

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: **FLDSQ4C08D010 FEU4C089035 F4LC-CSSQ-MW**

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: FLDSQ4C08D010 FEU4C089035 F4LC-CSSQ-MW
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

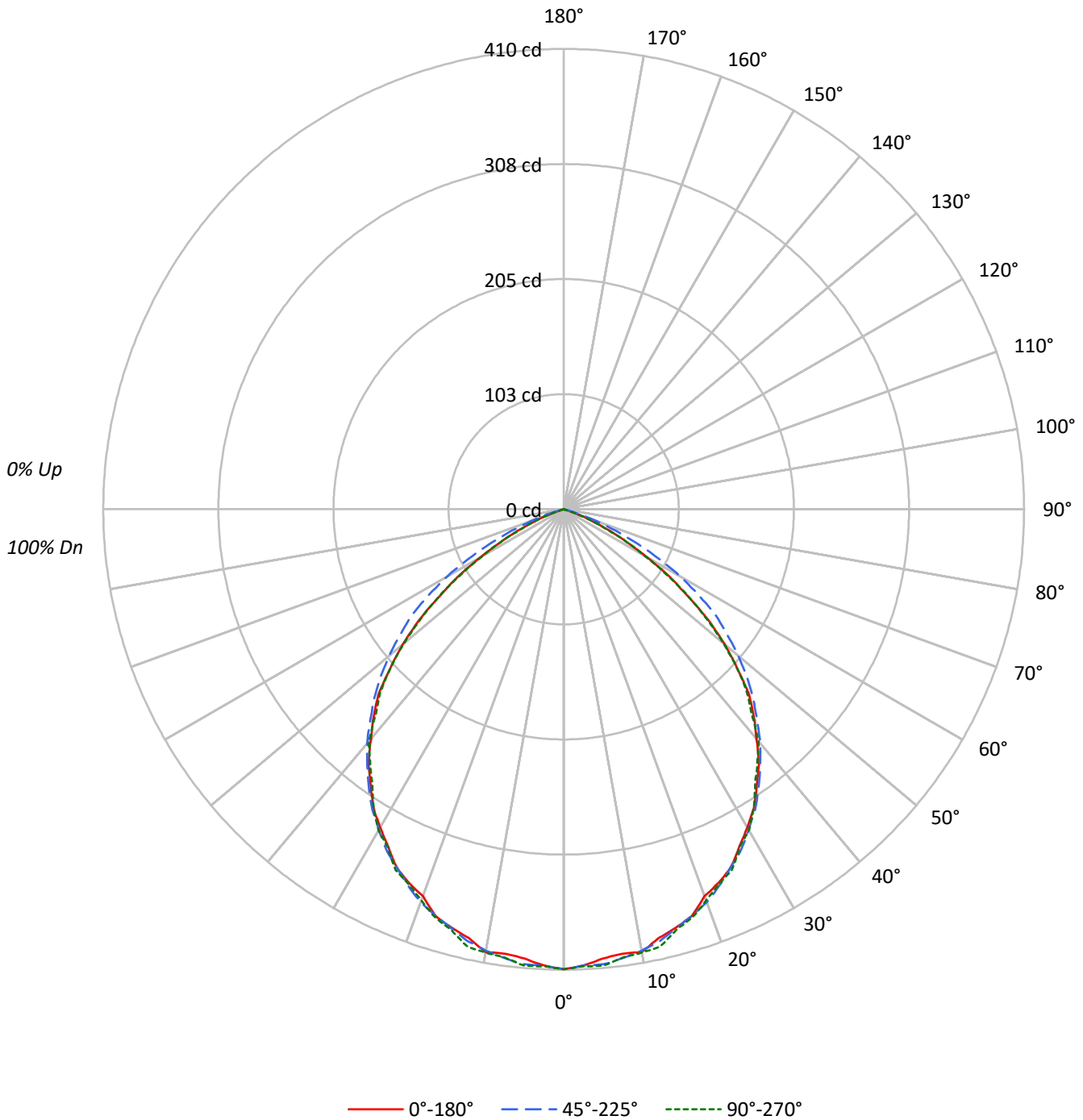
Lumens per Lamp: N/A
 Luminaire Lumens: 875.0 lumens
 Efficiency: N/A
 Efficacy: 88.7 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.87
 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: FLDSQ4C08D010 FEU4C089035 F4LC-CSSQ-MW

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°	39522	39522	39522
5°	38888	39392	39508
10°	39220	39103	39279
15°	38539	38589	38708
20°	37643	38239	38054
25°	37475	37475	37720
30°	36433	36689	36756
35°	35290	35644	35019
40°	33643	34298	34008
45°	31835	32558	31521
50°	28041	30487	27860
55°	22710	27891	22811
60°	16615	23138	16287
65°	10091	16461	9840
70°	3950	8858	3780
75°	447	2386	447
80°	333	333	333
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.7	4.4
10°-20°	109.4	12.5
20°-30°	162.3	18.6
30°-40°	188.1	21.5
40°-50°	180.3	20.6
50°-60°	132.6	15.2
60°-70°	57.3	6.5
70°-80°	6.2	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°	310.4	35.5
0°-40°	498.5	57.0
0°-60°	811.5	92.7
0°-90°	875.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	875.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	410	410	410	410	410	
5°	402	406	407	407	408	38
15°	386	388	386	387	388	109
25°	352	351	352	353	354	161
35°	300	301	303	302	297	187
45°	233	234	239	235	231	177
55°	135	149	166	148	136	121
65°	44	55	72	55	43	45
75°	1	2	6	1	1	4
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°	409.6	409.6	409.6	409.6	409.6	409.6	409.6	409.6	409.6	409.6	409.6
2.5°	406.7	411.3	411.9	409.0	407.9	406.1	410.2	407.3	408.5	407.3	406.7
5°	401.5	406.7	407.3	407.3	406.1	405.5	407.3	406.7	406.1	405.0	406.7
7.5°	399.1	402.0	405.0	401.5	403.2	402.6	406.7	405.0	404.4	404.4	403.2
10°	400.3	399.7	402.0	398.6	399.7	398.6	402.0	402.0	400.9	399.7	399.1
12.5°	391.0	395.6	395.6	395.1	393.9	392.1	395.6	398.0	394.5	394.5	393.9
15°	385.8	386.9	387.5	387.5	386.9	388.1	389.8	387.5	388.1	385.2	386.3
17.5°	379.9	377.6	379.3	378.2	378.8	379.9	382.3	382.3	378.8	378.2	379.3
20°	366.6	373.5	374.1	370.6	371.2	371.2	375.3	371.8	374.1	371.2	372.4
22.5°	360.1	364.8	365.4	360.7	363.6	360.1	364.2	359.0	364.8	360.7	362.5
25°	352.0	351.4	353.2	350.8	351.4	351.4	354.3	352.0	353.8	351.4	352.0
27.5°	338.6	343.3	342.7	340.4	341.5	341.0	346.8	340.4	343.9	341.0	342.1
30°	327.0	331.1	329.9	327.6	327.6	325.8	332.2	330.5	329.9	329.9	329.3
32.5°	315.3	315.9	314.8	315.3	315.9	313.6	318.8	316.5	315.9	316.5	317.1
35°	299.6	299.6	300.8	299.1	301.4	301.4	306.0	303.1	302.6	300.8	302.6
37.5°	285.7	283.9	284.5	284.5	285.7	286.8	289.2	288.0	288.0	286.3	287.4
40°	267.1	265.9	267.6	267.6	269.4	269.4	271.7	270.6	272.3	272.3	272.3
42.5°	250.8	250.8	249.6	251.3	251.9	251.3	255.4	254.8	255.4	254.3	254.8
45°	233.3	233.3	232.1	231.6	234.5	233.9	238.6	236.8	239.1	238.0	238.6
47.5°	209.4	212.4	210.6	212.4	215.9	216.5	219.3	218.2	220.5	218.8	221.1
50°	186.8	186.8	188.5	190.8	194.3	194.9	198.4	200.7	201.9	202.5	203.1
52.5°	162.9	162.3	164.1	167.0	169.9	172.2	175.7	179.2	181.5	185.0	183.3
55°	135.0	136.1	137.9	141.4	146.0	148.9	151.9	156.5	160.6	162.3	165.8
57.5°	111.1	110.0	111.1	115.8	121.0	123.3	127.4	132.1	137.9	141.4	142.6
60°	86.1	86.7	87.9	91.9	96.0	99.5	101.2	108.8	114.0	117.5	119.9
62.5°	63.4	64.6	65.8	69.2	73.3	76.2	79.1	85.5	90.2	93.7	96.0
65°	44.2	44.8	46.6	48.3	52.4	55.3	57.6	62.8	67.5	70.4	72.1
67.5°	27.3	27.9	29.1	31.4	34.3	36.7	39.0	42.5	46.6	49.4	50.0
70°	14.0	14.6	15.1	16.9	19.2	20.4	22.1	25.0	27.9	30.2	31.4
72.5°	4.7	4.7	5.2	6.4	7.6	8.7	9.3	12.2	14.6	15.7	16.3
75°	1.2	1.2	1.2	1.2	1.2	1.8	1.8	3.5	4.7	5.8	6.4
77.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2
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°	409.6	409.6	409.6	409.6	409.6	409.6	409.6	409.6	409.6	409.6
2.5°	409.6	408.5	407.9	408.5	408.5	407.9	409.6	411.9	414.8	407.3
5°	409.0	407.9	409.0	405.5	407.3	406.1	408.5	407.9	410.2	407.9
7.5°	407.3	405.0	405.5	403.8	406.1	403.2	405.0	408.5	406.1	402.6
10°	401.5	400.3	404.4	398.6	397.4	399.7	404.4	400.9	399.7	400.9
12.5°	395.6	395.6	397.4	392.7	393.3	394.5	396.8	394.5	395.6	398.6
15°	389.2	388.1	391.0	387.5	386.9	385.8	388.1	388.1	389.2	387.5
17.5°	381.7	379.9	379.9	378.8	378.2	381.1	382.3	382.8	383.4	381.1
20°	372.4	371.8	373.5	371.8	372.4	373.0	373.0	371.8	377.0	370.6
22.5°	362.5	364.2	361.9	360.7	361.9	363.1	363.1	363.6	362.5	361.3
25°	352.6	353.8	354.3	350.8	352.6	350.8	354.9	355.5	353.2	354.3
27.5°	343.9	342.1	341.5	339.2	340.4	339.8	340.4	340.4	343.9	339.2
30°	330.5	328.7	329.3	327.6	328.1	327.6	328.1	328.1	330.5	329.9
32.5°	317.7	315.9	316.5	314.8	314.8	315.3	314.2	314.2	315.9	314.8
35°	305.4	301.4	302.0	301.4	302.0	299.6	299.6	299.1	300.2	297.3
37.5°	288.0	286.3	285.7	285.1	285.7	284.5	285.7	283.9	285.7	283.3
40°	272.3	271.1	271.7	268.2	268.2	268.8	267.6	267.1	267.6	270.0
42.5°	256.6	254.3	253.1	251.9	252.5	250.8	250.2	249.0	250.2	247.9
45°	238.0	238.0	237.4	234.5	235.1	235.1	232.7	230.4	231.0	231.0
47.5°	221.1	219.9	219.3	216.5	215.9	215.3	212.9	211.2	211.2	209.4
50°	202.5	201.3	199.6	196.7	195.5	192.0	190.3	187.9	185.6	185.6
52.5°	185.0	180.9	178.6	174.0	172.2	170.5	165.8	164.1	162.3	160.6
55°	164.1	160.6	155.9	150.7	148.4	145.4	140.8	137.3	135.0	135.6
57.5°	143.7	137.9	133.2	126.3	123.3	121.6	116.9	112.3	110.0	110.0
60°	118.7	114.0	108.2	101.8	99.5	96.6	90.8	87.9	86.1	84.4
62.5°	94.8	91.3	86.1	78.0	76.2	73.3	69.2	65.8	64.0	64.0
65°	71.0	67.5	62.8	57.0	54.7	52.4	48.9	45.4	43.6	43.1
67.5°	50.0	46.0	41.9	37.2	35.5	34.3	30.8	28.5	27.3	26.8
70°	30.2	27.9	25.0	21.5	19.8	18.6	16.3	14.6	14.0	13.4
72.5°	15.7	14.0	11.6	9.3	8.1	7.0	5.8	4.7	4.1	4.1
75°	5.8	4.7	2.9	1.8	1.2	1.2	1.2	1.2	1.2	1.2
77.5°	1.2	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)