

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 FEU4C259040 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 FEU4C259040 F4LC-CSSQ-MMS
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

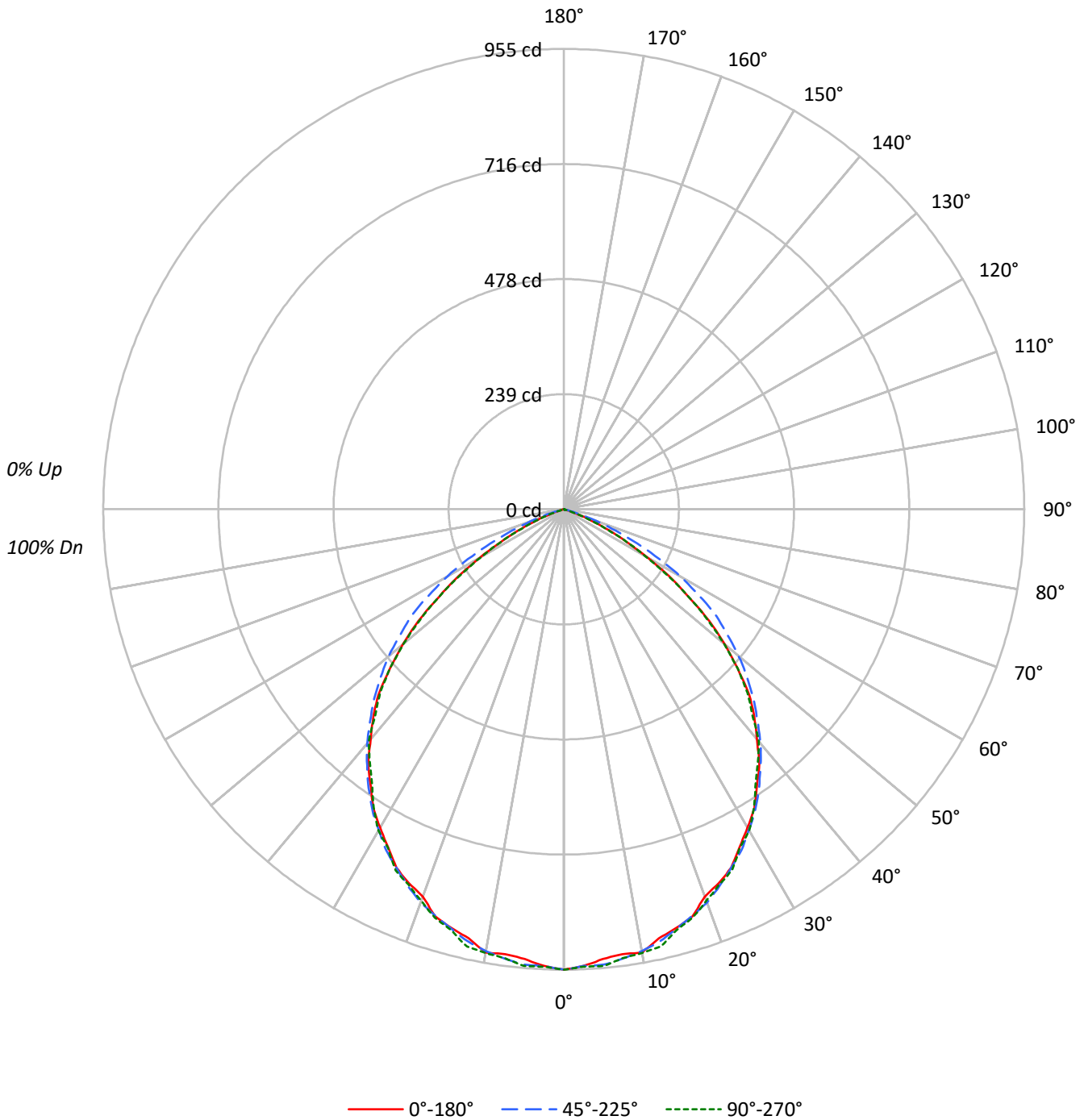
Lumens per Lamp: N/A
 Luminaire Lumens: 2040.0 lumens
 Efficiency: N/A
 Efficacy: 64.8 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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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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°	92147	92147	92147
5°	90659	91840	92102
10°	91442	91178	91570
15°	89843	89973	90243
20°	87751	89148	88727
25°	87375	87375	87950
30°	84932	85545	85690
35°	82289	83090	81641
40°	78421	79958	79278
45°	74218	75897	73482
50°	65373	71062	64953
55°	52940	65035	53175
60°	38731	53918	37959
65°	23539	38402	22923
70°	9169	20679	8802
75°	1007	5555	1007
80°	778	778	778
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	90.1	4.4
10°-20°	255.1	12.5
20°-30°	378.5	18.6
30°-40°	438.5	21.5
40°-50°	420.5	20.6
50°-60°	309.2	15.2
60°-70°	133.5	6.5
70°-80°	14.4	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°	723.7	35.5
0°-40°	1162.2	57.0
0°-60°	1891.9	92.7
0°-90°	2040.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2040.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	955	955	955	955	955	
5°	936	946	948	950	951	89
15°	899	905	901	902	903	253
25°	821	819	821	822	826	376
35°	699	703	705	704	693	437
45°	544	545	556	548	538	413
55°	315	347	387	346	316	283
65°	103	129	168	128	100	106
75°	3	4	15	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°	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0
2.5°	948.2	959.0	960.4	953.6	950.9	946.9	956.3	949.6	952.3	949.6	948.2
5°	936.0	948.2	949.6	949.6	946.9	945.5	949.6	948.2	946.9	944.1	948.2
7.5°	930.6	937.3	944.1	936.0	940.0	938.7	948.2	944.1	942.8	942.8	940.0
10°	933.3	931.9	937.3	929.2	931.9	929.2	937.3	937.3	934.6	931.9	930.6
12.5°	911.5	922.4	922.4	921.1	918.3	914.3	922.4	927.9	919.7	919.7	918.3
15°	899.4	902.1	903.4	903.4	902.1	904.8	908.8	903.4	904.8	898.0	900.7
17.5°	885.8	880.4	884.4	881.7	883.1	885.8	891.2	891.2	883.1	881.7	884.4
20°	854.6	870.9	872.2	864.1	865.4	865.4	875.0	866.8	872.2	865.4	868.2
22.5°	839.6	850.5	851.9	841.0	847.8	839.6	849.2	836.9	850.5	841.0	845.1
25°	820.7	819.3	823.4	818.0	819.3	819.3	826.1	820.7	824.8	819.3	820.7
27.5°	789.5	800.4	799.0	793.5	796.3	794.9	808.5	793.5	801.7	794.9	797.6
30°	762.3	771.8	769.1	763.7	763.7	759.6	774.6	770.5	769.1	769.1	767.8
32.5°	735.2	736.6	733.9	735.2	736.6	731.2	743.3	737.9	736.6	737.9	739.3
35°	698.6	698.6	701.3	697.2	702.7	702.7	713.5	706.7	705.4	701.3	705.4
37.5°	666.0	662.0	663.3	663.3	666.0	668.7	674.2	671.5	671.5	667.4	670.1
40°	622.6	619.9	624.0	624.0	628.1	628.1	633.5	630.8	634.8	634.8	634.8
42.5°	584.7	584.7	582.0	586.0	587.4	586.0	595.5	594.1	595.5	592.8	594.1
45°	543.9	543.9	541.2	539.9	546.6	545.3	556.2	552.1	557.5	554.8	556.2
47.5°	488.3	495.1	491.0	495.1	503.3	504.6	511.4	508.7	514.1	510.1	515.5
50°	435.5	435.5	439.5	444.9	453.1	454.4	462.6	468.0	470.7	472.0	473.4
52.5°	379.8	378.5	382.5	389.3	396.1	401.5	409.7	417.8	423.2	431.4	427.3
55°	314.7	317.4	321.5	329.6	340.5	347.2	354.0	364.9	374.4	378.5	386.6
57.5°	259.1	256.4	259.1	269.9	282.2	287.6	297.1	307.9	321.5	329.6	332.3
60°	200.7	202.1	204.8	214.4	223.8	232.0	236.0	253.6	265.9	274.0	279.4
62.5°	147.9	150.6	153.3	161.4	170.9	177.7	184.5	199.4	210.3	218.4	223.8
65°	103.1	104.4	108.5	112.6	122.1	128.8	134.3	146.5	157.3	164.2	168.2
67.5°	63.8	65.1	67.8	73.3	80.0	85.5	90.9	99.0	108.5	115.3	116.7
70°	32.5	33.9	35.3	39.4	44.8	47.5	51.5	58.3	65.1	70.5	73.3
72.5°	10.8	10.8	12.2	14.9	17.7	20.4	21.7	28.5	33.9	36.6	38.0
75°	2.7	2.7	2.7	2.7	2.7	4.1	4.1	8.1	10.8	13.6	14.9
77.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.7	2.7
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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°	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0	955.0
2.5°	955.0	952.3	950.9	952.3	952.3	950.9	955.0	960.4	967.2	949.6
5°	953.6	950.9	953.6	945.5	949.6	946.9	952.3	950.9	956.3	950.9
7.5°	949.6	944.1	945.5	941.4	946.9	940.0	944.1	952.3	946.9	938.7
10°	936.0	933.3	942.8	929.2	926.5	931.9	942.8	934.6	931.9	934.6
12.5°	922.4	922.4	926.5	915.6	917.0	919.7	925.1	919.7	922.4	929.2
15°	907.5	904.8	911.5	903.4	902.1	899.4	904.8	904.8	907.5	903.4
17.5°	889.8	885.8	885.8	883.1	881.7	888.5	891.2	892.6	893.9	888.5
20°	868.2	866.8	870.9	866.8	868.2	869.5	869.5	866.8	879.0	864.1
22.5°	845.1	849.2	843.7	841.0	843.7	846.5	846.5	847.8	845.1	842.4
25°	822.0	824.8	826.1	818.0	822.0	818.0	827.5	828.8	823.4	826.1
27.5°	801.7	797.6	796.3	790.8	793.5	792.2	793.5	793.5	801.7	790.8
30°	770.5	766.4	767.8	763.7	765.0	763.7	765.0	765.0	770.5	769.1
32.5°	740.6	736.6	737.9	733.9	733.9	735.2	732.5	732.5	736.6	733.9
35°	712.1	702.7	704.0	702.7	704.0	698.6	698.6	697.2	700.0	693.1
37.5°	671.5	667.4	666.0	664.7	666.0	663.3	666.0	662.0	666.0	660.6
40°	634.8	632.1	633.5	625.3	625.3	626.7	624.0	622.6	624.0	629.4
42.5°	598.2	592.8	590.1	587.4	588.7	584.7	583.3	580.6	583.3	577.9
45°	554.8	554.8	553.5	546.6	548.0	548.0	542.6	537.2	538.5	538.5
47.5°	515.5	512.8	511.4	504.6	503.3	501.9	496.5	492.4	492.4	488.3
50°	472.0	469.3	465.3	458.5	455.8	447.6	443.6	438.2	432.7	432.7
52.5°	431.4	421.8	416.4	405.6	401.5	397.4	386.6	382.5	378.5	374.4
55°	382.5	374.4	363.6	351.3	345.9	339.1	328.3	320.1	314.7	316.1
57.5°	335.1	321.5	310.7	294.4	287.6	283.5	272.6	261.8	256.4	256.4
60°	276.7	265.9	252.3	237.4	232.0	225.2	211.6	204.8	200.7	196.7
62.5°	221.1	213.0	200.7	181.8	177.7	170.9	161.4	153.3	149.2	149.2
65°	165.5	157.3	146.5	132.9	127.5	122.1	114.0	105.8	101.7	100.4
67.5°	116.7	107.1	97.7	86.8	82.7	80.0	71.9	66.5	63.8	62.4
70°	70.5	65.1	58.3	50.2	46.1	43.4	38.0	33.9	32.5	31.2
72.5°	36.6	32.5	27.1	21.7	19.0	16.3	13.6	10.8	9.5	9.5
75°	13.6	10.8	6.8	4.1	2.7	2.7	2.7	2.7	2.7	2.7
77.5°	2.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)