

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: **FLDSQ4C05D010 FEU4C059040 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: FLDSQ4C05D010 FEU4C059040 F4LC-CSSQ-MMS
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

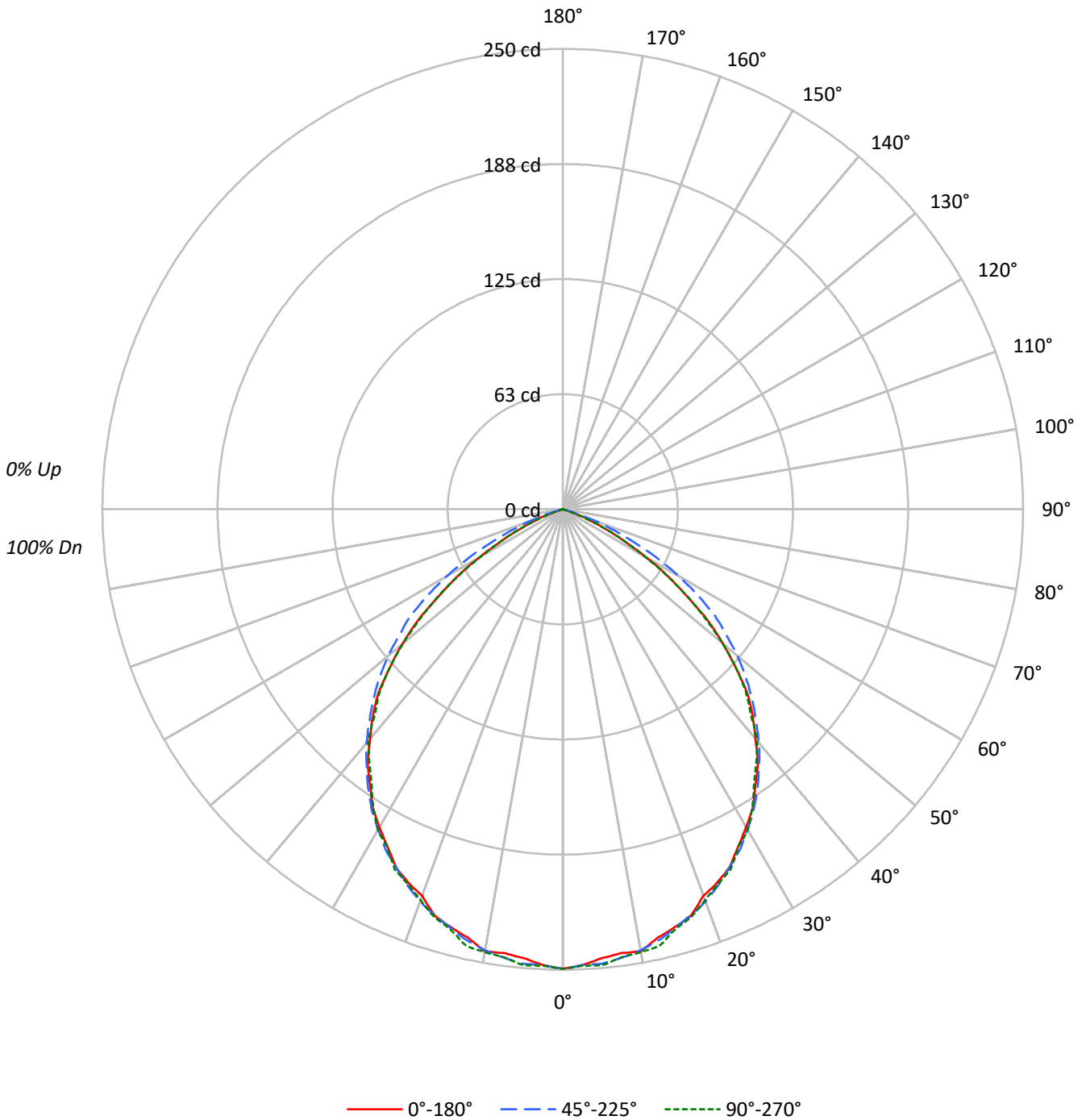
Lumens per Lamp: N/A
 Luminaire Lumens: 533.0 lumens
 Efficiency: N/A
 Efficacy: 74.0 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 7.2
 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°	24074	24074	24074
5°	23691	23992	24059
10°	23887	23818	23926
15°	23475	23505	23575
20°	22929	23288	23185
25°	22826	22826	22975
30°	22194	22350	22395
35°	21497	21709	21332
40°	20493	20896	20707
45°	19390	19827	19199
50°	17083	18569	16977
55°	13828	16991	13895
60°	10112	14087	9919
65°	6142	10023	5982
70°	2398	5388	2313
75°	261	1454	261
80°	222	222	222
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	23.6	4.4
10°-20°	66.6	12.5
20°-30°	98.9	18.6
30°-40°	114.6	21.5
40°-50°	109.9	20.6
50°-60°	80.8	15.2
60°-70°	34.9	6.5
70°-80°	3.8	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°	189.1	35.5
0°-40°	303.7	57.0
0°-60°	494.3	92.7
0°-90°	533.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	533.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	250	250	250	250	250	
5°	245	247	248	248	248	23
15°	235	236	235	236	236	66
25°	214	214	214	215	216	98
35°	182	184	184	184	181	114
45°	142	142	145	143	141	108
55°	82	91	101	90	83	74
65°	27	34	44	33	26	28
75°	1	1	4	1	1	2
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°	249.5	249.5	249.5	249.5	249.5	249.5	249.5	249.5	249.5	249.5	249.5
2.5°	247.7	250.6	250.9	249.2	248.4	247.4	249.9	248.1	248.8	248.1	247.7
5°	244.6	247.7	248.1	248.1	247.4	247.0	248.1	247.7	247.4	246.7	247.7
7.5°	243.1	244.9	246.7	244.6	245.6	245.3	247.7	246.7	246.3	246.3	245.6
10°	243.8	243.5	244.9	242.8	243.5	242.8	244.9	244.9	244.2	243.5	243.1
12.5°	238.2	241.0	241.0	240.6	239.9	238.9	241.0	242.4	240.3	240.3	239.9
15°	235.0	235.7	236.0	236.0	235.7	236.4	237.5	236.0	236.4	234.6	235.3
17.5°	231.4	230.0	231.1	230.4	230.7	231.4	232.9	232.9	230.7	230.4	231.1
20°	223.3	227.5	227.9	225.8	226.1	226.1	228.6	226.5	227.9	226.1	226.8
22.5°	219.4	222.2	222.6	219.7	221.5	219.4	221.9	218.7	222.2	219.7	220.8
25°	214.4	214.1	215.1	213.7	214.1	214.1	215.8	214.4	215.5	214.1	214.4
27.5°	206.3	209.1	208.8	207.3	208.0	207.7	211.2	207.3	209.5	207.7	208.4
30°	199.2	201.7	201.0	199.5	199.5	198.5	202.4	201.3	201.0	201.0	200.6
32.5°	192.1	192.5	191.7	192.1	192.5	191.0	194.2	192.8	192.5	192.8	193.2
35°	182.5	182.5	183.2	182.2	183.6	183.6	186.4	184.6	184.3	183.2	184.3
37.5°	174.0	173.0	173.3	173.3	174.0	174.7	176.1	175.4	175.4	174.4	175.1
40°	162.7	162.0	163.0	163.0	164.1	164.1	165.5	164.8	165.9	165.9	165.9
42.5°	152.8	152.8	152.1	153.1	153.5	153.1	155.6	155.2	155.6	154.9	155.2
45°	142.1	142.1	141.4	141.1	142.8	142.5	145.3	144.2	145.7	145.0	145.3
47.5°	127.6	129.4	128.3	129.4	131.5	131.8	133.6	132.9	134.3	133.3	134.7
50°	113.8	113.8	114.8	116.2	118.4	118.7	120.9	122.3	123.0	123.3	123.7
52.5°	99.2	98.9	100.0	101.7	103.5	104.9	107.0	109.2	110.6	112.7	111.6
55°	82.2	82.9	84.0	86.1	89.0	90.7	92.5	95.3	97.8	98.9	101.0
57.5°	67.7	67.0	67.7	70.5	73.7	75.1	77.6	80.5	84.0	86.1	86.8
60°	52.4	52.8	53.5	56.0	58.5	60.6	61.7	66.3	69.5	71.6	73.0
62.5°	38.6	39.3	40.1	42.2	44.7	46.4	48.2	52.1	54.9	57.1	58.5
65°	26.9	27.3	28.4	29.4	31.9	33.7	35.1	38.3	41.1	42.9	43.9
67.5°	16.7	17.0	17.7	19.1	20.9	22.3	23.7	25.9	28.4	30.1	30.5
70°	8.5	8.9	9.2	10.3	11.7	12.4	13.5	15.2	17.0	18.4	19.1
72.5°	2.8	2.8	3.2	3.9	4.6	5.3	5.7	7.4	8.9	9.6	9.9
75°	0.7	0.7	0.7	0.7	0.7	1.1	1.1	2.1	2.8	3.5	3.9
77.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.7
80°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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°	249.5	249.5	249.5	249.5	249.5	249.5	249.5	249.5	249.5	249.5
2.5°	249.5	248.8	248.4	248.8	248.8	248.4	249.5	250.9	252.7	248.1
5°	249.2	248.4	249.2	247.0	248.1	247.4	248.8	248.4	249.9	248.4
7.5°	248.1	246.7	247.0	246.0	247.4	245.6	246.7	248.8	247.4	245.3
10°	244.6	243.8	246.3	242.8	242.1	243.5	246.3	244.2	243.5	244.2
12.5°	241.0	241.0	242.1	239.2	239.6	240.3	241.7	240.3	241.0	242.8
15°	237.1	236.4	238.2	236.0	235.7	235.0	236.4	236.4	237.1	236.0
17.5°	232.5	231.4	231.4	230.7	230.4	232.1	232.9	233.2	233.6	232.1
20°	226.8	226.5	227.5	226.5	226.8	227.2	227.2	226.5	229.7	225.8
22.5°	220.8	221.9	220.4	219.7	220.4	221.2	221.2	221.5	220.8	220.1
25°	214.8	215.5	215.8	213.7	214.8	213.7	216.2	216.5	215.1	215.8
27.5°	209.5	208.4	208.0	206.6	207.3	207.0	207.3	207.3	209.5	206.6
30°	201.3	200.2	200.6	199.5	199.9	199.5	199.9	199.9	201.3	201.0
32.5°	193.5	192.5	192.8	191.7	191.7	192.1	191.4	191.4	192.5	191.7
35°	186.1	183.6	183.9	183.6	183.9	182.5	182.5	182.2	182.9	181.1
37.5°	175.4	174.4	174.0	173.7	174.0	173.3	174.0	173.0	174.0	172.6
40°	165.9	165.2	165.5	163.4	163.4	163.7	163.0	162.7	163.0	164.4
42.5°	156.3	154.9	154.2	153.5	153.8	152.8	152.4	151.7	152.4	151.0
45°	145.0	145.0	144.6	142.8	143.2	143.2	141.8	140.4	140.7	140.7
47.5°	134.7	134.0	133.6	131.8	131.5	131.1	129.7	128.7	128.7	127.6
50°	123.3	122.6	121.6	119.8	119.1	117.0	115.9	114.5	113.1	113.1
52.5°	112.7	110.2	108.8	106.0	104.9	103.8	101.0	100.0	98.9	97.8
55°	100.0	97.8	95.0	91.8	90.4	88.6	85.8	83.6	82.2	82.6
57.5°	87.5	84.0	81.2	76.9	75.1	74.1	71.2	68.4	67.0	67.0
60°	72.3	69.5	65.9	62.0	60.6	58.8	55.3	53.5	52.4	51.4
62.5°	57.8	55.6	52.4	47.5	46.4	44.7	42.2	40.1	39.0	39.0
65°	43.2	41.1	38.3	34.7	33.3	31.9	29.8	27.6	26.6	26.2
67.5°	30.5	28.0	25.5	22.7	21.6	20.9	18.8	17.4	16.7	16.3
70°	18.4	17.0	15.2	13.1	12.0	11.3	9.9	8.9	8.5	8.2
72.5°	9.6	8.5	7.1	5.7	5.0	4.3	3.5	2.8	2.5	2.5
75°	3.5	2.8	1.8	1.1	0.7	0.7	0.7	0.7	0.7	0.7
77.5°	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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)