

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 FEU4C059035 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 FEU4C059035 F4LC-CSSQ-MMS
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

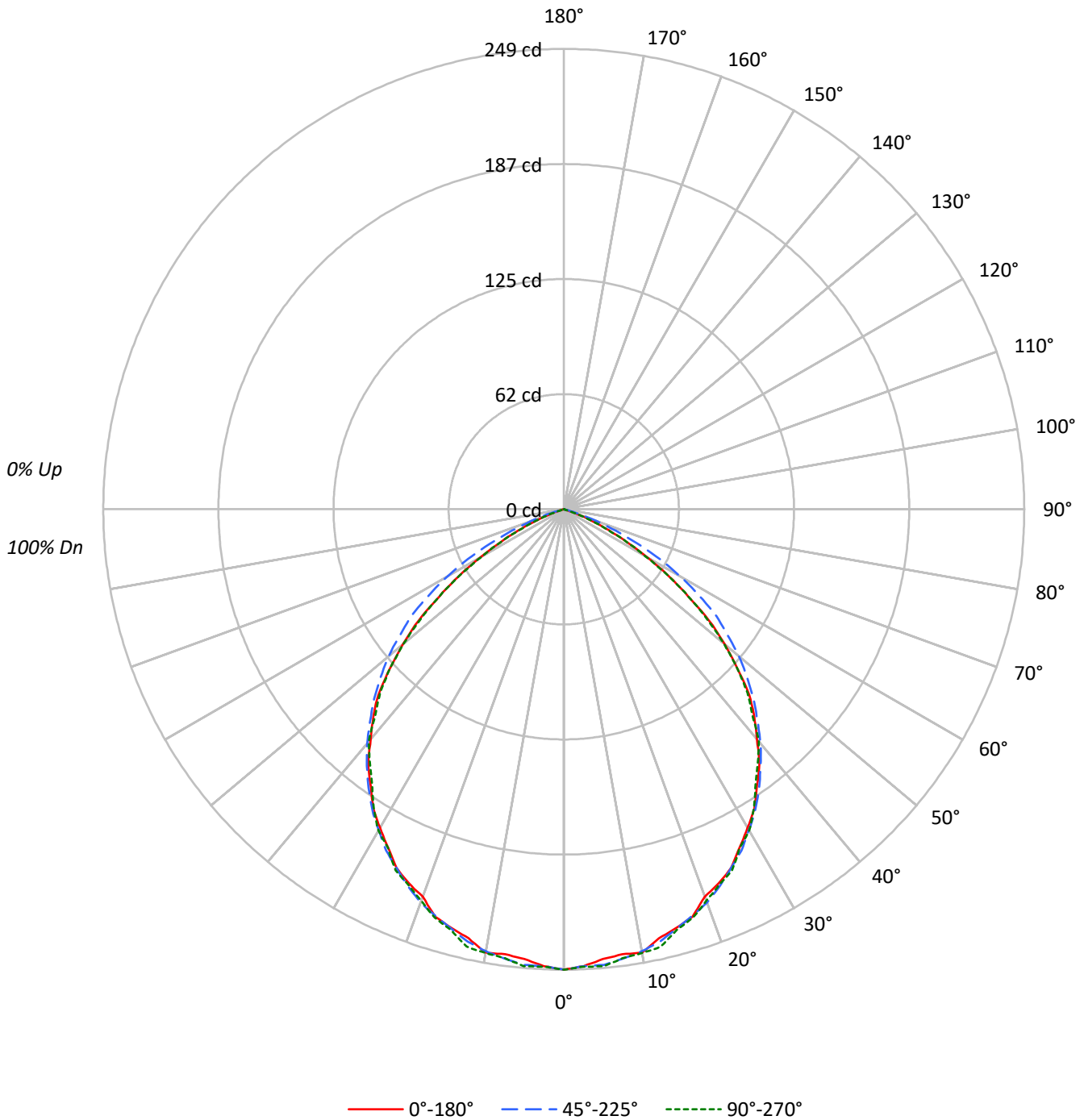
Lumens per Lamp: N/A
 Luminaire Lumens: 532.0 lumens
 Efficiency: N/A
 Efficacy: 73.9 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	24026	24026	24026
5°	23643	23953	24021
10°	23848	23779	23877
15°	23425	23465	23535
20°	22888	23247	23134
25°	22783	22783	22932
30°	22149	22305	22350
35°	21462	21674	21297
40°	20455	20846	20670
45°	19363	19786	19158
50°	17053	18539	16947
55°	13811	16957	13862
60°	10093	14068	9900
65°	6142	10023	5982
70°	2398	5388	2285
75°	261	1454	261
80°	222	222	222
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	23.5	4.4
10°-20°	66.5	12.5
20°-30°	98.7	18.6
30°-40°	114.4	21.5
40°-50°	109.7	20.6
50°-60°	80.6	15.2
60°-70°	34.8	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°	188.7	35.5
0°-40°	303.1	57.0
0°-60°	493.4	92.7
0°-90°	532.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	532.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	249	249	249	249	249	
5°	244	247	247	248	248	23
15°	234	236	235	235	236	66
25°	214	214	214	214	215	98
35°	182	183	184	184	181	114
45°	142	142	145	143	140	108
55°	82	91	101	90	82	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°	249.0	249.0	249.0	249.0	249.0	249.0	249.0	249.0	249.0	249.0	249.0
2.5°	247.3	250.1	250.5	248.7	248.0	246.9	249.4	247.6	248.3	247.6	247.3
5°	244.1	247.3	247.6	247.6	246.9	246.6	247.6	247.3	246.9	246.2	247.3
7.5°	242.7	244.4	246.2	244.1	245.1	244.8	247.3	246.2	245.9	245.9	245.1
10°	243.4	243.0	244.4	242.3	243.0	242.3	244.4	244.4	243.7	243.0	242.7
12.5°	237.7	240.5	240.5	240.2	239.5	238.4	240.5	242.0	239.8	239.8	239.5
15°	234.5	235.2	235.6	235.6	235.2	236.0	237.0	235.6	236.0	234.2	234.9
17.5°	231.0	229.6	230.6	229.9	230.3	231.0	232.4	232.4	230.3	229.9	230.6
20°	222.9	227.1	227.5	225.3	225.7	225.7	228.2	226.1	227.5	225.7	226.4
22.5°	219.0	221.8	222.2	219.3	221.1	219.0	221.4	218.3	221.8	219.3	220.4
25°	214.0	213.7	214.7	213.3	213.7	213.7	215.4	214.0	215.1	213.7	214.0
27.5°	205.9	208.7	208.4	206.9	207.7	207.3	210.8	206.9	209.1	207.3	208.0
30°	198.8	201.3	200.6	199.2	199.2	198.1	202.0	200.9	200.6	200.6	200.2
32.5°	191.7	192.1	191.4	191.7	192.1	190.7	193.9	192.4	192.1	192.4	192.8
35°	182.2	182.2	182.9	181.8	183.2	183.2	186.1	184.3	184.0	182.9	184.0
37.5°	173.7	172.6	173.0	173.0	173.7	174.4	175.8	175.1	175.1	174.1	174.8
40°	162.4	161.7	162.7	162.7	163.8	163.8	165.2	164.5	165.5	165.5	165.5
42.5°	152.5	152.5	151.8	152.8	153.2	152.8	155.3	154.9	155.3	154.6	154.9
45°	141.9	141.9	141.1	140.8	142.6	142.2	145.0	144.0	145.4	144.7	145.0
47.5°	127.3	129.1	128.1	129.1	131.2	131.6	133.4	132.7	134.1	133.0	134.4
50°	113.6	113.6	114.6	116.0	118.2	118.5	120.6	122.0	122.8	123.1	123.5
52.5°	99.1	98.7	99.8	101.5	103.3	104.7	106.8	109.0	110.4	112.5	111.4
55°	82.1	82.8	83.8	86.0	88.8	90.6	92.3	95.2	97.6	98.7	100.8
57.5°	67.6	66.9	67.6	70.4	73.6	75.0	77.5	80.3	83.8	86.0	86.7
60°	52.3	52.7	53.4	55.9	58.4	60.5	61.6	66.1	69.3	71.5	72.9
62.5°	38.6	39.3	40.0	42.1	44.6	46.3	48.1	52.0	54.8	57.0	58.4
65°	26.9	27.2	28.3	29.4	31.8	33.6	35.0	38.2	41.0	42.8	43.9
67.5°	16.6	17.0	17.7	19.1	20.9	22.3	23.7	25.8	28.3	30.1	30.4
70°	8.5	8.8	9.2	10.3	11.7	12.4	13.4	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	8.8	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°	249.0	249.0	249.0	249.0	249.0	249.0	249.0	249.0	249.0	249.0
2.5°	249.0	248.3	248.0	248.3	248.3	248.0	249.0	250.5	252.2	247.6
5°	248.7	248.0	248.7	246.6	247.6	246.9	248.3	248.0	249.4	248.0
7.5°	247.6	246.2	246.6	245.5	246.9	245.1	246.2	248.3	246.9	244.8
10°	244.1	243.4	245.9	242.3	241.6	243.0	245.9	243.7	243.0	243.7
12.5°	240.5	240.5	241.6	238.8	239.1	239.8	241.3	239.8	240.5	242.3
15°	236.7	236.0	237.7	235.6	235.2	234.5	236.0	236.0	236.7	235.6
17.5°	232.1	231.0	231.0	230.3	229.9	231.7	232.4	232.8	233.1	231.7
20°	226.4	226.1	227.1	226.1	226.4	226.8	226.8	226.1	229.2	225.3
22.5°	220.4	221.4	220.0	219.3	220.0	220.7	220.7	221.1	220.4	219.7
25°	214.4	215.1	215.4	213.3	214.4	213.3	215.8	216.1	214.7	215.4
27.5°	209.1	208.0	207.7	206.2	206.9	206.6	206.9	206.9	209.1	206.2
30°	200.9	199.9	200.2	199.2	199.5	199.2	199.5	199.5	200.9	200.6
32.5°	193.1	192.1	192.4	191.4	191.4	191.7	191.0	191.0	192.1	191.4
35°	185.7	183.2	183.6	183.2	183.6	182.2	182.2	181.8	182.5	180.8
37.5°	175.1	174.1	173.7	173.3	173.7	173.0	173.7	172.6	173.7	172.3
40°	165.5	164.8	165.2	163.1	163.1	163.4	162.7	162.4	162.7	164.1
42.5°	156.0	154.6	153.9	153.2	153.5	152.5	152.1	151.4	152.1	150.7
45°	144.7	144.7	144.3	142.6	142.9	142.9	141.5	140.1	140.4	140.4
47.5°	134.4	133.7	133.4	131.6	131.2	130.9	129.5	128.4	128.4	127.3
50°	123.1	122.4	121.3	119.6	118.9	116.7	115.7	114.3	112.9	112.9
52.5°	112.5	110.0	108.6	105.8	104.7	103.6	100.8	99.8	98.7	97.6
55°	99.8	97.6	94.8	91.6	90.2	88.4	85.6	83.5	82.1	82.4
57.5°	87.4	83.8	81.0	76.8	75.0	73.9	71.1	68.3	66.9	66.9
60°	72.2	69.3	65.8	61.9	60.5	58.7	55.2	53.4	52.3	51.3
62.5°	57.7	55.5	52.3	47.4	46.3	44.6	42.1	40.0	38.9	38.9
65°	43.2	41.0	38.2	34.7	33.3	31.8	29.7	27.6	26.5	26.2
67.5°	30.4	27.9	25.5	22.6	21.6	20.9	18.7	17.3	16.6	16.3
70°	18.4	17.0	15.2	13.1	12.0	11.3	9.9	8.8	8.5	8.1
72.5°	9.6	8.5	7.1	5.7	5.0	4.2	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)