

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 FEU4C209027 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 FEU4C209027 F4LC-CSSQ-MMS
 Description: 4 INCH 2000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

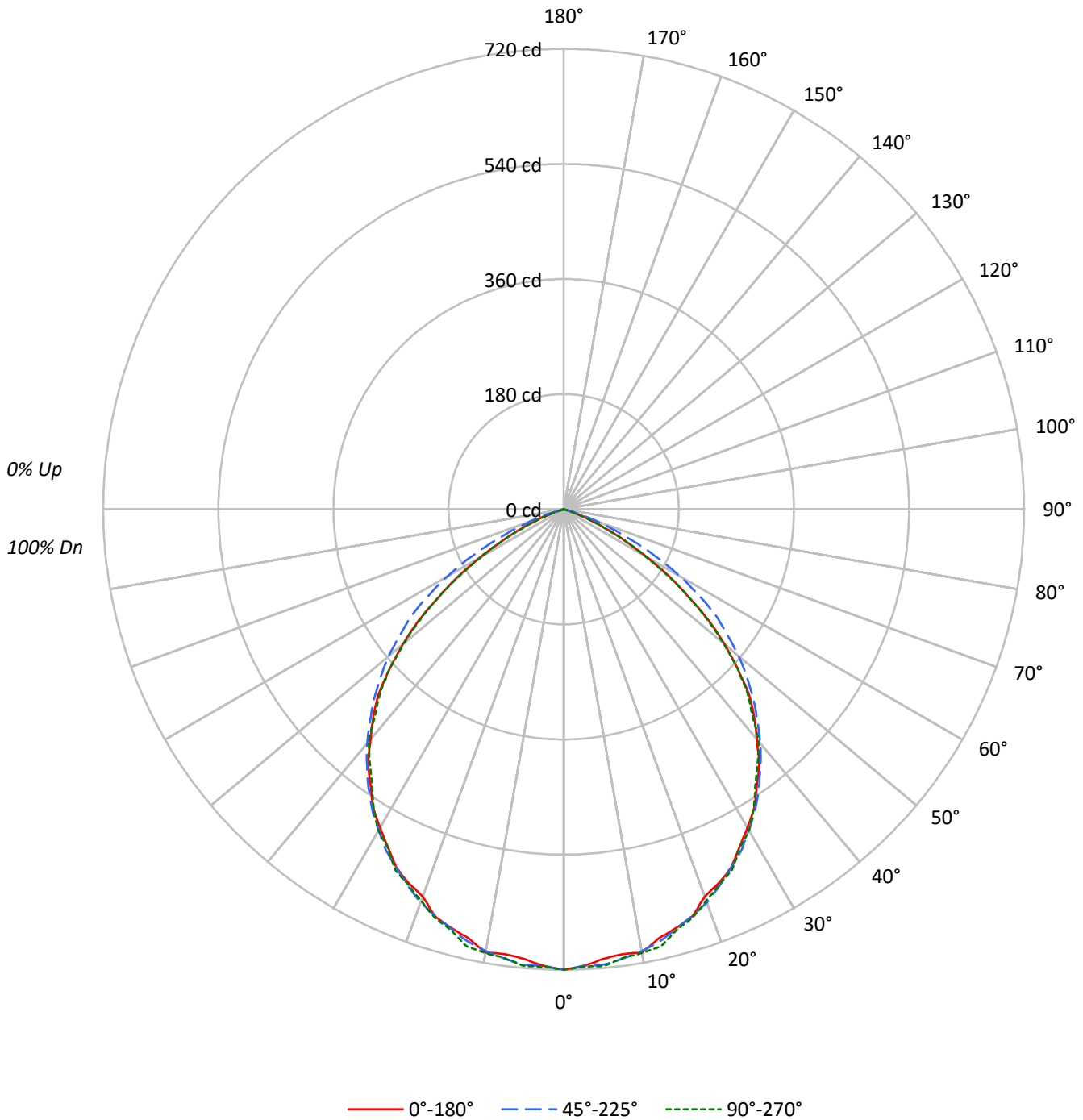
Lumens per Lamp: N/A
 Luminaire Lumens: 1538.0 lumens
 Efficiency: N/A
 Efficacy: 70.5 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	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	34				34
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°	69472	69472	69472
5°	68352	69243	69437
10°	68937	68741	69035
15°	67737	67837	68037
20°	66158	67205	66897
25°	65869	65869	66306
30°	64031	64487	64610
35°	62041	62641	61558
40°	59124	60283	59767
45°	55961	57216	55401
50°	49281	53574	48981
55°	39919	49037	40088
60°	29198	40660	28619
65°	17740	28950	17283
70°	6912	15573	6630
75°	746	4213	746
80°	556	556	556
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.0	4.4
10°-20°	192.3	12.5
20°-30°	285.3	18.6
30°-40°	330.6	21.5
40°-50°	317.0	20.6
50°-60°	233.1	15.2
60°-70°	100.7	6.5
70°-80°	10.8	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°	545.6	35.5
0°-40°	876.2	57.0
0°-60°	1426.3	92.7
0°-90°	1538.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1538.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	720	720	720	720	720	
5°	706	713	715	716	717	67
15°	678	682	679	680	681	191
25°	619	618	619	620	623	283
35°	527	530	532	531	523	329
45°	410	411	419	413	406	312
55°	237	262	292	261	238	214
65°	78	97	127	96	76	80
75°	2	3	11	2	2	6
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°	720.0	720.0	720.0	720.0	720.0	720.0	720.0	720.0	720.0	720.0	720.0
2.5°	714.9	723.0	724.1	718.9	716.9	713.9	721.0	715.9	717.9	715.9	714.9
5°	705.7	714.9	715.9	715.9	713.9	712.8	715.9	714.9	713.9	711.8	714.9
7.5°	701.6	706.7	711.8	705.7	708.7	707.7	714.9	711.8	710.8	710.8	708.7
10°	703.6	702.6	706.7	700.5	702.6	700.5	706.7	706.7	704.6	702.6	701.6
12.5°	687.2	695.4	695.4	694.4	692.4	689.3	695.4	699.5	693.4	693.4	692.4
15°	678.1	680.1	681.1	681.1	680.1	682.1	685.2	681.1	682.1	677.0	679.1
17.5°	667.8	663.7	666.8	664.7	665.8	667.8	671.9	671.9	665.8	664.7	666.8
20°	644.3	656.6	657.6	651.5	652.5	652.5	659.6	653.5	657.6	652.5	654.5
22.5°	633.0	641.2	642.2	634.1	639.2	633.0	640.2	631.0	641.2	634.1	637.1
25°	618.7	617.7	620.8	616.7	617.7	617.7	622.8	618.7	621.8	617.7	618.7
27.5°	595.2	603.4	602.4	598.3	600.3	599.3	609.5	598.3	604.4	599.3	601.4
30°	574.7	581.9	579.9	575.8	575.8	572.7	584.0	580.9	579.9	579.9	578.8
32.5°	554.3	555.3	553.3	554.3	555.3	551.2	560.4	556.3	555.3	556.3	557.4
35°	526.7	526.7	528.7	525.7	529.8	529.8	537.9	532.8	531.8	528.7	531.8
37.5°	502.1	499.1	500.1	500.1	502.1	504.2	508.3	506.2	506.2	503.2	505.2
40°	469.4	467.4	470.4	470.4	473.5	473.5	477.6	475.6	478.6	478.6	478.6
42.5°	440.8	440.8	438.8	441.8	442.8	441.8	449.0	447.9	449.0	446.9	447.9
45°	410.1	410.1	408.0	407.0	412.1	411.1	419.3	416.2	420.3	418.3	419.3
47.5°	368.2	373.3	370.2	373.3	379.4	380.5	385.6	383.5	387.6	384.5	388.6
50°	328.3	328.3	331.3	335.4	341.6	342.6	348.7	352.8	354.9	355.9	356.9
52.5°	286.4	285.3	288.4	293.5	298.6	302.7	308.9	315.0	319.1	325.2	322.1
55°	237.3	239.3	242.4	248.5	256.7	261.8	266.9	275.1	282.3	285.3	291.5
57.5°	195.3	193.3	195.3	203.5	212.7	216.8	224.0	232.2	242.4	248.5	250.6
60°	151.3	152.4	154.4	161.6	168.7	174.9	178.0	191.2	200.5	206.6	210.7
62.5°	111.5	113.5	115.6	121.7	128.9	134.0	139.1	150.3	158.5	164.7	168.7
65°	77.7	78.7	81.8	84.9	92.0	97.1	101.2	110.4	118.6	123.8	126.8
67.5°	48.1	49.1	51.1	55.2	60.3	64.4	68.5	74.6	81.8	86.9	88.0
70°	24.5	25.6	26.6	29.7	33.8	35.8	38.8	44.0	49.1	53.2	55.2
72.5°	8.2	8.2	9.2	11.3	13.3	15.4	16.4	21.5	25.6	27.6	28.6
75°	2.0	2.0	2.0	2.0	2.0	3.1	3.1	6.1	8.2	10.2	11.3
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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°	720.0	720.0	720.0	720.0	720.0	720.0	720.0	720.0	720.0	720.0
2.5°	720.0	717.9	716.9	717.9	717.9	716.9	720.0	724.1	729.2	715.9
5°	718.9	716.9	718.9	712.8	715.9	713.9	717.9	716.9	721.0	716.9
7.5°	715.9	711.8	712.8	709.8	713.9	708.7	711.8	717.9	713.9	707.7
10°	705.7	703.6	710.8	700.5	698.5	702.6	710.8	704.6	702.6	704.6
12.5°	695.4	695.4	698.5	690.3	691.3	693.4	697.5	693.4	695.4	700.5
15°	684.2	682.1	687.2	681.1	680.1	678.1	682.1	682.1	684.2	681.1
17.5°	670.9	667.8	667.8	665.8	664.7	669.9	671.9	672.9	674.0	669.9
20°	654.5	653.5	656.6	653.5	654.5	655.6	655.6	653.5	662.7	651.5
22.5°	637.1	640.2	636.1	634.1	636.1	638.2	638.2	639.2	637.1	635.1
25°	619.8	621.8	622.8	616.7	619.8	616.7	623.8	624.9	620.8	622.8
27.5°	604.4	601.4	600.3	596.2	598.3	597.3	598.3	598.3	604.4	596.2
30°	580.9	577.8	578.8	575.8	576.8	575.8	576.8	576.8	580.9	579.9
32.5°	558.4	555.3	556.3	553.3	553.3	554.3	552.2	552.2	555.3	553.3
35°	536.9	529.8	530.8	529.8	530.8	526.7	526.7	525.7	527.7	522.6
37.5°	506.2	503.2	502.1	501.1	502.1	500.1	502.1	499.1	502.1	498.0
40°	478.6	476.6	477.6	471.5	471.5	472.5	470.4	469.4	470.4	474.5
42.5°	451.0	446.9	444.9	442.8	443.8	440.8	439.8	437.7	439.8	435.7
45°	418.3	418.3	417.3	412.1	413.2	413.2	409.1	405.0	406.0	406.0
47.5°	388.6	386.6	385.6	380.5	379.4	378.4	374.3	371.2	371.2	368.2
50°	355.9	353.8	350.8	345.7	343.6	337.5	334.4	330.3	326.3	326.3
52.5°	325.2	318.0	313.9	305.8	302.7	299.6	291.5	288.4	285.3	282.3
55°	288.4	282.3	274.1	264.9	260.8	255.7	247.5	241.3	237.3	238.3
57.5°	252.6	242.4	234.2	221.9	216.8	213.7	205.5	197.4	193.3	193.3
60°	208.6	200.5	190.2	179.0	174.9	169.8	159.5	154.4	151.3	148.3
62.5°	166.7	160.6	151.3	137.0	134.0	128.9	121.7	115.6	112.5	112.5
65°	124.8	118.6	110.4	100.2	96.1	92.0	85.9	79.8	76.7	75.7
67.5°	88.0	80.8	73.6	65.5	62.4	60.3	54.2	50.1	48.1	47.0
70°	53.2	49.1	44.0	37.8	34.8	32.7	28.6	25.6	24.5	23.5
72.5°	27.6	24.5	20.4	16.4	14.3	12.3	10.2	8.2	7.2	7.2
75°	10.2	8.2	5.1	3.1	2.0	2.0	2.0	2.0	2.0	2.0
77.5°	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)