

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: **FLDSQ4C25D010 FEU4C259027 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: FLDSQ4C25D010 FEU4C259027 F4LC-CSSQ-MMS
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

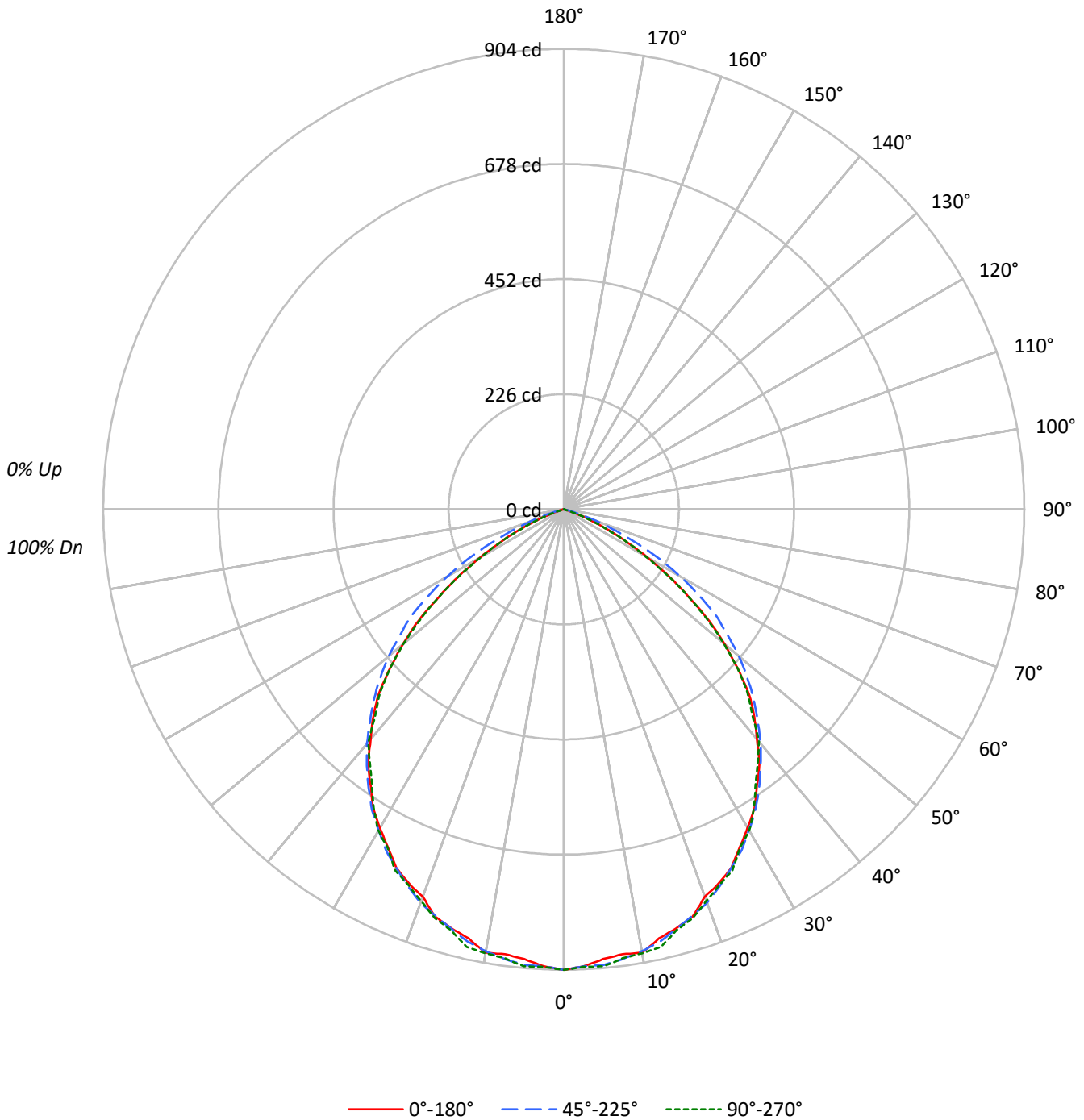
Lumens per Lamp: N/A
 Luminaire Lumens: 1932.0 lumens
 Efficiency: N/A
 Efficacy: 61.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 31.5
 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: FLDSQ4C25D010 FEU4C259027 F4LC-CSSQ-MMS

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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89				89
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77				77
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67				67
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59				59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	52				52
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46				46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41				41
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37				37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33				33
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	31				31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	87265	87265	87265
5°	85864	86978	87230
10°	86602	86347	86720
15°	85089	85208	85468
20°	83100	84425	84034
25°	82744	82744	83297
30°	80442	81010	81155
35°	77931	78685	77330
40°	74277	75726	75083
45°	70288	71871	69593
50°	61905	67309	61515
55°	50131	61587	50349
60°	36685	51062	35952
65°	22283	36370	21712
70°	8689	19579	8351
75°	969	5294	969
80°	722	722	722
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	85.4	4.4
10°-20°	241.6	12.5
20°-30°	358.4	18.6
30°-40°	415.3	21.5
40°-50°	398.2	20.6
50°-60°	292.8	15.2
60°-70°	126.5	6.5
70°-80°	13.7	0.7
80°-90°	0.2	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°	685.4	35.5
0°-40°	1100.7	57.0
0°-60°	1791.7	92.7
0°-90°	1932.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1932.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	904	904	904	904	904	
5°	886	895	898	899	901	85
15°	852	857	853	854	856	240
25°	777	776	777	778	782	356
35°	662	666	668	667	656	414
45°	515	516	527	519	510	392
55°	298	329	366	328	299	268
65°	98	122	159	121	95	100
75°	3	4	14	3	3	8
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°	904.4	904.4	904.4	904.4	904.4	904.4	904.4	904.4	904.4	904.4	904.4
2.5°	898.0	908.3	909.6	903.1	900.6	896.7	905.7	899.3	901.9	899.3	898.0
5°	886.5	898.0	899.3	899.3	896.7	895.4	899.3	898.0	896.7	894.2	898.0
7.5°	881.3	887.7	894.2	886.5	890.3	889.0	898.0	894.2	892.8	892.8	890.3
10°	883.9	882.6	887.7	880.0	882.6	880.0	887.7	887.7	885.1	882.6	881.3
12.5°	863.3	873.6	873.6	872.3	869.7	865.9	873.6	878.7	871.0	871.0	869.7
15°	851.8	854.3	855.6	855.6	854.3	856.9	860.7	855.6	856.9	850.4	853.0
17.5°	838.9	833.8	837.6	835.0	836.3	838.9	844.0	844.0	836.3	835.0	837.6
20°	809.3	824.8	826.1	818.4	819.6	819.6	828.6	820.9	826.1	819.6	822.2
22.5°	795.2	805.5	806.8	796.5	802.9	795.2	804.2	792.6	805.5	796.5	800.3
25°	777.2	776.0	779.8	774.6	776.0	776.0	782.4	777.2	781.1	776.0	777.2
27.5°	747.7	758.0	756.7	751.5	754.1	752.8	765.7	751.5	759.2	752.8	755.4
30°	722.0	731.0	728.4	723.3	723.3	719.4	733.6	729.7	728.4	728.4	727.1
32.5°	696.3	697.6	695.0	696.3	697.6	692.5	704.0	698.9	697.6	698.9	700.2
35°	661.6	661.6	664.2	660.3	665.5	665.5	675.7	669.3	668.0	664.2	668.0
37.5°	630.8	626.9	628.2	628.2	630.8	633.3	638.5	635.9	635.9	632.1	634.6
40°	589.7	587.1	590.9	590.9	594.8	594.8	599.9	597.4	601.2	601.2	601.2
42.5°	553.7	553.7	551.1	555.0	556.3	555.0	564.0	562.7	564.0	561.4	562.7
45°	515.1	515.1	512.6	511.3	517.7	516.4	526.7	522.8	528.0	525.4	526.7
47.5°	462.5	468.9	465.0	468.9	476.6	477.9	484.3	481.8	486.9	483.1	488.2
50°	412.4	412.4	416.2	421.4	429.1	430.4	438.1	443.2	445.8	447.1	448.4
52.5°	359.7	358.4	362.3	368.7	375.1	380.3	388.0	395.7	400.8	408.5	404.6
55°	298.0	300.6	304.5	312.2	322.5	328.9	335.3	345.6	354.6	358.4	366.1
57.5°	245.4	242.8	245.4	255.6	267.2	272.4	281.4	291.6	304.5	312.2	314.8
60°	190.1	191.4	194.0	203.0	212.0	219.7	223.6	240.2	251.8	259.5	264.6
62.5°	140.1	142.6	145.2	152.9	161.9	168.3	174.7	188.9	199.1	206.8	212.0
65°	97.6	98.9	102.8	106.6	115.6	122.0	127.2	138.7	149.0	155.5	159.3
67.5°	60.4	61.6	64.2	69.4	75.8	80.9	86.1	93.8	102.8	109.2	110.5
70°	30.8	32.1	33.4	37.3	42.4	45.0	48.8	55.2	61.6	66.8	69.4
72.5°	10.3	10.3	11.6	14.2	16.7	19.3	20.5	27.0	32.1	34.7	36.0
75°	2.6	2.6	2.6	2.6	2.6	3.9	3.9	7.7	10.3	12.8	14.2
77.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.6	2.6
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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°	904.4	904.4	904.4	904.4	904.4	904.4	904.4	904.4	904.4	904.4
2.5°	904.4	901.9	900.6	901.9	901.9	900.6	904.4	909.6	916.0	899.3
5°	903.1	900.6	903.1	895.4	899.3	896.7	901.9	900.6	905.7	900.6
7.5°	899.3	894.2	895.4	891.6	896.7	890.3	894.2	901.9	896.7	889.0
10°	886.5	883.9	892.8	880.0	877.4	882.6	892.8	885.1	882.6	885.1
12.5°	873.6	873.6	877.4	867.2	868.4	871.0	876.1	871.0	873.6	880.0
15°	859.5	856.9	863.3	855.6	854.3	851.8	856.9	856.9	859.5	855.6
17.5°	842.7	838.9	838.9	836.3	835.0	841.5	844.0	845.3	846.6	841.5
20°	822.2	820.9	824.8	820.9	822.2	823.5	823.5	820.9	832.5	818.4
22.5°	800.3	804.2	799.1	796.5	799.1	801.6	801.6	802.9	800.3	797.8
25°	778.5	781.1	782.4	774.6	778.5	774.6	783.7	784.9	779.8	782.4
27.5°	759.2	755.4	754.1	749.0	751.5	750.3	751.5	751.5	759.2	749.0
30°	729.7	725.8	727.1	723.3	724.5	723.3	724.5	724.5	729.7	728.4
32.5°	701.4	697.6	698.9	695.0	695.0	696.3	693.7	693.7	697.6	695.0
35°	674.4	665.5	666.7	665.5	666.7	661.6	661.6	660.3	662.9	656.5
37.5°	635.9	632.1	630.8	629.5	630.8	628.2	630.8	626.9	630.8	625.6
40°	601.2	598.6	599.9	592.2	592.2	593.5	590.9	589.7	590.9	596.1
42.5°	566.6	561.4	558.9	556.3	557.5	553.7	552.4	549.8	552.4	547.3
45°	525.4	525.4	524.2	517.7	519.0	519.0	513.9	508.7	510.0	510.0
47.5°	488.2	485.6	484.3	477.9	476.6	475.4	470.2	466.3	466.3	462.5
50°	447.1	444.5	440.7	434.2	431.6	423.9	420.1	415.0	409.8	409.8
52.5°	408.5	399.5	394.4	384.1	380.3	376.4	366.1	362.3	358.4	354.6
55°	362.3	354.6	344.3	332.7	327.6	321.2	310.9	303.2	298.0	299.3
57.5°	317.3	304.5	294.2	278.8	272.4	268.5	258.2	247.9	242.8	242.8
60°	262.1	251.8	239.0	224.8	219.7	213.3	200.4	194.0	190.1	186.3
62.5°	209.4	201.7	190.1	172.1	168.3	161.9	152.9	145.2	141.3	141.3
65°	156.7	149.0	138.7	125.9	120.8	115.6	107.9	100.2	96.3	95.1
67.5°	110.5	101.5	92.5	82.2	78.4	75.8	68.1	63.0	60.4	59.1
70°	66.8	61.6	55.2	47.5	43.7	41.1	36.0	32.1	30.8	29.6
72.5°	34.7	30.8	25.7	20.5	18.0	15.4	12.8	10.3	9.0	9.0
75°	12.8	10.3	6.4	3.9	2.6	2.6	2.6	2.6	2.6	2.6
77.5°	2.6	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)