

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: P563849

Luminaire Tested: **FLDSQ4C05D010 FEU4C059030 F4LC-CSSQ-MMS-D2W**

Issue Date: 12/13/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P563849
 Test Lab: INNOVATION CENTER
 Issue Date: 12/13/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: FAIL-SAFE
 Catalog Number: FLDSQ4C05D010 FEU4C059030 F4LC-CSSQ-MMS-D2W
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH, DIM TO WARM
 Light Source: -
 Ballast/Driver: -

Summary

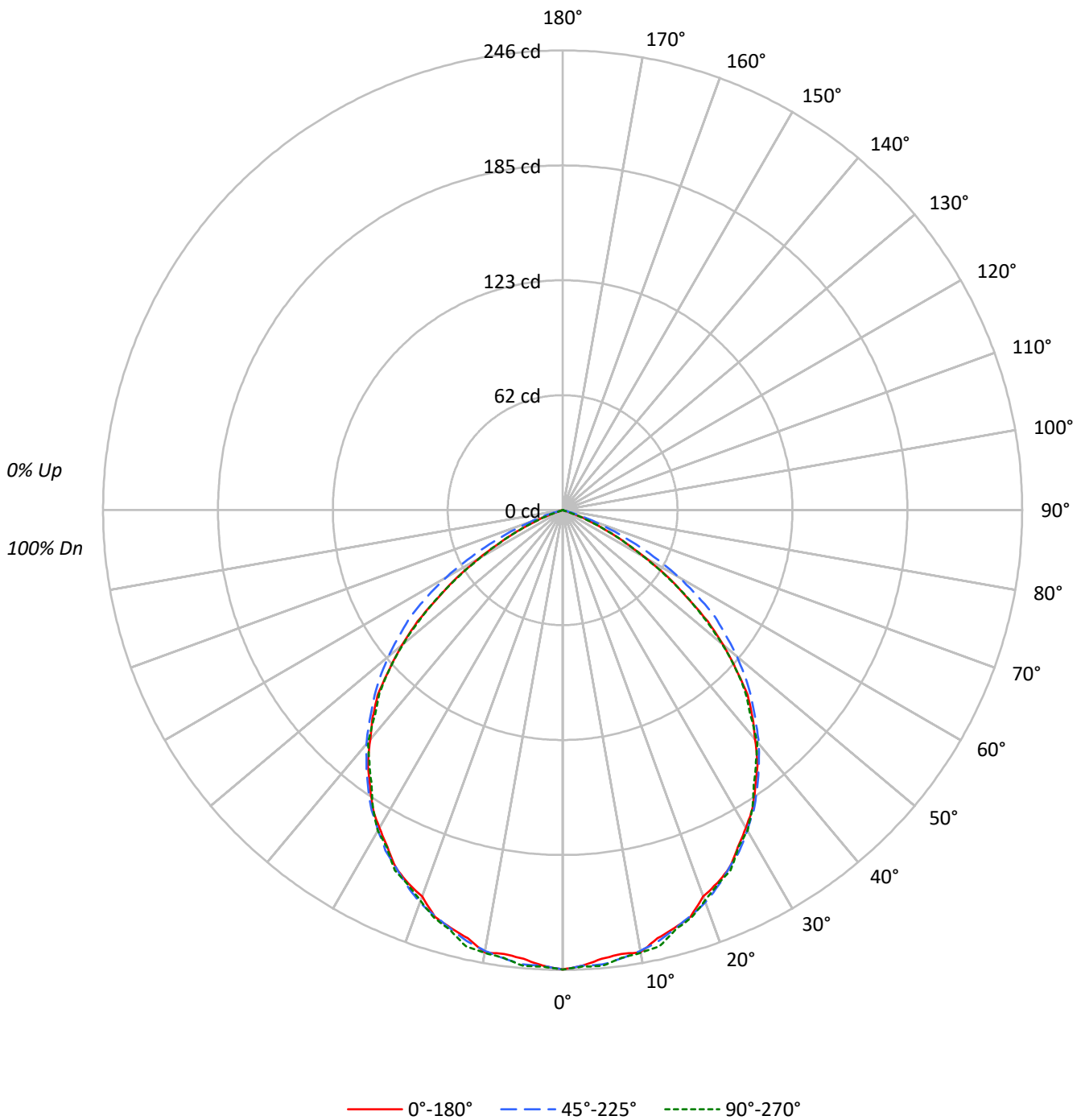
Lumens per Lamp: N/A
 Luminaire Lumens: 525.0 lumens
 Efficiency: N/A
 Efficacy: 72.9 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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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CATALOG NUMBER: FLDSQ4C05D010 FEU4C059030 F4LC-CSSQ-MMS-D2W

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°	23717	23717	23717
5°	23333	23633	23701
10°	23534	23466	23564
15°	23125	23155	23225
20°	22580	22939	22836
25°	22485	22485	22634
30°	21860	22016	22049
35°	21179	21379	21014
40°	20178	20581	20405
45°	19104	19527	18913
50°	16827	18283	16722
55°	13626	16738	13677
60°	9977	13875	9765
65°	6050	9886	5890
70°	2370	5332	2257
75°	261	1417	261
80°	222	222	222
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	23.2	4.4
10°-20°	65.6	12.5
20°-30°	97.4	18.6
30°-40°	112.9	21.5
40°-50°	108.2	20.6
50°-60°	79.6	15.2
60°-70°	34.4	6.5
70°-80°	3.7	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°	186.2	35.5
0°-40°	299.1	57.0
0°-60°	486.9	92.7
0°-90°	525.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	525.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	246	246	246	246	246	
5°	241	243	244	244	245	23
15°	232	233	232	232	232	65
25°	211	211	211	212	213	97
35°	180	181	182	181	178	112
45°	140	140	143	141	139	106
55°	81	89	100	89	81	73
65°	26	33	43	33	26	27
75°	1	1	4	1	1	2
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	245.8	245.8	245.8	245.8	245.8	245.8	245.8	245.8	245.8	245.8	245.8
2.5°	244.0	246.8	247.2	245.4	244.7	243.7	246.1	244.4	245.1	244.4	244.0
5°	240.9	244.0	244.4	244.4	243.7	243.3	244.4	244.0	243.7	243.0	244.0
7.5°	239.5	241.2	243.0	240.9	241.9	241.6	244.0	243.0	242.6	242.6	241.9
10°	240.2	239.8	241.2	239.1	239.8	239.1	241.2	241.2	240.5	239.8	239.5
12.5°	234.6	237.4	237.4	237.0	236.3	235.3	237.4	238.8	236.7	236.7	236.3
15°	231.5	232.2	232.5	232.5	232.2	232.9	233.9	232.5	232.9	231.1	231.8
17.5°	228.0	226.6	227.6	226.9	227.3	228.0	229.4	229.4	227.3	226.9	227.6
20°	219.9	224.1	224.5	222.4	222.7	222.7	225.2	223.1	224.5	222.7	223.4
22.5°	216.1	218.9	219.2	216.4	218.2	216.1	218.5	215.4	218.9	216.4	217.5
25°	211.2	210.9	211.9	210.5	210.9	210.9	212.6	211.2	212.3	210.9	211.2
27.5°	203.2	206.0	205.6	204.2	204.9	204.6	208.1	204.2	206.3	204.6	205.3
30°	196.2	198.6	197.9	196.5	196.5	195.5	199.3	198.3	197.9	197.9	197.6
32.5°	189.2	189.6	188.9	189.2	189.6	188.2	191.3	189.9	189.6	189.9	190.3
35°	179.8	179.8	180.5	179.4	180.8	180.8	183.6	181.9	181.5	180.5	181.5
37.5°	171.4	170.4	170.7	170.7	171.4	172.1	173.5	172.8	172.8	171.8	172.5
40°	160.2	159.5	160.6	160.6	161.6	161.6	163.0	162.3	163.4	163.4	163.4
42.5°	150.5	150.5	149.8	150.8	151.2	150.8	153.3	152.9	153.3	152.6	152.9
45°	140.0	140.0	139.3	138.9	140.7	140.3	143.1	142.1	143.5	142.8	143.1
47.5°	125.7	127.4	126.4	127.4	129.5	129.9	131.6	130.9	132.3	131.3	132.7
50°	112.1	112.1	113.1	114.5	116.6	117.0	119.0	120.4	121.1	121.5	121.8
52.5°	97.8	97.4	98.4	100.2	101.9	103.3	105.4	107.5	108.9	111.0	110.0
55°	81.0	81.7	82.7	84.8	87.6	89.4	91.1	93.9	96.4	97.4	99.5
57.5°	66.7	66.0	66.7	69.5	72.6	74.0	76.5	79.2	82.7	84.8	85.5
60°	51.7	52.0	52.7	55.2	57.6	59.7	60.7	65.3	68.4	70.5	71.9
62.5°	38.1	38.8	39.5	41.5	44.0	45.7	47.5	51.3	54.1	56.2	57.6
65°	26.5	26.9	27.9	29.0	31.4	33.2	34.6	37.7	40.5	42.2	43.3
67.5°	16.4	16.8	17.4	18.9	20.6	22.0	23.4	25.5	27.9	29.7	30.0
70°	8.4	8.7	9.1	10.1	11.5	12.2	13.3	15.0	16.8	18.1	18.9
72.5°	2.8	2.8	3.1	3.8	4.5	5.2	5.6	7.3	8.7	9.4	9.8
75°	0.7	0.7	0.7	0.7	0.7	1.1	1.1	2.1	2.8	3.5	3.8
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°	245.8	245.8	245.8	245.8	245.8	245.8	245.8	245.8	245.8	245.8
2.5°	245.8	245.1	244.7	245.1	245.1	244.7	245.8	247.2	248.9	244.4
5°	245.4	244.7	245.4	243.3	244.4	243.7	245.1	244.7	246.1	244.7
7.5°	244.4	243.0	243.3	242.3	243.7	241.9	243.0	245.1	243.7	241.6
10°	240.9	240.2	242.6	239.1	238.4	239.8	242.6	240.5	239.8	240.5
12.5°	237.4	237.4	238.4	235.6	236.0	236.7	238.1	236.7	237.4	239.1
15°	233.5	232.9	234.6	232.5	232.2	231.5	232.9	232.9	233.5	232.5
17.5°	229.0	228.0	228.0	227.3	226.9	228.7	229.4	229.7	230.1	228.7
20°	223.4	223.1	224.1	223.1	223.4	223.8	223.8	223.1	226.2	222.4
22.5°	217.5	218.5	217.1	216.4	217.1	217.8	217.8	218.2	217.5	216.8
25°	211.6	212.3	212.6	210.5	211.6	210.5	213.0	213.3	211.9	212.6
27.5°	206.3	205.3	204.9	203.5	204.2	203.9	204.2	204.2	206.3	203.5
30°	198.3	197.2	197.6	196.5	196.9	196.5	196.9	196.9	198.3	197.9
32.5°	190.6	189.6	189.9	188.9	188.9	189.2	188.5	188.5	189.6	188.9
35°	183.3	180.8	181.2	180.8	181.2	179.8	179.8	179.4	180.1	178.4
37.5°	172.8	171.8	171.4	171.1	171.4	170.7	171.4	170.4	171.4	170.0
40°	163.4	162.7	163.0	160.9	160.9	161.3	160.6	160.2	160.6	162.0
42.5°	154.0	152.6	151.9	151.2	151.5	150.5	150.1	149.4	150.1	148.7
45°	142.8	142.8	142.4	140.7	141.0	141.0	139.6	138.2	138.6	138.6
47.5°	132.7	132.0	131.6	129.9	129.5	129.2	127.8	126.7	126.7	125.7
50°	121.5	120.8	119.7	118.0	117.3	115.2	114.2	112.8	111.4	111.4
52.5°	111.0	108.6	107.2	104.4	103.3	102.3	99.5	98.4	97.4	96.4
55°	98.4	96.4	93.6	90.4	89.0	87.3	84.5	82.4	81.0	81.3
57.5°	86.2	82.7	79.9	75.8	74.0	73.0	70.2	67.4	66.0	66.0
60°	71.2	68.4	64.9	61.1	59.7	58.0	54.5	52.7	51.7	50.6
62.5°	56.9	54.8	51.7	46.8	45.7	44.0	41.5	39.5	38.4	38.4
65°	42.6	40.5	37.7	34.2	32.8	31.4	29.3	27.2	26.2	25.8
67.5°	30.0	27.6	25.1	22.3	21.3	20.6	18.5	17.1	16.4	16.1
70°	18.1	16.8	15.0	12.9	11.9	11.2	9.8	8.7	8.4	8.0
72.5°	9.4	8.4	7.0	5.6	4.9	4.2	3.5	2.8	2.4	2.4
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)