

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: **FLDSQ4C15D010 FEU4C159035 F4LC-CSSQ-MW**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

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: FLDSQ4C15D010 FEU4C159035 F4LC-CSSQ-MW
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

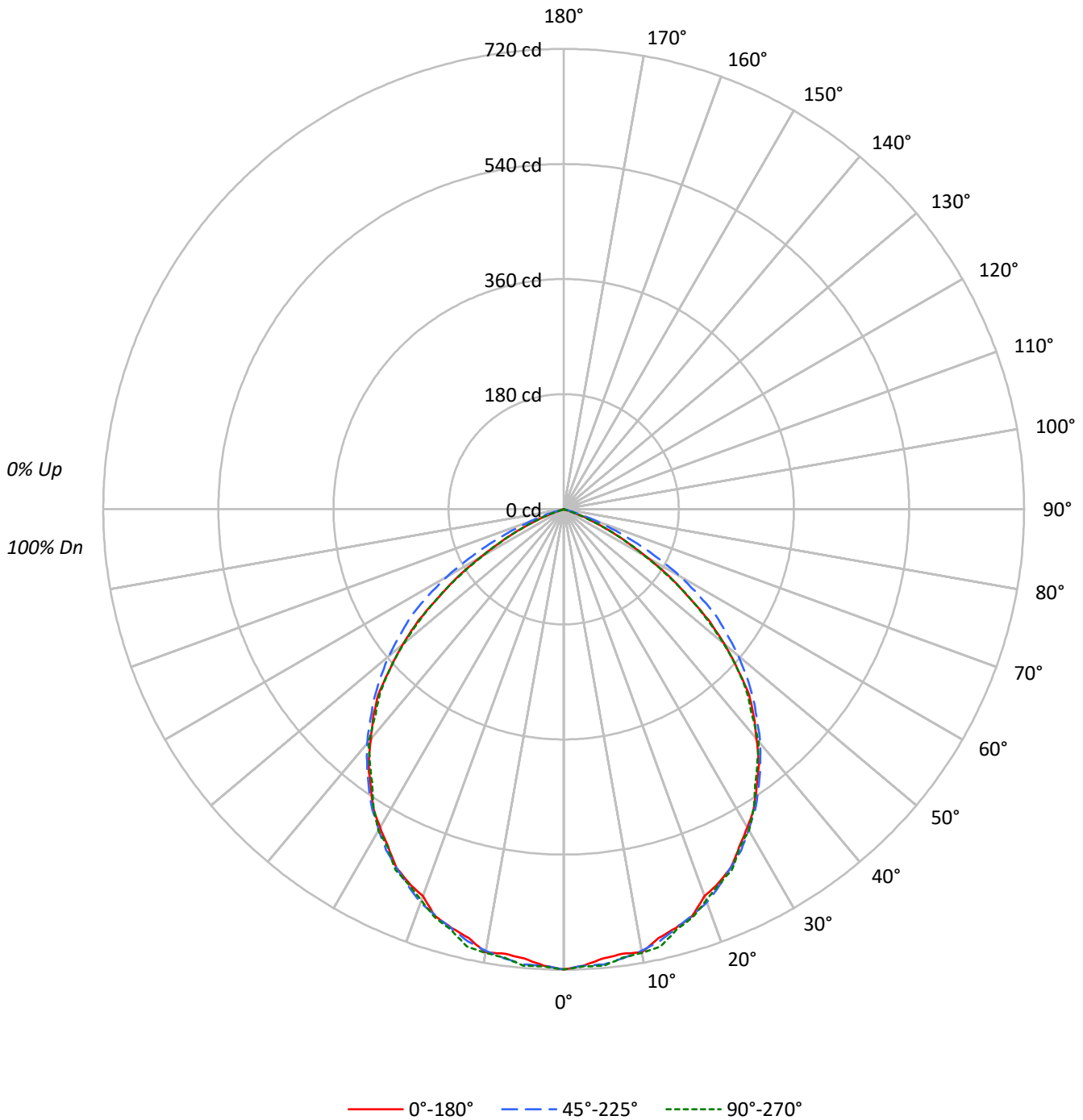
Lumens per Lamp: N/A
 Luminaire Lumens: 1537.0 lumens
 Efficiency: N/A
 Efficacy: 97.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 15.8
 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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 F4LC-CSSQ-MW

Luminous Intensity Polar Plot



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 F4LC-CSSQ-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	34				34
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°	69424	69424	69424
5°	68304	69195	69389
10°	68898	68692	68996
15°	67687	67787	67997
20°	66117	67164	66846
25°	65827	65827	66263
30°	63997	64454	64565
35°	61994	62606	61511
40°	59087	60245	59729
45°	55920	57175	55360
50°	49251	53544	48936
55°	39886	49003	40054
60°	29178	40622	28599
65°	17740	28927	17260
70°	6912	15573	6630
75°	746	4213	746
80°	556	556	556
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 F4LC-CSSQ-MW

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.9	4.4
10°-20°	192.2	12.5
20°-30°	285.2	18.6
30°-40°	330.4	21.5
40°-50°	316.8	20.6
50°-60°	232.9	15.2
60°-70°	100.6	6.5
70°-80°	10.8	0.7
80°-90°	0.1	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°	545.3	35.5
0°-40°	875.7	57.0
0°-60°	1425.4	92.7
0°-90°	1537.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1537.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	720	720	720	720	720	
5°	705	712	714	715	716	67
15°	678	682	679	680	681	191
25°	618	617	618	619	622	283
35°	526	529	532	530	522	329
45°	410	411	419	413	406	312
55°	237	262	291	261	238	213
65°	78	97	127	96	76	80
75°	2	3	11	2	2	6
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 F4LC-CSSQ-MW

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5
2.5°	714.4	722.6	723.6	718.5	716.4	713.4	720.5	715.4	717.5	715.4	714.4
5°	705.2	714.4	715.4	715.4	713.4	712.3	715.4	714.4	713.4	711.3	714.4
7.5°	701.1	706.2	711.3	705.2	708.3	707.3	714.4	711.3	710.3	710.3	708.3
10°	703.2	702.1	706.2	700.1	702.1	700.1	706.2	706.2	704.2	702.1	701.1
12.5°	686.8	695.0	695.0	694.0	691.9	688.8	695.0	699.1	692.9	692.9	691.9
15°	677.6	679.7	680.7	680.7	679.7	681.7	684.7	680.7	681.7	676.6	678.6
17.5°	667.4	663.3	666.4	664.3	665.4	667.4	671.5	671.5	665.4	664.3	666.4
20°	643.9	656.1	657.2	651.0	652.0	652.0	659.2	653.1	657.2	652.0	654.1
22.5°	632.6	640.8	641.8	633.7	638.7	632.6	639.8	630.6	640.8	633.7	636.7
25°	618.3	617.3	620.4	616.3	617.3	617.3	622.4	618.3	621.4	617.3	618.3
27.5°	594.8	603.0	602.0	597.9	599.9	598.9	609.1	597.9	604.0	598.9	601.0
30°	574.4	581.5	579.5	575.4	575.4	572.3	583.6	580.5	579.5	579.5	578.5
32.5°	553.9	555.0	552.9	553.9	555.0	550.9	560.1	556.0	555.0	556.0	557.0
35°	526.3	526.3	528.4	525.3	529.4	529.4	537.6	532.5	531.5	528.4	531.5
37.5°	501.8	498.8	499.8	499.8	501.8	503.9	507.9	505.9	505.9	502.8	504.9
40°	469.1	467.1	470.1	470.1	473.2	473.2	477.3	475.2	478.3	478.3	478.3
42.5°	440.5	440.5	438.5	441.5	442.6	441.5	448.7	447.6	448.7	446.6	447.6
45°	409.8	409.8	407.8	406.8	411.9	410.9	419.0	415.9	420.0	418.0	419.0
47.5°	367.9	373.0	370.0	373.0	379.2	380.2	385.3	383.3	387.3	384.3	388.4
50°	328.1	328.1	331.1	335.2	341.3	342.4	348.5	352.6	354.7	355.7	356.7
52.5°	286.2	285.1	288.2	293.3	298.4	302.5	308.7	314.8	318.9	325.0	321.9
55°	237.1	239.1	242.2	248.4	256.5	261.6	266.7	274.9	282.1	285.1	291.3
57.5°	195.2	193.2	195.2	203.4	212.6	216.7	223.8	232.0	242.2	248.4	250.4
60°	151.2	152.3	154.3	161.5	168.6	174.8	177.8	191.1	200.3	206.5	210.5
62.5°	111.4	113.5	115.5	121.6	128.8	133.9	139.0	150.2	158.4	164.5	168.6
65°	77.7	78.7	81.8	84.8	92.0	97.1	101.2	110.4	118.6	123.7	126.7
67.5°	48.0	49.0	51.1	55.2	60.3	64.4	68.5	74.6	81.8	86.9	87.9
70°	24.5	25.6	26.6	29.6	33.7	35.8	38.8	44.0	49.0	53.1	55.2
72.5°	8.2	8.2	9.2	11.3	13.3	15.3	16.3	21.5	25.6	27.6	28.6
75°	2.0	2.0	2.0	2.0	2.0	3.1	3.1	6.1	8.2	10.2	11.3
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 F4LC-CSSQ-MW

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5
2.5°	719.5	717.5	716.4	717.5	717.5	716.4	719.5	723.6	728.7	715.4
5°	718.5	716.4	718.5	712.3	715.4	713.4	717.5	716.4	720.5	716.4
7.5°	715.4	711.3	712.3	709.3	713.4	708.3	711.3	717.5	713.4	707.3
10°	705.2	703.2	710.3	700.1	698.0	702.1	710.3	704.2	702.1	704.2
12.5°	695.0	695.0	698.0	689.9	690.9	692.9	697.0	692.9	695.0	700.1
15°	683.7	681.7	686.8	680.7	679.7	677.6	681.7	681.7	683.7	680.7
17.5°	670.4	667.4	667.4	665.4	664.3	669.4	671.5	672.5	673.5	669.4
20°	654.1	653.1	656.1	653.1	654.1	655.1	655.1	653.1	662.3	651.0
22.5°	636.7	639.8	635.7	633.7	635.7	637.7	637.7	638.7	636.7	634.7
25°	619.4	621.4	622.4	616.3	619.4	616.3	623.4	624.4	620.4	622.4
27.5°	604.0	601.0	599.9	595.8	597.9	596.9	597.9	597.9	604.0	595.8
30°	580.5	577.4	578.5	575.4	576.4	575.4	576.4	576.4	580.5	579.5
32.5°	558.0	555.0	556.0	552.9	552.9	553.9	551.9	551.9	555.0	552.9
35°	536.5	529.4	530.4	529.4	530.4	526.3	526.3	525.3	527.4	522.2
37.5°	505.9	502.8	501.8	500.8	501.8	499.8	501.8	498.8	501.8	497.7
40°	478.3	476.2	477.3	471.2	471.2	472.2	470.1	469.1	470.1	474.2
42.5°	450.7	446.6	444.6	442.6	443.6	440.5	439.5	437.4	439.5	435.4
45°	418.0	418.0	417.0	411.9	412.9	412.9	408.8	404.7	405.7	405.7
47.5°	388.4	386.3	385.3	380.2	379.2	378.2	374.0	371.0	371.0	367.9
50°	355.7	353.6	350.6	345.4	343.4	337.3	334.2	330.1	326.0	326.0
52.5°	325.0	317.8	313.7	305.6	302.5	299.4	291.3	288.2	285.1	282.1
55°	288.2	282.1	273.9	264.7	260.6	255.5	247.3	241.2	237.1	238.1
57.5°	252.4	242.2	234.1	221.8	216.7	213.6	205.4	197.2	193.2	193.2
60°	208.5	200.3	190.1	178.8	174.8	169.7	159.4	154.3	151.2	148.2
62.5°	166.6	160.5	151.2	136.9	133.9	128.8	121.6	115.5	112.4	112.4
65°	124.7	118.6	110.4	100.2	96.1	92.0	85.9	79.7	76.6	75.6
67.5°	87.9	80.7	73.6	65.4	62.3	60.3	54.2	50.1	48.0	47.0
70°	53.1	49.0	44.0	37.8	34.7	32.7	28.6	25.6	24.5	23.5
72.5°	27.6	24.5	20.4	16.3	14.3	12.3	10.2	8.2	7.2	7.2
75°	10.2	8.2	5.1	3.1	2.0	2.0	2.0	2.0	2.0	2.0
77.5°	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)