

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: **FLDSQ4C15D010 FEU4C159027 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: FLDSQ4C15D010 FEU4C159027 F4LC-CSSQ-MMS
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

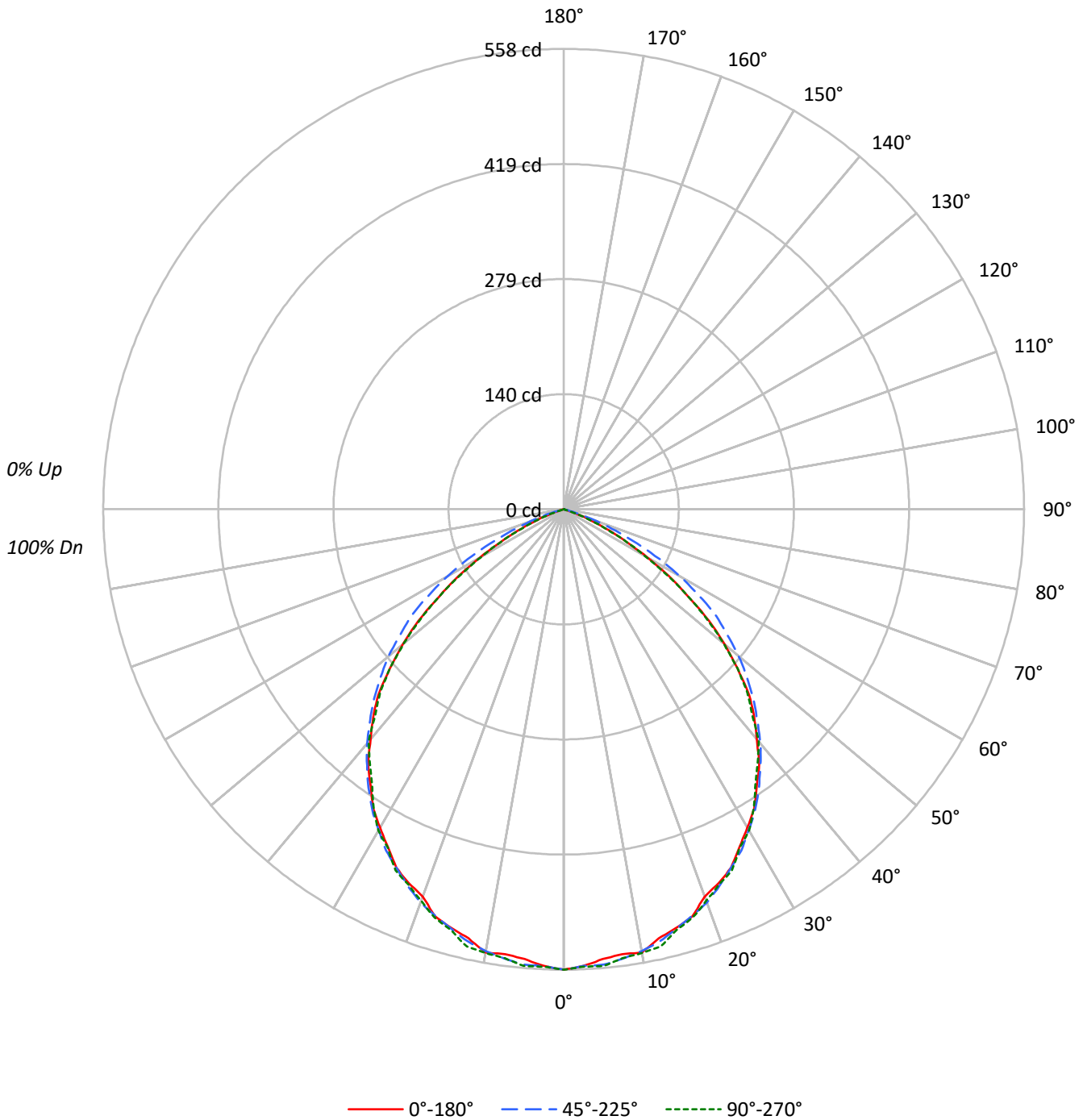
Lumens per Lamp: N/A
 Luminaire Lumens: 1192.0 lumens
 Efficiency: N/A
 Efficacy: 75.4 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 15.8
 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	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°	53841	53841	53841
5°	52971	53659	53814
10°	53427	53280	53505
15°	52494	52574	52733
20°	51269	52090	51844
25°	51049	51049	51390
30°	49625	49981	50070
35°	48082	48554	47705
40°	45823	46718	46327
45°	43366	44348	42943
50°	38188	41520	37963
55°	30936	38002	31071
60°	22636	31513	22173
65°	13744	22443	13402
70°	5360	12075	5134
75°	596	3243	596
80°	445	445	445
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.7	4.4
10°-20°	149.0	12.5
20°-30°	221.1	18.6
30°-40°	256.3	21.5
40°-50°	245.7	20.6
50°-60°	180.6	15.2
60°-70°	78.0	6.5
70°-80°	8.4	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°	422.9	35.5
0°-40°	679.1	57.0
0°-60°	1105.5	92.7
0°-90°	1192.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1192.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	558	558	558	558	558	
5°	547	552	554	555	556	52
15°	526	529	526	527	528	148
25°	480	479	480	480	483	220
35°	408	411	412	411	405	255
45°	318	319	325	320	315	242
55°	184	203	226	202	185	165
65°	60	75	98	74	59	62
75°	2	2	9	2	2	5
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°	558.0	558.0	558.0	558.0	558.0	558.0	558.0	558.0	558.0	558.0	558.0
2.5°	554.0	560.4	561.2	557.2	555.6	553.3	558.8	554.8	556.4	554.8	554.0
5°	546.9	554.0	554.8	554.8	553.3	552.5	554.8	554.0	553.3	551.7	554.0
7.5°	543.8	547.7	551.7	546.9	549.3	548.5	554.0	551.7	550.9	550.9	549.3
10°	545.3	544.5	547.7	542.9	544.5	542.9	547.7	547.7	546.1	544.5	543.8
12.5°	532.6	539.0	539.0	538.2	536.6	534.2	539.0	542.2	537.4	537.4	536.6
15°	525.5	527.1	527.9	527.9	527.1	528.7	531.0	527.9	528.7	524.7	526.3
17.5°	517.6	514.4	516.8	515.2	516.0	517.6	520.8	520.8	516.0	515.2	516.8
20°	499.3	508.9	509.7	504.9	505.7	505.7	511.2	506.5	509.7	505.7	507.3
22.5°	490.6	497.0	497.8	491.4	495.4	490.6	496.2	489.0	497.0	491.4	493.8
25°	479.5	478.7	481.1	477.9	478.7	478.7	482.7	479.5	481.9	478.7	479.5
27.5°	461.3	467.7	466.8	463.7	465.3	464.5	472.4	463.7	468.4	464.5	466.1
30°	445.4	451.0	449.4	446.2	446.2	443.9	452.6	450.2	449.4	449.4	448.6
32.5°	429.6	430.4	428.8	429.6	430.4	427.2	434.3	431.2	430.4	431.2	432.0
35°	408.2	408.2	409.8	407.4	410.6	410.6	416.9	412.9	412.2	409.8	412.2
37.5°	389.2	386.8	387.6	387.6	389.2	390.8	393.9	392.3	392.3	390.0	391.6
40°	363.8	362.2	364.6	364.6	367.0	367.0	370.2	368.6	370.9	370.9	370.9
42.5°	341.6	341.6	340.0	342.4	343.2	342.4	348.0	347.2	348.0	346.4	347.2
45°	317.8	317.8	316.2	315.5	319.4	318.6	325.0	322.6	325.8	324.2	325.0
47.5°	285.3	289.3	286.9	289.3	294.1	294.9	298.8	297.2	300.4	298.0	301.2
50°	254.4	254.4	256.8	260.0	264.7	265.5	270.3	273.5	275.0	275.8	276.6
52.5°	221.9	221.1	223.5	227.5	231.5	234.6	239.4	244.1	247.3	252.1	249.7
55°	183.9	185.5	187.9	192.6	199.0	202.9	206.9	213.2	218.8	221.1	225.9
57.5°	151.4	149.8	151.4	157.7	164.9	168.0	173.6	179.9	187.9	192.6	194.2
60°	117.3	118.1	119.7	125.2	130.8	135.5	137.9	148.2	155.4	160.1	163.3
62.5°	86.4	88.0	89.6	94.3	99.9	103.8	107.8	116.5	122.9	127.6	130.8
65°	60.2	61.0	63.4	65.8	71.3	75.3	78.5	85.6	91.9	95.9	98.3
67.5°	37.3	38.0	39.6	42.8	46.8	49.9	53.1	57.9	63.4	67.4	68.2
70°	19.0	19.8	20.6	23.0	26.2	27.7	30.1	34.1	38.0	41.2	42.8
72.5°	6.3	6.3	7.1	8.7	10.3	11.9	12.7	16.7	19.8	21.4	22.2
75°	1.6	1.6	1.6	1.6	1.6	2.4	2.4	4.8	6.3	7.9	8.7
77.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6
80°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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°	558.0	558.0	558.0	558.0	558.0	558.0	558.0	558.0	558.0	558.0
2.5°	558.0	556.4	555.6	556.4	556.4	555.6	558.0	561.2	565.1	554.8
5°	557.2	555.6	557.2	552.5	554.8	553.3	556.4	555.6	558.8	555.6
7.5°	554.8	551.7	552.5	550.1	553.3	549.3	551.7	556.4	553.3	548.5
10°	546.9	545.3	550.9	542.9	541.4	544.5	550.9	546.1	544.5	546.1
12.5°	539.0	539.0	541.4	535.0	535.8	537.4	540.5	537.4	539.0	542.9
15°	530.3	528.7	532.6	527.9	527.1	525.5	528.7	528.7	530.3	527.9
17.5°	519.9	517.6	517.6	516.0	515.2	519.2	520.8	521.5	522.3	519.2
20°	507.3	506.5	508.9	506.5	507.3	508.1	508.1	506.5	513.6	504.9
22.5°	493.8	496.2	493.0	491.4	493.0	494.6	494.6	495.4	493.8	492.2
25°	480.3	481.9	482.7	477.9	480.3	477.9	483.5	484.3	481.1	482.7
27.5°	468.4	466.1	465.3	462.1	463.7	462.9	463.7	463.7	468.4	462.1
30°	450.2	447.8	448.6	446.2	447.0	446.2	447.0	447.0	450.2	449.4
32.5°	432.8	430.4	431.2	428.8	428.8	429.6	428.0	428.0	430.4	428.8
35°	416.1	410.6	411.4	410.6	411.4	408.2	408.2	407.4	409.0	405.0
37.5°	392.3	390.0	389.2	388.4	389.2	387.6	389.2	386.8	389.2	386.0
40°	370.9	369.3	370.2	365.4	365.4	366.2	364.6	363.8	364.6	367.8
42.5°	349.6	346.4	344.8	343.2	344.0	341.6	340.8	339.2	340.8	337.7
45°	324.2	324.2	323.4	319.4	320.2	320.2	317.1	313.9	314.7	314.7
47.5°	301.2	299.6	298.8	294.9	294.1	293.3	290.1	287.7	287.7	285.3
50°	275.8	274.2	271.9	267.9	266.3	261.6	259.2	256.0	252.9	252.9
52.5°	252.1	246.5	243.3	237.0	234.6	232.2	225.9	223.5	221.1	218.8
55°	223.5	218.8	212.4	205.3	202.1	198.1	191.8	187.1	183.9	184.7
57.5°	195.8	187.9	181.5	172.0	168.0	165.6	159.3	153.0	149.8	149.8
60°	161.7	155.4	147.4	138.7	135.5	131.6	123.6	119.7	117.3	114.9
62.5°	129.2	124.4	117.3	106.2	103.8	99.9	94.3	89.6	87.2	87.2
65°	96.7	91.9	85.6	77.7	74.5	71.3	66.6	61.8	59.4	58.7
67.5°	68.2	62.6	57.1	50.7	48.3	46.8	42.0	38.8	37.3	36.4
70°	41.2	38.0	34.1	29.3	26.9	25.4	22.2	19.8	19.0	18.2
72.5°	21.4	19.0	15.8	12.7	11.1	9.5	7.9	6.3	5.6	5.6
75°	7.9	6.3	4.0	2.4	1.6	1.6	1.6	1.6	1.6	1.6
77.5°	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
80°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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)