

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: **FLDSQ4C20D010 FEU4C209030 F4LC-DFSSQ-MW**

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: FLDSQ4C20D010 FEU4C209030 F4LC-DFSSQ-MW
 Description: 4 INCH 2000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

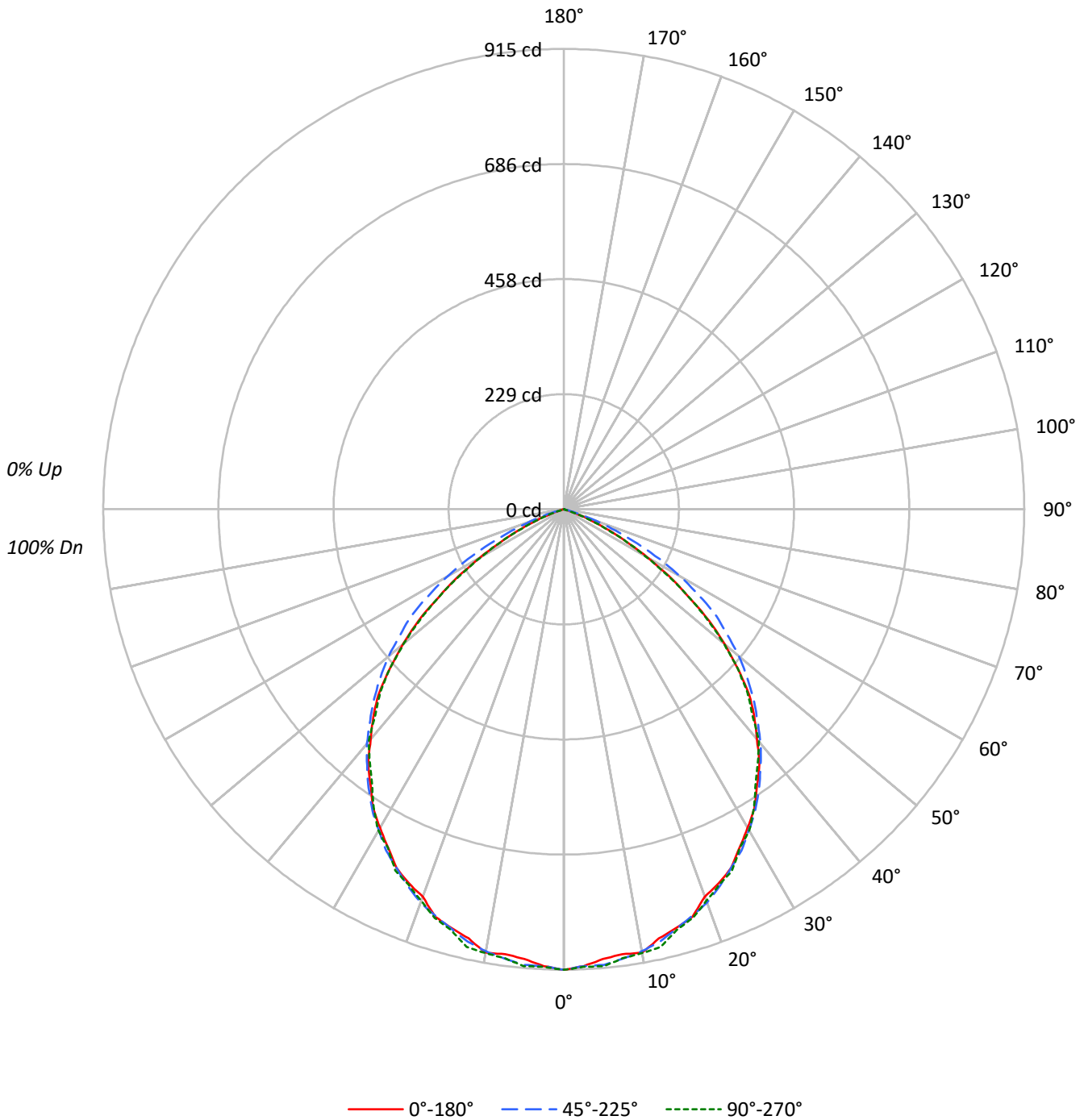
Lumens per Lamp: N/A
 Luminaire Lumens: 1955.0 lumens
 Efficiency: N/A
 Efficacy: 89.7 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 21.8
 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: FLDSQ4C20D010 FEU4C209030 F4LC-DFSSQ-MW

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°	88307	88307	88307
5°	86881	88014	88266
10°	87631	87376	87758
15°	86097	86227	86487
20°	84096	85431	85030
25°	83734	83734	84287
30°	81400	81980	82125
35°	78861	79627	78249
40°	75159	76632	75977
45°	71134	72731	70425
50°	62641	68105	62251
55°	50736	62327	50955
60°	37129	51679	36376
65°	22557	36804	21964
70°	8802	19804	8435
75°	969	5331	969
80°	722	722	722
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	86.4	4.4
10°-20°	244.5	12.5
20°-30°	362.7	18.6
30°-40°	420.3	21.5
40°-50°	403.0	20.6
50°-60°	296.3	15.2
60°-70°	128.0	6.5
70°-80°	13.8	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°	693.6	35.5
0°-40°	1113.8	57.0
0°-60°	1813.1	92.7
0°-90°	1955.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1955.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	915	915	915	915	915	
5°	897	906	909	910	911	86
15°	862	867	863	864	866	243
25°	786	785	786	788	792	360
35°	670	673	676	675	664	419
45°	521	523	533	525	516	396
55°	302	333	370	332	303	271
65°	99	124	161	122	96	102
75°	3	4	14	3	3	8
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°	915.2	915.2	915.2	915.2	915.2	915.2	915.2	915.2	915.2	915.2	915.2
2.5°	908.7	919.1	920.4	913.9	911.3	907.4	916.5	910.0	912.6	910.0	908.7
5°	897.0	908.7	910.0	910.0	907.4	906.1	910.0	908.7	907.4	904.8	908.7
7.5°	891.8	898.3	904.8	897.0	900.9	899.6	908.7	904.8	903.5	903.5	900.9
10°	894.4	893.1	898.3	890.5	893.1	890.5	898.3	898.3	895.7	893.1	891.8
12.5°	873.6	884.0	884.0	882.7	880.1	876.2	884.0	889.2	881.4	881.4	880.1
15°	861.9	864.5	865.8	865.8	864.5	867.1	871.0	865.8	867.1	860.6	863.2
17.5°	848.9	843.7	847.6	845.0	846.3	848.9	854.1	854.1	846.3	845.0	847.6
20°	819.0	834.6	835.9	828.1	829.4	829.4	838.5	830.7	835.9	829.4	832.0
22.5°	804.7	815.1	816.4	806.0	812.5	804.7	813.8	802.1	815.1	806.0	809.9
25°	786.5	785.2	789.1	783.9	785.2	785.2	791.7	786.5	790.4	785.2	786.5
27.5°	756.6	767.0	765.7	760.5	763.1	761.8	774.8	760.5	768.3	761.8	764.4
30°	730.6	739.7	737.1	731.9	731.9	728.0	742.3	738.4	737.1	737.1	735.8
32.5°	704.6	705.9	703.3	704.6	705.9	700.7	712.4	707.2	705.9	707.2	708.5
35°	669.5	669.5	672.1	668.2	673.4	673.4	683.8	677.3	676.0	672.1	676.0
37.5°	638.3	634.4	635.7	635.7	638.3	640.9	646.1	643.5	643.5	639.6	642.2
40°	596.7	594.1	598.0	598.0	601.9	601.9	607.1	604.5	608.4	608.4	608.4
42.5°	560.3	560.3	557.7	561.6	562.9	561.6	570.7	569.4	570.7	568.1	569.4
45°	521.3	521.3	518.7	517.4	523.9	522.6	533.0	529.1	534.3	531.7	533.0
47.5°	468.0	474.5	470.6	474.5	482.3	483.6	490.1	487.5	492.7	488.8	494.0
50°	417.3	417.3	421.2	426.4	434.2	435.5	443.3	448.5	451.1	452.4	453.7
52.5°	364.0	362.7	366.6	373.1	379.6	384.8	392.6	400.4	405.6	413.4	409.5
55°	301.6	304.2	308.1	315.9	326.3	332.8	339.3	349.7	358.8	362.7	370.5
57.5°	248.3	245.7	248.3	258.7	270.4	275.6	284.7	295.1	308.1	315.9	318.5
60°	192.4	193.7	196.3	205.4	214.5	222.3	226.2	243.1	254.8	262.6	267.8
62.5°	141.7	144.3	146.9	154.7	163.8	170.3	176.8	191.1	201.5	209.3	214.5
65°	98.8	100.1	104.0	107.9	117.0	123.5	128.7	140.4	150.8	157.3	161.2
67.5°	61.1	62.4	65.0	70.2	76.7	81.9	87.1	94.9	104.0	110.5	111.8
70°	31.2	32.5	33.8	37.7	42.9	45.5	49.4	55.9	62.4	67.6	70.2
72.5°	10.4	10.4	11.7	14.3	16.9	19.5	20.8	27.3	32.5	35.1	36.4
75°	2.6	2.6	2.6	2.6	2.6	3.9	3.9	7.8	10.4	13.0	14.3
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°	915.2	915.2	915.2	915.2	915.2	915.2	915.2	915.2	915.2	915.2
2.5°	915.2	912.6	911.3	912.6	912.6	911.3	915.2	920.4	926.9	910.0
5°	913.9	911.3	913.9	906.1	910.0	907.4	912.6	911.3	916.5	911.3
7.5°	910.0	904.8	906.1	902.2	907.4	900.9	904.8	912.6	907.4	899.6
10°	897.0	894.4	903.5	890.5	887.9	893.1	903.5	895.7	893.1	895.7
12.5°	884.0	884.0	887.9	877.5	878.8	881.4	886.6	881.4	884.0	890.5
15°	869.7	867.1	873.6	865.8	864.5	861.9	867.1	867.1	869.7	865.8
17.5°	852.8	848.9	848.9	846.3	845.0	851.5	854.1	855.4	856.7	851.5
20°	832.0	830.7	834.6	830.7	832.0	833.3	833.3	830.7	842.4	828.1
22.5°	809.9	813.8	808.6	806.0	808.6	811.2	811.2	812.5	809.9	807.3
25°	787.8	790.4	791.7	783.9	787.8	783.9	793.0	794.3	789.1	791.7
27.5°	768.3	764.4	763.1	757.9	760.5	759.2	760.5	760.5	768.3	757.9
30°	738.4	734.5	735.8	731.9	733.2	731.9	733.2	733.2	738.4	737.1
32.5°	709.8	705.9	707.2	703.3	703.3	704.6	702.0	702.0	705.9	703.3
35°	682.5	673.4	674.7	673.4	674.7	669.5	669.5	668.2	670.8	664.3
37.5°	643.5	639.6	638.3	637.0	638.3	635.7	638.3	634.4	638.3	633.1
40°	608.4	605.8	607.1	599.3	599.3	600.6	598.0	596.7	598.0	603.2
42.5°	573.3	568.1	565.5	562.9	564.2	560.3	559.0	556.4	559.0	553.8
45°	531.7	531.7	530.4	523.9	525.2	525.2	520.0	514.8	516.1	516.1
47.5°	494.0	491.4	490.1	483.6	482.3	481.0	475.8	471.9	471.9	468.0
50°	452.4	449.8	445.9	439.4	436.8	429.0	425.1	419.9	414.7	414.7
52.5°	413.4	404.3	399.1	388.7	384.8	380.9	370.5	366.6	362.7	358.8
55°	366.6	358.8	348.4	336.7	331.5	325.0	314.6	306.8	301.6	302.9
57.5°	321.1	308.1	297.7	282.1	275.6	271.7	261.3	250.9	245.7	245.7
60°	265.2	254.8	241.8	227.5	222.3	215.8	202.8	196.3	192.4	188.5
62.5°	211.9	204.1	192.4	174.2	170.3	163.8	154.7	146.9	143.0	143.0
65°	158.6	150.8	140.4	127.4	122.2	117.0	109.2	101.4	97.5	96.2
67.5°	111.8	102.7	93.6	83.2	79.3	76.7	68.9	63.7	61.1	59.8
70°	67.6	62.4	55.9	48.1	44.2	41.6	36.4	32.5	31.2	29.9
72.5°	35.1	31.2	26.0	20.8	18.2	15.6	13.0	10.4	9.1	9.1
75°	13.0	10.4	6.5	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)