

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: **FLDSQ4C20D010 FEU4C209030 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: FLDSQ4C20D010 FEU4C209030 F4LC-CSSQ-MMS
 Description: 4 INCH 2000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

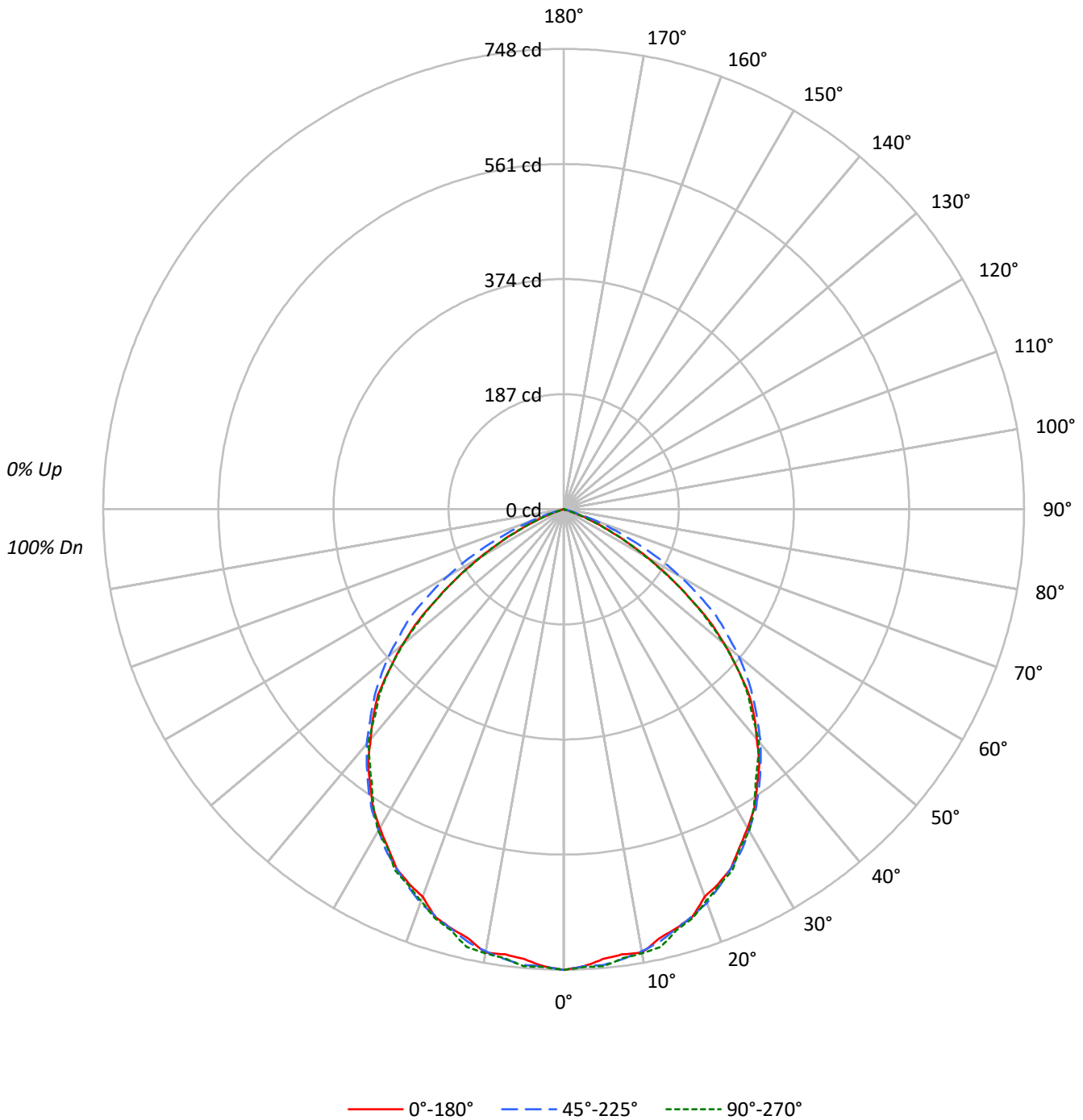
Lumens per Lamp: N/A
 Luminaire Lumens: 1599.0 lumens
 Efficiency: N/A
 Efficacy: 73.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 21.8
 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°	72222	72222	72222
5°	71064	71984	72188
10°	71670	71465	71778
15°	70414	70524	70734
20°	68776	69875	69546
25°	68488	68488	68935
30°	66571	67050	67173
35°	64502	65127	63996
40°	61467	62676	62135
45°	58185	59481	57598
50°	51233	55706	50917
55°	41501	50972	41669
60°	30355	42262	29757
65°	18448	30092	17968
70°	7194	16193	6912
75°	783	4362	783
80°	611	611	611
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	70.7	4.4
10°-20°	199.9	12.5
20°-30°	296.7	18.6
30°-40°	343.7	21.5
40°-50°	329.6	20.6
50°-60°	242.3	15.2
60°-70°	104.7	6.5
70°-80°	11.3	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°	567.3	35.5
0°-40°	911.0	57.0
0°-60°	1482.9	92.7
0°-90°	1599.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1599.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	748	748	748	748	748	
5°	734	741	743	744	745	70
15°	705	709	706	707	708	199
25°	643	642	643	644	648	295
35°	548	551	553	552	543	342
45°	426	427	436	430	422	324
55°	247	272	303	271	248	222
65°	81	101	132	100	79	83
75°	2	3	12	2	2	7
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°	748.5	748.5	748.5	748.5	748.5	748.5	748.5	748.5	748.5	748.5	748.5
2.5°	743.2	751.7	752.8	747.5	745.3	742.2	749.6	744.3	746.4	744.3	743.2
5°	733.7	743.2	744.3	744.3	742.2	741.1	744.3	743.2	742.2	740.0	743.2
7.5°	729.4	734.7	740.0	733.7	736.8	735.8	743.2	740.0	739.0	739.0	736.8
10°	731.5	730.5	734.7	728.3	730.5	728.3	734.7	734.7	732.6	730.5	729.4
12.5°	714.5	723.0	723.0	721.9	719.8	716.6	723.0	727.3	720.9	720.9	719.8
15°	704.9	707.1	708.1	708.1	707.1	709.2	712.4	708.1	709.2	703.9	706.0
17.5°	694.3	690.1	693.2	691.1	692.2	694.3	698.6	698.6	692.2	691.1	693.2
20°	669.8	682.6	683.7	677.3	678.4	678.4	685.8	679.4	683.7	678.4	680.5
22.5°	658.1	666.6	667.7	659.2	664.5	658.1	665.6	656.0	666.6	659.2	662.4
25°	643.3	642.2	645.4	641.1	642.2	642.2	647.5	643.3	646.5	642.2	643.3
27.5°	618.8	627.3	626.3	622.0	624.1	623.1	633.7	622.0	628.4	623.1	625.2
30°	597.5	605.0	602.9	598.6	598.6	595.4	607.1	603.9	602.9	602.9	601.8
32.5°	576.3	577.4	575.2	576.3	577.4	573.1	582.7	578.4	577.4	578.4	579.5
35°	547.6	547.6	549.7	546.5	550.8	550.8	559.3	553.9	552.9	549.7	552.9
37.5°	522.0	518.9	519.9	519.9	522.0	524.2	528.4	526.3	526.3	523.1	525.3
40°	488.0	485.9	489.1	489.1	492.3	492.3	496.5	494.4	497.6	497.6	497.6
42.5°	458.3	458.3	456.2	459.3	460.4	459.3	466.8	465.7	466.8	464.7	465.7
45°	426.4	426.4	424.2	423.2	428.5	427.4	435.9	432.7	437.0	434.9	435.9
47.5°	382.8	388.1	384.9	388.1	394.5	395.5	400.8	398.7	403.0	399.8	404.1
50°	341.3	341.3	344.5	348.7	355.1	356.2	362.6	366.8	369.0	370.0	371.1
52.5°	297.7	296.6	299.9	305.1	310.5	314.7	321.1	327.5	331.7	338.1	334.9
55°	246.7	248.8	252.0	258.4	266.9	272.2	277.5	286.0	293.5	296.6	303.0
57.5°	203.1	200.9	203.1	211.6	221.2	225.4	232.9	241.4	252.0	258.4	260.5
60°	157.3	158.4	160.6	168.0	175.4	181.8	185.0	198.8	208.4	214.8	219.0
62.5°	115.9	118.0	120.2	126.5	134.0	139.3	144.6	156.3	164.8	171.2	175.4
65°	80.8	81.9	85.1	88.2	95.7	101.0	105.2	114.8	123.3	128.7	131.8
67.5°	50.0	51.0	53.1	57.4	62.7	67.0	71.2	77.6	85.1	90.4	91.4
70°	25.5	26.6	27.6	30.8	35.1	37.2	40.4	45.7	51.0	55.3	57.4
72.5°	8.5	8.5	9.6	11.7	13.8	16.0	17.0	22.3	26.6	28.7	29.8
75°	2.1	2.1	2.1	2.1	2.1	3.2	3.2	6.4	8.5	10.6	11.7
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.1	2.1
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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°	748.5	748.5	748.5	748.5	748.5	748.5	748.5	748.5	748.5	748.5
2.5°	748.5	746.4	745.3	746.4	746.4	745.3	748.5	752.8	758.1	744.3
5°	747.5	745.3	747.5	741.1	744.3	742.2	746.4	745.3	749.6	745.3
7.5°	744.3	740.0	741.1	737.9	742.2	736.8	740.0	746.4	742.2	735.8
10°	733.7	731.5	739.0	728.3	726.2	730.5	739.0	732.6	730.5	732.6
12.5°	723.0	723.0	726.2	717.7	718.7	720.9	725.1	720.9	723.0	728.3
15°	711.3	709.2	714.5	708.1	707.1	704.9	709.2	709.2	711.3	708.1
17.5°	697.5	694.3	694.3	692.2	691.1	696.4	698.6	699.6	700.7	696.4
20°	680.5	679.4	682.6	679.4	680.5	681.6	681.6	679.4	689.0	677.3
22.5°	662.4	665.6	661.3	659.2	661.3	663.5	663.5	664.5	662.4	660.3
25°	644.3	646.5	647.5	641.1	644.3	641.1	648.6	649.6	645.4	647.5
27.5°	628.4	625.2	624.1	619.9	622.0	621.0	622.0	622.0	628.4	619.9
30°	603.9	600.7	601.8	598.6	599.7	598.6	599.7	599.7	603.9	602.9
32.5°	580.5	577.4	578.4	575.2	575.2	576.3	574.1	574.1	577.4	575.2
35°	558.2	550.8	551.8	550.8	551.8	547.6	547.6	546.5	548.6	543.3
37.5°	526.3	523.1	522.0	521.0	522.0	519.9	522.0	518.9	522.0	517.8
40°	497.6	495.5	496.5	490.2	490.2	491.2	489.1	488.0	489.1	493.3
42.5°	468.9	464.7	462.5	460.4	461.4	458.3	457.2	455.1	457.2	452.9
45°	434.9	434.9	433.8	428.5	429.6	429.6	425.3	421.1	422.1	422.1
47.5°	404.1	401.9	400.8	395.5	394.5	393.4	389.1	386.0	386.0	382.8
50°	370.0	367.9	364.7	359.4	357.2	350.9	347.7	343.4	339.2	339.2
52.5°	338.1	330.7	326.4	317.9	314.7	311.5	303.0	299.9	296.6	293.5
55°	299.9	293.5	285.0	275.4	271.1	265.8	257.3	250.9	246.7	247.7
57.5°	262.6	252.0	243.5	230.7	225.4	222.2	213.7	205.2	200.9	200.9
60°	216.9	208.4	197.8	186.1	181.8	176.5	165.8	160.6	157.3	154.2
62.5°	173.3	166.9	157.3	142.5	139.3	134.0	126.5	120.2	117.0	117.0
65°	129.7	123.3	114.8	104.2	100.0	95.7	89.3	82.9	79.7	78.7
67.5°	91.4	84.0	76.6	68.1	64.9	62.7	56.4	52.1	50.0	48.9
70°	55.3	51.0	45.7	39.3	36.1	34.0	29.8	26.6	25.5	24.5
72.5°	28.7	25.5	21.3	17.0	14.9	12.8	10.6	8.5	7.5	7.5
75°	10.6	8.5	5.3	3.2	2.1	2.1	2.1	2.1	2.1	2.1
77.5°	2.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)