

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 FEU4C209027 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 FEU4C209027 F4LC-DFSSQ-MW
 Description: 4 INCH 2000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

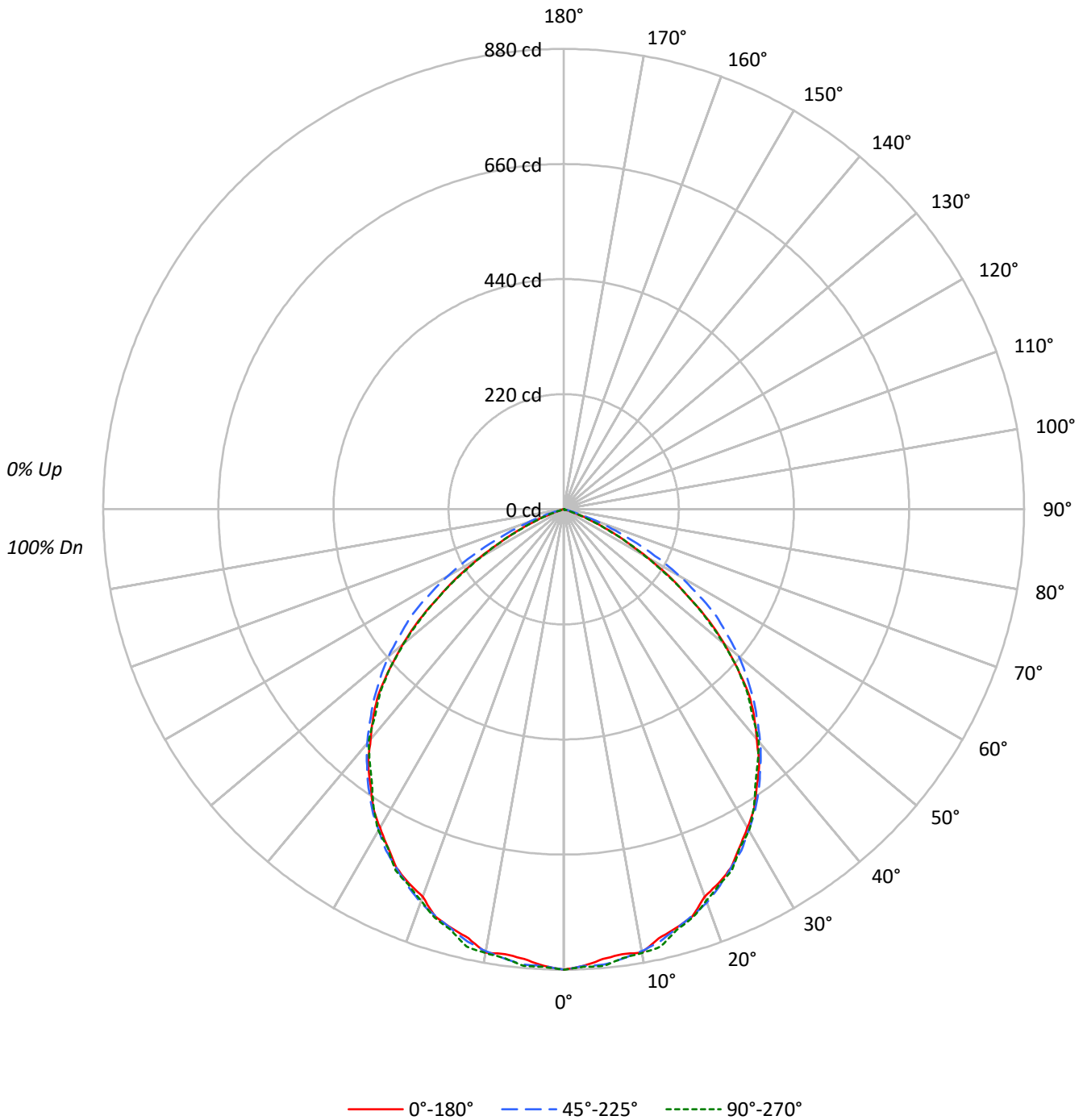
Lumens per Lamp: N/A
 Luminaire Lumens: 1880.0 lumens
 Efficiency: N/A
 Efficacy: 86.2 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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 FEU4C209027 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°	84920	84920	84920
5°	83549	84634	84876
10°	84270	84025	84388
15°	82791	82921	83171
20°	80872	82155	81765
25°	80519	80519	81051
30°	78270	78827	78972
35°	75834	76576	75245
40°	72274	73685	73055
45°	68405	69934	67723
50°	60239	65493	59864
55°	48785	59938	49003
60°	35701	49692	34987
65°	21690	35388	21119
70°	8463	19043	8125
75°	932	5145	932
80°	722	722	722
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	83.1	4.4
10°-20°	235.1	12.5
20°-30°	348.8	18.6
30°-40°	404.2	21.5
40°-50°	387.5	20.6
50°-60°	284.9	15.2
60°-70°	123.1	6.5
70°-80°	13.3	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°	666.9	35.5
0°-40°	1071.1	57.0
0°-60°	1743.5	92.7
0°-90°	1880.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1880.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	880	880	880	880	880	
5°	863	871	874	875	876	82
15°	829	834	830	831	833	234
25°	756	755	756	758	761	346
35°	644	648	650	649	639	403
45°	501	502	512	505	496	381
55°	290	320	356	319	291	261
65°	95	119	155	118	92	98
75°	2	4	14	2	2	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°	880.1	880.1	880.1	880.1	880.1	880.1	880.1	880.1	880.1	880.1	880.1
2.5°	873.8	883.8	885.1	878.8	876.3	872.6	881.3	875.1	877.6	875.1	873.8
5°	862.6	873.8	875.1	875.1	872.6	871.3	875.1	873.8	872.6	870.1	873.8
7.5°	857.6	863.8	870.1	862.6	866.3	865.1	873.8	870.1	868.8	868.8	866.3
10°	860.1	858.8	863.8	856.3	858.8	856.3	863.8	863.8	861.3	858.8	857.6
12.5°	840.0	850.0	850.0	848.8	846.3	842.5	850.0	855.1	847.5	847.5	846.3
15°	828.8	831.3	832.6	832.6	831.3	833.8	837.5	832.6	833.8	827.6	830.1
17.5°	816.3	811.3	815.1	812.6	813.8	816.3	821.3	821.3	813.8	812.6	815.1
20°	787.6	802.6	803.8	796.3	797.6	797.6	806.3	798.8	803.8	797.6	800.1
22.5°	773.8	783.8	785.1	775.1	781.3	773.8	782.6	771.3	783.8	775.1	778.8
25°	756.3	755.1	758.8	753.8	755.1	755.1	761.3	756.3	760.1	755.1	756.3
27.5°	727.6	737.6	736.3	731.3	733.8	732.6	745.1	731.3	738.8	732.6	735.1
30°	702.5	711.3	708.8	703.8	703.8	700.0	713.8	710.0	708.8	708.8	707.5
32.5°	677.5	678.8	676.3	677.5	678.8	673.8	685.0	680.0	678.8	680.0	681.3
35°	643.8	643.8	646.3	642.6	647.6	647.6	657.6	651.3	650.1	646.3	650.1
37.5°	613.8	610.1	611.3	611.3	613.8	616.3	621.3	618.8	618.8	615.1	617.6
40°	573.8	571.3	575.0	575.0	578.8	578.8	583.8	581.3	585.0	585.0	585.0
42.5°	538.8	538.8	536.3	540.0	541.3	540.0	548.8	547.5	548.8	546.3	547.5
45°	501.3	501.3	498.8	497.6	503.8	502.5	512.5	508.8	513.8	511.3	512.5
47.5°	450.0	456.3	452.5	456.3	463.8	465.1	471.3	468.8	473.8	470.1	475.1
50°	401.3	401.3	405.0	410.0	417.5	418.8	426.3	431.3	433.8	435.0	436.3
52.5°	350.0	348.8	352.5	358.8	365.0	370.0	377.5	385.0	390.0	397.5	393.8
55°	290.0	292.5	296.3	303.8	313.8	320.0	326.3	336.3	345.0	348.8	356.3
57.5°	238.8	236.3	238.8	248.8	260.0	265.0	273.8	283.8	296.3	303.8	306.3
60°	185.0	186.3	188.8	197.5	206.3	213.8	217.5	233.8	245.0	252.5	257.5
62.5°	136.3	138.8	141.3	148.8	157.5	163.8	170.0	183.8	193.8	201.3	206.3
65°	95.0	96.2	100.0	103.7	112.5	118.7	123.7	135.0	145.0	151.3	155.0
67.5°	58.8	60.0	62.5	67.5	73.8	78.8	83.8	91.2	100.0	106.2	107.5
70°	30.0	31.3	32.5	36.3	41.3	43.8	47.5	53.8	60.0	65.0	67.5
72.5°	10.0	10.0	11.3	13.8	16.3	18.8	20.0	26.3	31.3	33.8	35.0
75°	2.5	2.5	2.5	2.5	2.5	3.8	3.8	7.5	10.0	12.5	13.8
77.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.5	2.5
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°	880.1	880.1	880.1	880.1	880.1	880.1	880.1	880.1	880.1	880.1
2.5°	880.1	877.6	876.3	877.6	877.6	876.3	880.1	885.1	891.3	875.1
5°	878.8	876.3	878.8	871.3	875.1	872.6	877.6	876.3	881.3	876.3
7.5°	875.1	870.1	871.3	867.6	872.6	866.3	870.1	877.6	872.6	865.1
10°	862.6	860.1	868.8	856.3	853.8	858.8	868.8	861.3	858.8	861.3
12.5°	850.0	850.0	853.8	843.8	845.0	847.5	852.5	847.5	850.0	856.3
15°	836.3	833.8	840.0	832.6	831.3	828.8	833.8	833.8	836.3	832.6
17.5°	820.1	816.3	816.3	813.8	812.6	818.8	821.3	822.6	823.8	818.8
20°	800.1	798.8	802.6	798.8	800.1	801.3	801.3	798.8	810.1	796.3
22.5°	778.8	782.6	777.6	775.1	777.6	780.1	780.1	781.3	778.8	776.3
25°	757.6	760.1	761.3	753.8	757.6	753.8	762.6	763.8	758.8	761.3
27.5°	738.8	735.1	733.8	728.8	731.3	730.1	731.3	731.3	738.8	728.8
30°	710.0	706.3	707.5	703.8	705.0	703.8	705.0	705.0	710.0	708.8
32.5°	682.5	678.8	680.0	676.3	676.3	677.5	675.0	675.0	678.8	676.3
35°	656.3	647.6	648.8	647.6	648.8	643.8	643.8	642.6	645.1	638.8
37.5°	618.8	615.1	613.8	612.6	613.8	611.3	613.8	610.1	613.8	608.8
40°	585.0	582.5	583.8	576.3	576.3	577.5	575.0	573.8	575.0	580.0
42.5°	551.3	546.3	543.8	541.3	542.5	538.8	537.5	535.0	537.5	532.5
45°	511.3	511.3	510.0	503.8	505.0	505.0	500.1	495.1	496.3	496.3
47.5°	475.1	472.6	471.3	465.1	463.8	462.6	457.5	453.8	453.8	450.0
50°	435.0	432.5	428.8	422.5	420.0	412.5	408.8	403.8	398.8	398.8
52.5°	397.5	388.8	383.8	373.8	370.0	366.3	356.3	352.5	348.8	345.0
55°	352.5	345.0	335.0	323.8	318.8	312.5	302.5	295.0	290.0	291.3
57.5°	308.8	296.3	286.3	271.3	265.0	261.2	251.3	241.3	236.3	236.3
60°	255.0	245.0	232.5	218.8	213.8	207.5	195.0	188.8	185.0	181.3
62.5°	203.8	196.3	185.0	167.5	163.8	157.5	148.8	141.3	137.5	137.5
65°	152.5	145.0	135.0	122.5	117.5	112.5	105.0	97.5	93.7	92.5
67.5°	107.5	98.7	90.0	80.0	76.3	73.8	66.3	61.3	58.8	57.5
70°	65.0	60.0	53.8	46.3	42.5	40.0	35.0	31.3	30.0	28.8
72.5°	33.8	30.0	25.0	20.0	17.5	15.0	12.5	10.0	8.8	8.8
75°	12.5	10.0	6.3	3.8	2.5	2.5	2.5	2.5	2.5	2.5
77.5°	2.5	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)