

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 FEU4C259050 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 FEU4C259050 F4LC-CSSQ-MMS
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

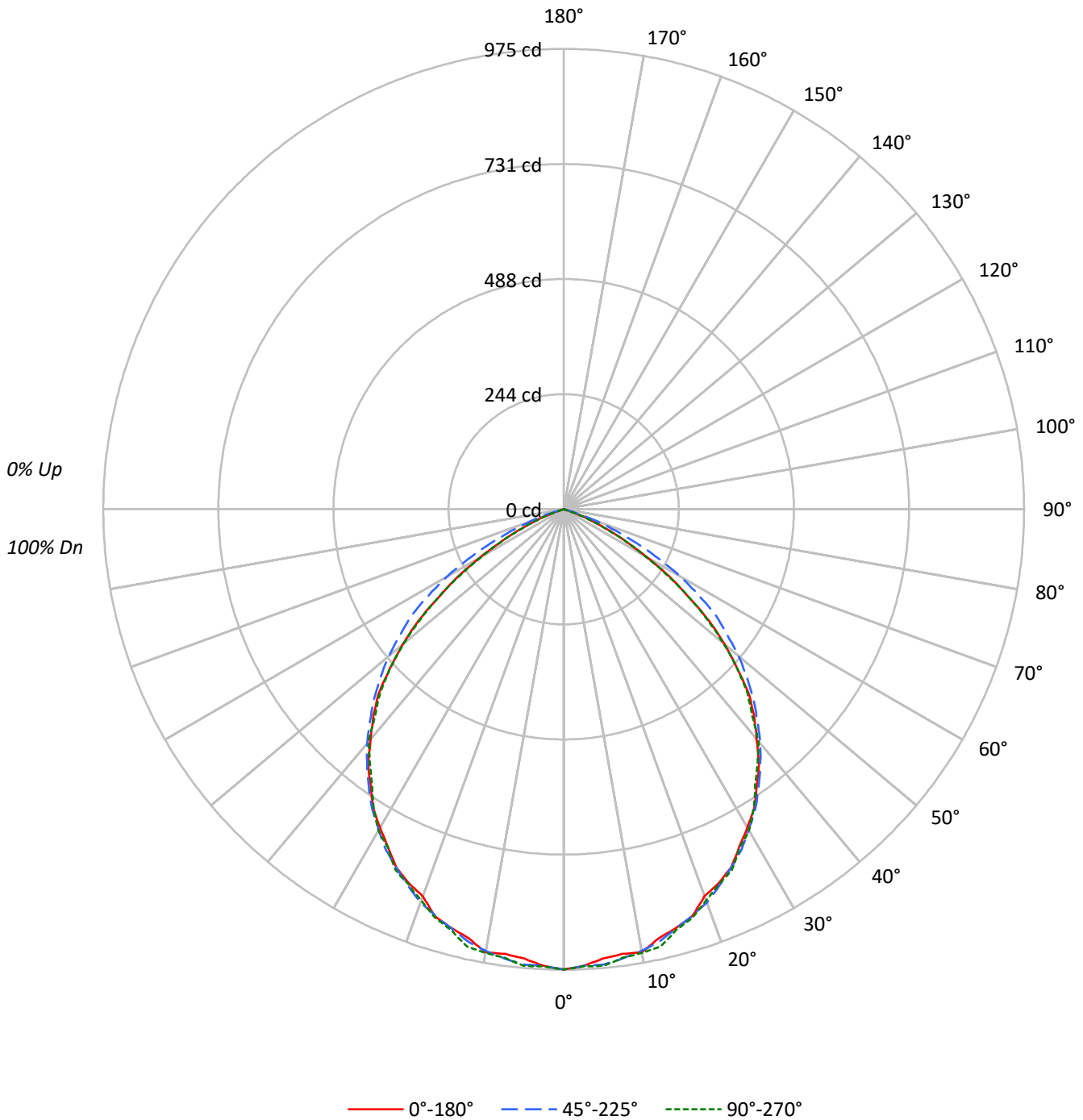
Lumens per Lamp: N/A
 Luminaire Lumens: 2082.0 lumens
 Efficiency: N/A
 Efficacy: 66.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	94038	94038	94038
5°	92528	93729	94000
10°	93323	93049	93461
15°	91691	91821	92101
20°	89559	90976	90555
25°	89174	89174	89760
30°	86681	87305	87461
35°	83985	84798	83325
40°	80046	81608	80902
45°	75747	77452	74996
50°	66709	72533	66304
55°	54033	66364	54269
60°	39541	55037	38731
65°	24018	39201	23402
70°	9366	21102	8999
75°	1044	5704	1044
80°	778	778	778
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	92.0	4.4
10°-20°	260.3	12.5
20°-30°	386.3	18.6
30°-40°	447.6	21.5
40°-50°	429.1	20.6
50°-60°	315.5	15.2
60°-70°	136.3	6.5
70°-80°	14.7	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°	738.6	35.5
0°-40°	1186.2	57.0
0°-60°	1930.8	92.7
0°-90°	2082.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2082.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	975	975	975	975	975	
5°	955	965	968	969	970	91
15°	918	923	919	921	922	259
25°	838	836	838	839	843	383
35°	713	717	720	718	707	446
45°	555	556	568	559	550	422
55°	321	354	394	353	323	289
65°	105	132	172	130	102	108
75°	3	4	15	3	3	9
85°	0	0	0	0	0	0
90°	0	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°	974.6	974.6	974.6	974.6	974.6	974.6	974.6	974.6	974.6	974.6	974.6
2.5°	967.7	978.8	980.2	973.2	970.5	966.3	976.0	969.1	971.9	969.1	967.7
5°	955.3	967.7	969.1	969.1	966.3	964.9	969.1	967.7	966.3	963.6	967.7
7.5°	949.7	956.6	963.6	955.3	959.4	958.0	967.7	963.6	962.2	962.2	959.4
10°	952.5	951.1	956.6	948.3	951.1	948.3	956.6	956.6	953.9	951.1	949.7
12.5°	930.3	941.4	941.4	940.0	937.3	933.1	941.4	947.0	938.6	938.6	937.3
15°	917.9	920.6	922.0	922.0	920.6	923.4	927.5	922.0	923.4	916.5	919.2
17.5°	904.0	898.5	902.6	899.9	901.3	904.0	909.6	909.6	901.3	899.9	902.6
20°	872.2	888.8	890.2	881.9	883.3	883.3	893.0	884.7	890.2	883.3	886.0
22.5°	856.9	868.0	869.4	858.3	865.2	856.9	866.6	854.2	868.0	858.3	862.5
25°	837.6	836.2	840.3	834.8	836.2	836.2	843.1	837.6	841.7	836.2	837.6
27.5°	805.8	816.8	815.4	809.9	812.7	811.3	825.1	809.9	818.2	811.3	814.1
30°	778.0	787.7	785.0	779.4	779.4	775.3	790.5	786.3	785.0	785.0	783.6
32.5°	750.3	751.8	749.0	750.3	751.8	746.2	758.7	753.1	751.8	753.1	754.5
35°	713.0	713.0	715.7	711.6	717.1	717.1	728.2	721.3	719.9	715.7	719.9
37.5°	679.7	675.6	677.0	677.0	679.7	682.5	688.0	685.3	685.3	681.2	683.9
40°	635.5	632.7	636.8	636.8	641.0	641.0	646.5	643.8	647.9	647.9	647.9
42.5°	596.7	596.7	593.9	598.1	599.5	598.1	607.8	606.4	607.8	605.0	606.4
45°	555.1	555.1	552.4	551.0	557.9	556.5	567.6	563.4	569.0	566.2	567.6
47.5°	498.4	505.3	501.1	505.3	513.6	515.0	521.9	519.2	524.7	520.6	526.1
50°	444.4	444.4	448.5	454.1	462.4	463.8	472.1	477.6	480.4	481.8	483.2
52.5°	387.7	386.2	390.4	397.3	404.3	409.8	418.1	426.4	431.9	440.2	436.1
55°	321.2	323.9	328.1	336.4	347.5	354.4	361.3	372.4	382.1	386.2	394.5
57.5°	264.4	261.6	264.4	275.5	288.0	293.5	303.2	314.3	328.1	336.4	339.2
60°	204.9	206.3	209.1	218.8	228.4	236.7	240.9	258.9	271.4	279.7	285.2
62.5°	150.9	153.7	156.5	164.8	174.4	181.4	188.3	203.5	214.6	222.9	228.4
65°	105.2	106.6	110.8	114.9	124.6	131.5	137.0	149.5	160.6	167.5	171.7
67.5°	65.1	66.4	69.2	74.8	81.7	87.2	92.7	101.1	110.8	117.7	119.1
70°	33.2	34.6	36.0	40.2	45.7	48.5	52.6	59.5	66.4	72.0	74.8
72.5°	11.1	11.1	12.5	15.3	18.0	20.8	22.1	29.1	34.6	37.4	38.7
75°	2.8	2.8	2.8	2.8	2.8	4.2	4.2	8.3	11.1	13.8	15.3
77.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.8	2.8
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°	974.6	974.6	974.6	974.6	974.6	974.6	974.6	974.6	974.6	974.6
2.5°	974.6	971.9	970.5	971.9	971.9	970.5	974.6	980.2	987.1	969.1
5°	973.2	970.5	973.2	964.9	969.1	966.3	971.9	970.5	976.0	970.5
7.5°	969.1	963.6	964.9	960.8	966.3	959.4	963.6	971.9	966.3	958.0
10°	955.3	952.5	962.2	948.3	945.6	951.1	962.2	953.9	951.1	953.9
12.5°	941.4	941.4	945.6	934.5	935.8	938.6	944.1	938.6	941.4	948.3
15°	926.2	923.4	930.3	922.0	920.6	917.9	923.4	923.4	926.2	922.0
17.5°	908.2	904.0	904.0	901.3	899.9	906.8	909.6	910.9	912.3	906.8
20°	886.0	884.7	888.8	884.7	886.0	887.4	887.4	884.7	897.1	881.9
22.5°	862.5	866.6	861.1	858.3	861.1	863.9	863.9	865.2	862.5	859.7
25°	839.0	841.7	843.1	834.8	839.0	834.8	844.5	845.9	840.3	843.1
27.5°	818.2	814.1	812.7	807.1	809.9	808.5	809.9	809.9	818.2	807.1
30°	786.3	782.2	783.6	779.4	780.8	779.4	780.8	780.8	786.3	785.0
32.5°	755.9	751.8	753.1	749.0	749.0	750.3	747.6	747.6	751.8	749.0
35°	726.8	717.1	718.5	717.1	718.5	713.0	713.0	711.6	714.4	707.4
37.5°	685.3	681.2	679.7	678.4	679.7	677.0	679.7	675.6	679.7	674.2
40°	647.9	645.1	646.5	638.2	638.2	639.6	636.8	635.5	636.8	642.3
42.5°	610.5	605.0	602.2	599.5	600.8	596.7	595.3	592.5	595.3	589.8
45°	566.2	566.2	564.9	557.9	559.3	559.3	553.8	548.2	549.6	549.6
47.5°	526.1	523.3	521.9	515.0	513.6	512.3	506.7	502.5	502.5	498.4
50°	481.8	479.0	474.9	467.9	465.2	456.9	452.7	447.2	441.7	441.7
52.5°	440.2	430.5	425.0	413.9	409.8	405.6	394.5	390.4	386.2	382.1
55°	390.4	382.1	371.0	358.6	353.0	346.1	335.0	326.7	321.2	322.6
57.5°	342.0	328.1	317.0	300.4	293.5	289.3	278.2	267.2	261.6	261.6
60°	282.4	271.4	257.5	242.3	236.7	229.8	215.9	209.1	204.9	200.7
62.5°	225.7	217.4	204.9	185.5	181.4	174.4	164.8	156.5	152.3	152.3
65°	168.9	160.6	149.5	135.7	130.1	124.6	116.3	108.0	103.8	102.5
67.5°	119.1	109.4	99.7	88.6	84.4	81.7	73.4	67.8	65.1	63.7
70°	72.0	66.4	59.5	51.2	47.1	44.3	38.7	34.6	33.2	31.9
72.5°	37.4	33.2	27.7	22.1	19.4	16.6	13.8	11.1	9.7	9.7
75°	13.8	11.1	6.9	4.2	2.8	2.8	2.8	2.8	2.8	2.8
77.5°	2.8	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)