656.9	655.6	654.3	655.6	652.9	655.6	651.6	655.6	650.2
40°	624.9	622.2	623.5	615.5	615.5	616.8	614.2	612.9	614.2	619.5
42.5°	588.8	583.5	580.8	578.2	579.5	575.5	574.1	571.5	574.1	568.8
45°	546.1	546.1	544.8	538.1	539.4	539.4	534.1	528.8	530.1	530.1
47.5°	507.4	504.7	503.4	496.7	495.4	494.1	488.7	484.7	484.7	480.7
50°	464.6	462.0	458.0	451.3	448.6	440.6	436.6	431.3	426.0	426.0
52.5°	424.6	415.2	409.9	399.2	395.2	391.2	380.5	376.5	372.5	368.5
55°	376.5	368.5	357.9	345.8	340.5	333.8	323.1	315.1	309.8	311.1
57.5°	329.8	316.5	305.8	289.8	283.1	279.0	268.4	257.7	252.3	252.3
60°	272.4	261.7	248.4	233.7	228.3	221.7	208.3	201.6	197.6	193.6
62.5°	217.6	209.6	197.6	178.9	174.9	168.2	158.9	150.9	146.9	146.9
65°	162.9	154.9	144.2	130.9	125.5	120.2	112.2	104.2	100.1	98.8
67.5°	114.8	105.5	96.2	85.5	81.4	78.8	70.8	65.4	62.8	61.4
70°	69.4	64.1	57.4	49.4	45.4	42.7	37.4	33.4	32.0	30.7
72.5°	36.1	32.0	26.7	21.4	18.7	16.0	13.3	10.7	9.4	9.4
75°	13.3	10.7	6.7	4.0	2.7	2.7	2.7	2.7	2.7	2.7
77.5°	2.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)