

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: **FLDSQ4C10D010 FEU4C109035 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: FLDSQ4C10D010 FEU4C109035 F4LC-CSSQ-MMS
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

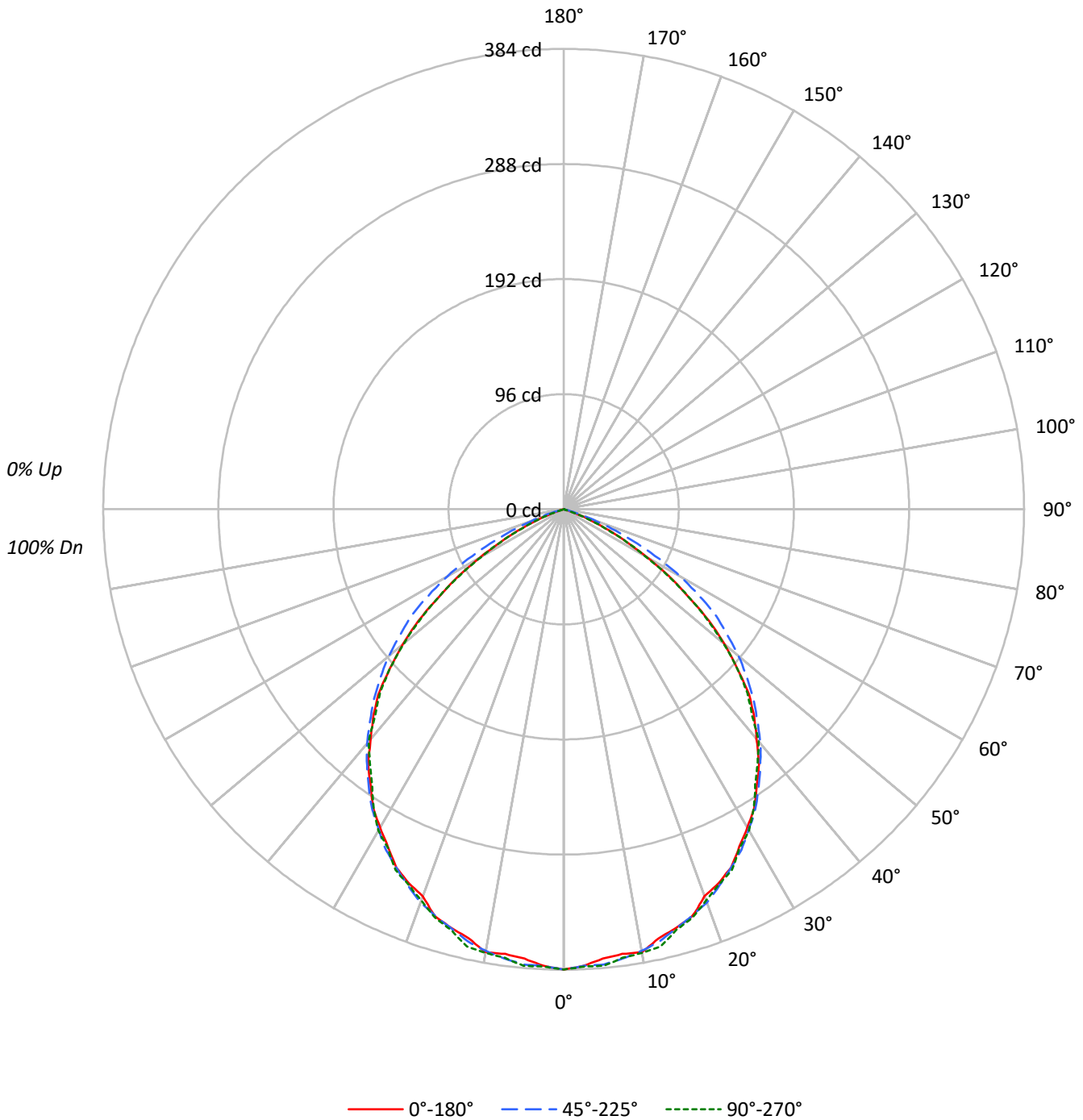
Lumens per Lamp: N/A
 Luminaire Lumens: 820.0 lumens
 Efficiency: N/A
 Efficacy: 84.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.75
 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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CATALOG NUMBER: FLDSQ4C10D010 FEU4C109035 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°	37042	37042	37042
5°	36438	36912	37019
10°	36751	36653	36810
15°	36111	36161	36271
20°	35271	35836	35661
25°	35122	35122	35357
30°	34138	34383	34450
35°	33076	33394	32817
40°	31527	32144	31867
45°	29829	30512	29543
50°	26269	28566	26104
55°	21280	26142	21381
60°	15573	21671	15265
65°	9452	15434	9224
70°	3696	8322	3526
75°	410	2237	410
80°	333	333	333
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.2	4.4
10°-20°	102.5	12.5
20°-30°	152.1	18.6
30°-40°	176.3	21.5
40°-50°	169.0	20.6
50°-60°	124.3	15.2
60°-70°	53.7	6.5
70°-80°	5.8	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°	290.9	35.5
0°-40°	467.2	57.0
0°-60°	760.5	92.7
0°-90°	820.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	820.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	384	384	384	384	384	
5°	376	380	381	382	382	36
15°	362	364	362	363	363	102
25°	330	329	330	330	332	151
35°	281	282	284	283	279	176
45°	219	219	224	220	216	166
55°	126	140	155	139	127	114
65°	41	52	68	51	40	43
75°	1	2	6	1	1	3
85°	0	0	0	0	0	0
90°	0	0	0	0	0	



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109035 F4LC-CSSQ-MMS

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	383.9	383.9	383.9	383.9	383.9	383.9	383.9	383.9	383.9	383.9	383.9
2.5°	381.1	385.5	386.0	383.3	382.2	380.6	384.4	381.7	382.8	381.7	381.1
5°	376.2	381.1	381.7	381.7	380.6	380.0	381.7	381.1	380.6	379.5	381.1
7.5°	374.1	376.8	379.5	376.2	377.9	377.3	381.1	379.5	379.0	379.0	377.9
10°	375.1	374.6	376.8	373.5	374.6	373.5	376.8	376.8	375.7	374.6	374.1
12.5°	366.4	370.8	370.8	370.2	369.1	367.5	370.8	373.0	369.7	369.7	369.1
15°	361.5	362.6	363.1	363.1	362.6	363.7	365.3	363.1	363.7	361.0	362.0
17.5°	356.1	353.9	355.5	354.4	355.0	356.1	358.2	358.2	355.0	354.4	355.5
20°	343.5	350.1	350.6	347.3	347.9	347.9	351.7	348.4	350.6	347.9	349.0
22.5°	337.5	341.9	342.4	338.1	340.8	337.5	341.3	336.4	341.9	338.1	339.7
25°	329.9	329.3	331.0	328.8	329.3	329.3	332.1	329.9	331.5	329.3	329.9
27.5°	317.3	321.7	321.2	319.0	320.1	319.5	325.0	319.0	322.2	319.5	320.6
30°	306.4	310.3	309.2	307.0	307.0	305.3	311.3	309.7	309.2	309.2	308.6
32.5°	295.5	296.1	295.0	295.5	296.1	293.9	298.8	296.6	296.1	296.6	297.2
35°	280.8	280.8	281.9	280.3	282.4	282.4	286.8	284.1	283.5	281.9	283.5
37.5°	267.7	266.1	266.6	266.6	267.7	268.8	271.0	269.9	269.9	268.3	269.4
40°	250.3	249.2	250.8	250.8	252.5	252.5	254.6	253.5	255.2	255.2	255.2
42.5°	235.0	235.0	233.9	235.5	236.1	235.5	239.4	238.8	239.4	238.3	238.8
45°	218.6	218.6	217.6	217.0	219.7	219.2	223.6	221.9	224.1	223.0	223.6
47.5°	196.3	199.0	197.4	199.0	202.3	202.8	205.6	204.5	206.7	205.0	207.2
50°	175.0	175.0	176.7	178.8	182.1	182.7	185.9	188.1	189.2	189.7	190.3
52.5°	152.7	152.1	153.8	156.5	159.2	161.4	164.7	167.9	170.1	173.4	171.7
55°	126.5	127.6	129.2	132.5	136.9	139.6	142.3	146.7	150.5	152.1	155.4
57.5°	104.1	103.0	104.1	108.5	113.4	115.6	119.4	123.8	129.2	132.5	133.6
60°	80.7	81.2	82.3	86.2	90.0	93.2	94.9	102.0	106.9	110.1	112.3
62.5°	59.4	60.5	61.6	64.9	68.7	71.4	74.1	80.2	84.5	87.8	90.0
65°	41.4	42.0	43.6	45.3	49.1	51.8	54.0	58.9	63.2	66.0	67.6
67.5°	25.6	26.2	27.3	29.5	32.2	34.3	36.5	39.8	43.6	46.3	46.9
70°	13.1	13.6	14.2	15.8	18.0	19.1	20.7	23.4	26.2	28.3	29.5
72.5°	4.4	4.4	4.9	6.0	7.1	8.2	8.7	11.5	13.6	14.7	15.3
75°	1.1	1.1	1.1	1.1	1.1	1.6	1.6	3.3	4.4	5.5	6.0
77.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.1	1.1
80°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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°	383.9	383.9	383.9	383.9	383.9	383.9	383.9	383.9	383.9	383.9
2.5°	383.9	382.8	382.2	382.8	382.8	382.2	383.9	386.0	388.8	381.7
5°	383.3	382.2	383.3	380.0	381.7	380.6	382.8	382.2	384.4	382.2
7.5°	381.7	379.5	380.0	378.4	380.6	377.9	379.5	382.8	380.6	377.3
10°	376.2	375.1	379.0	373.5	372.4	374.6	379.0	375.7	374.6	375.7
12.5°	370.8	370.8	372.4	368.1	368.6	369.7	371.9	369.7	370.8	373.5
15°	364.8	363.7	366.4	363.1	362.6	361.5	363.7	363.7	364.8	363.1
17.5°	357.7	356.1	356.1	355.0	354.4	357.1	358.2	358.8	359.3	357.1
20°	349.0	348.4	350.1	348.4	349.0	349.5	349.5	348.4	353.3	347.3
22.5°	339.7	341.3	339.2	338.1	339.2	340.2	340.2	340.8	339.7	338.6
25°	330.4	331.5	332.1	328.8	330.4	328.8	332.6	333.1	331.0	332.1
27.5°	322.2	320.6	320.1	317.9	319.0	318.4	319.0	319.0	322.2	317.9
30°	309.7	308.1	308.6	307.0	307.5	307.0	307.5	307.5	309.7	309.2
32.5°	297.7	296.1	296.6	295.0	295.0	295.5	294.4	294.4	296.1	295.0
35°	286.2	282.4	283.0	282.4	283.0	280.8	280.8	280.3	281.4	278.6
37.5°	269.9	268.3	267.7	267.2	267.7	266.6	267.7	266.1	267.7	265.5
40°	255.2	254.1	254.6	251.4	251.4	251.9	250.8	250.3	250.8	253.0
42.5°	240.5	238.3	237.2	236.1	236.6	235.0	234.5	233.4	234.5	232.3
45°	223.0	223.0	222.5	219.7	220.3	220.3	218.1	215.9	216.5	216.5
47.5°	207.2	206.1	205.6	202.8	202.3	201.8	199.6	197.9	197.9	196.3
50°	189.7	188.7	187.0	184.3	183.2	179.9	178.3	176.1	173.9	173.9
52.5°	173.4	169.6	167.4	163.0	161.4	159.8	155.4	153.8	152.1	150.5
55°	153.8	150.5	146.1	141.2	139.0	136.3	131.9	128.7	126.5	127.1
57.5°	134.7	129.2	124.9	118.3	115.6	113.9	109.6	105.2	103.0	103.0
60°	111.2	106.9	101.4	95.4	93.2	90.5	85.0	82.3	80.7	79.1
62.5°	88.9	85.6	80.7	73.1	71.4	68.7	64.9	61.6	60.0	60.0
65°	66.5	63.2	58.9	53.4	51.3	49.1	45.8	42.5	40.9	40.4
67.5°	46.9	43.1	39.3	34.9	33.3	32.2	28.9	26.7	25.6	25.1
70°	28.3	26.2	23.4	20.2	18.5	17.4	15.3	13.6	13.1	12.5
72.5°	14.7	13.1	10.9	8.7	7.6	6.5	5.5	4.4	3.8	3.8
75°	5.5	4.4	2.7	1.6	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	1.1	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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)