

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 FEU4C089027 F4LC-SQ-LI**

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 FEU4C089027 F4LC-SQ-LI
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

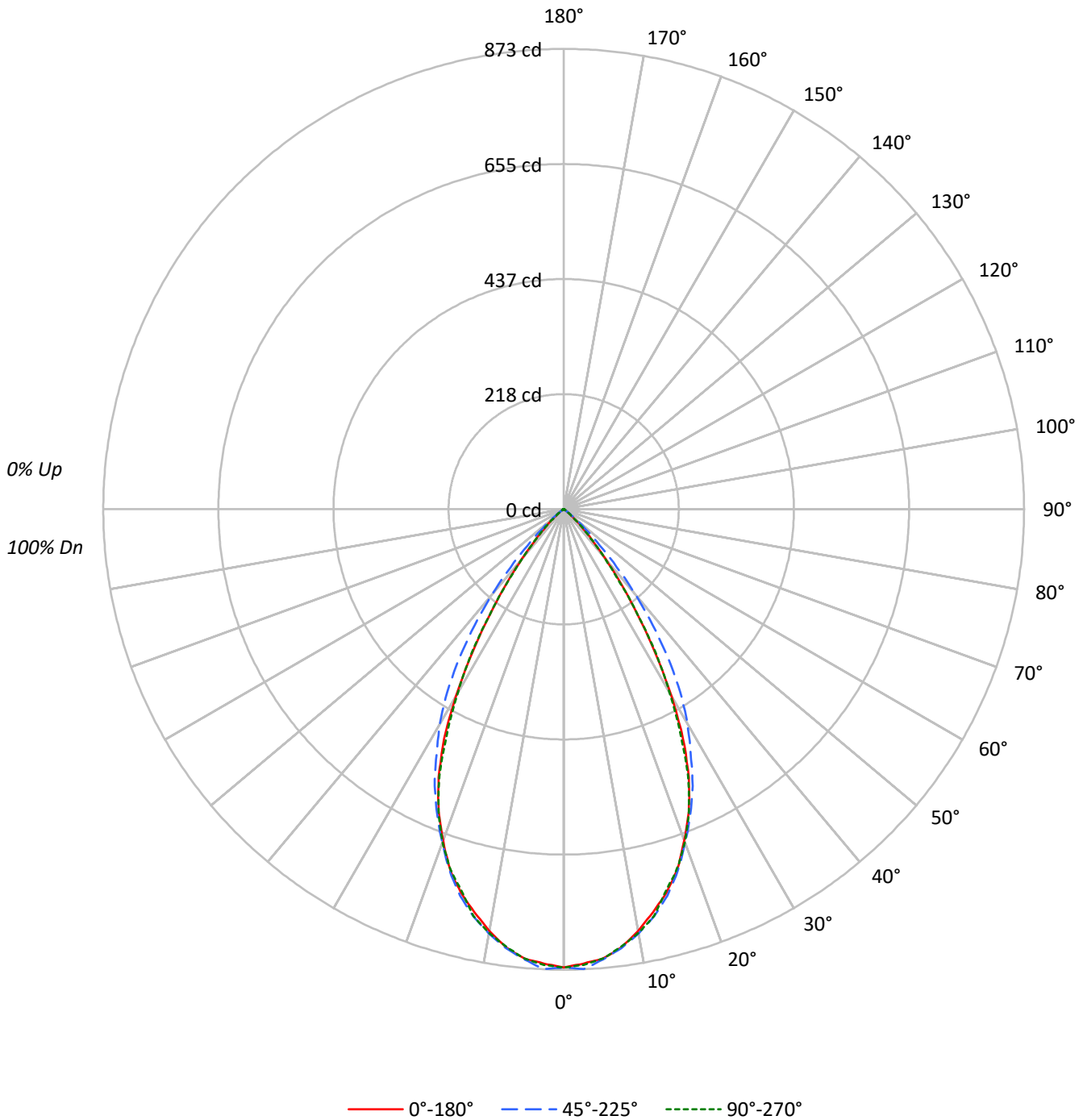
Lumens per Lamp: N/A
 Luminaire Lumens: 802.0 lumens
 Efficiency: N/A
 Efficacy: 81.0 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.9
 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	113	111	108	106	111	108	106	104	104	103	101		101	99	98		97	96	95	93
2	108	103	99	95	105	101	97	94	98	95	92		95	92	90		92	90	88	87
3	102	96	91	87	100	94	90	86	92	88	84		89	86	83		87	84	82	80
4	97	89	84	79	95	88	83	79	86	81	78		84	80	77		82	79	76	75
5	92	83	77	73	90	82	77	73	81	76	72		79	75	71		77	74	71	69
6	87	78	72	68	86	77	71	67	76	71	67		74	70	66		73	69	66	64
7	83	73	67	63	81	73	67	63	71	66	62		70	65	62		69	65	62	60
8	79	69	63	59	77	68	62	58	67	62	58		66	61	58		65	61	58	56
9	75	65	59	55	74	64	59	55	63	58	55		63	58	54		62	57	54	53
10	71	61	55	51	70	61	55	51	60	55	51		59	54	51		58	54	51	50

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	83820	83820	83820
5°	82852	82968	82852
10°	79538	80028	79920
15°	75199	75749	74810
20°	68632	69135	68971
25°	59758	61632	59343
30°	45435	52265	44767
35°	28600	40626	28859
40°	15430	26829	15153
45°	7300	13250	7232
50°	2732	4969	2732
55°	1295	1581	1211
60°	849	753	849
65°	502	502	502
70°	310	480	310
75°	224	224	224
80°	333	333	333
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	80.5	10.0
10°-20°	211.1	26.3
20°-30°	257.9	32.2
30°-40°	180.3	22.5
40°-50°	59.1	7.4
50°-60°	9.4	1.2
60°-70°	2.6	0.3
70°-80°	0.9	0.1
80°-90°	0.3	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°	549.5	68.5
0°-40°	729.8	91.0
0°-60°	798.3	99.5
0°-90°	802.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	802.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	869	869	869	869	869	
5°	855	856	857	851	855	80
15°	753	756	758	753	749	210
25°	561	570	579	568	557	252
35°	243	287	345	282	245	155
45°	54	66	97	65	53	45
55°	8	8	9	8	7	8
65°	2	3	2	3	2	2
75°	1	1	1	1	1	1
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°	25°	30°	35°	40°	45°	50°
0°	868.7	868.7	868.7	868.7	868.7	868.7	868.7	868.7	868.7	868.7	868.7
2.5°	862.1	868.1	866.5	870.4	870.4	865.9	867.0	868.7	870.9	872.6	859.3
5°	855.4	861.0	856.0	861.5	858.2	853.2	861.5	857.1	859.9	856.6	858.8
7.5°	837.8	846.6	836.7	843.3	841.1	838.3	841.6	840.5	842.2	839.4	833.4
10°	811.8	819.0	812.4	821.8	817.4	814.6	817.4	820.1	819.6	816.8	820.1
12.5°	782.0	790.3	787.0	792.5	787.6	787.6	794.2	792.5	793.1	790.9	794.7
15°	752.8	758.9	753.9	761.1	758.9	752.8	755.5	755.5	760.0	758.3	753.9
17.5°	716.4	721.3	715.8	717.5	715.3	714.2	725.7	718.0	722.4	719.1	719.7
20°	668.4	670.6	668.9	673.3	670.6	673.9	672.8	671.7	671.7	673.3	669.5
22.5°	619.8	619.8	621.4	622.5	624.8	621.4	628.1	622.5	623.1	627.0	625.9
25°	561.3	559.6	563.5	569.0	571.2	568.5	577.3	572.9	576.2	578.9	572.9
27.5°	490.1	490.1	493.9	503.3	505.0	508.3	520.4	520.4	524.8	521.0	525.4
30°	407.8	413.9	418.9	431.0	434.9	442.1	454.8	460.8	470.8	469.1	466.9
32.5°	323.4	331.7	332.2	344.9	355.4	367.6	384.7	399.0	406.2	411.2	405.6
35°	242.8	247.8	252.2	261.1	278.7	294.7	310.2	328.9	341.6	344.9	340.0
37.5°	177.7	178.8	183.2	191.5	204.7	220.2	239.0	259.4	272.6	277.6	272.1
40°	122.5	123.6	125.8	133.0	144.0	155.1	170.0	191.0	203.1	213.0	205.9
42.5°	82.2	83.3	85.5	91.1	97.1	107.6	119.2	132.5	144.0	148.5	144.6
45°	53.5	53.5	54.6	58.5	61.8	70.1	78.4	86.6	94.4	97.1	94.4
47.5°	31.5	32.0	33.1	35.9	39.7	43.0	49.1	54.6	56.8	59.1	57.9
50°	18.2	18.2	19.9	21.5	24.3	26.5	28.7	30.9	32.0	33.1	32.0
52.5°	9.9	10.5	11.0	11.6	12.7	14.9	16.6	16.6	17.1	17.7	17.1
55°	7.7	7.7	7.7	7.7	8.3	8.3	8.3	8.8	8.8	9.4	8.8
57.5°	5.5	5.5	5.5	6.1	6.1	6.1	5.5	5.5	5.5	5.5	5.5
60°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	3.9	3.9	3.9	3.9
62.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
65°	2.2	2.2	2.8	2.8	2.8	2.8	2.8	2.2	2.2	2.2	2.2
67.5°	1.7	1.7	1.7	1.7	2.2	2.2	1.7	1.7	1.7	1.7	1.7
70°	1.1	1.1	1.1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
75°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
77.5°	0.6	0.6	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	0.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	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°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	868.7	868.7	868.7	868.7	868.7	868.7	868.7	868.7
2.5°	868.7	859.3	860.4	865.4	862.6	865.4	864.8	864.8
5°	859.3	856.6	852.1	850.5	853.8	861.0	859.9	855.4
7.5°	841.6	834.5	839.4	841.6	838.9	843.3	845.5	836.1
10°	820.7	817.9	816.8	817.9	816.8	821.2	815.7	815.7
12.5°	790.9	786.5	786.5	793.1	789.2	785.9	790.3	789.8
15°	761.1	752.2	752.2	754.4	756.1	753.9	754.4	748.9
17.5°	716.9	714.2	710.3	716.4	718.0	715.8	717.5	714.7
20°	675.5	675.5	668.4	671.1	673.3	675.0	676.1	671.7
22.5°	622.5	623.7	618.7	624.2	625.9	620.3	621.4	620.3
25°	574.0	573.4	569.6	567.3	568.5	566.2	565.7	557.4
27.5°	520.4	514.9	506.7	508.9	499.5	491.7	491.7	479.0
30°	462.5	453.1	442.1	431.0	422.8	413.9	409.0	401.8
32.5°	394.6	381.9	368.1	353.2	343.8	330.6	323.4	327.3
35°	327.3	308.5	289.7	274.9	260.5	252.8	243.9	245.0
37.5°	262.2	235.7	219.1	203.1	191.0	181.0	177.2	176.1
40°	191.5	170.5	154.0	142.4	134.1	126.4	122.0	120.3
42.5°	132.5	117.6	104.3	94.9	89.4	84.4	82.2	81.7
45°	86.1	77.3	68.4	61.8	57.4	54.1	53.5	53.0
47.5°	54.1	49.7	44.1	39.2	35.3	33.1	31.5	31.5
50°	30.9	29.3	26.5	23.7	21.5	20.4	18.8	18.2
52.5°	16.6	16.6	15.5	13.2	11.6	10.5	10.5	9.9
55°	8.8	8.8	8.3	8.3	7.7	7.7	7.7	7.2
57.5°	5.5	5.5	6.1	6.1	5.5	5.5	5.5	5.5
60°	3.9	4.4	4.4	4.4	4.4	4.4	4.4	4.4
62.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
65°	2.2	2.8	2.8	2.8	2.8	2.2	2.2	2.2
67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
70°	1.7	1.7	1.7	1.7	1.7	1.1	1.1	1.1
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
75°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
77.5°	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
82.5°	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
87.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)