

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: **FLDSQ4C100D010 FEU4C1009050 F4LC-CSSQ-MMS**

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: FLDSQ4C100D010 FEU4C1009050 F4LC-CSSQ-MMS
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

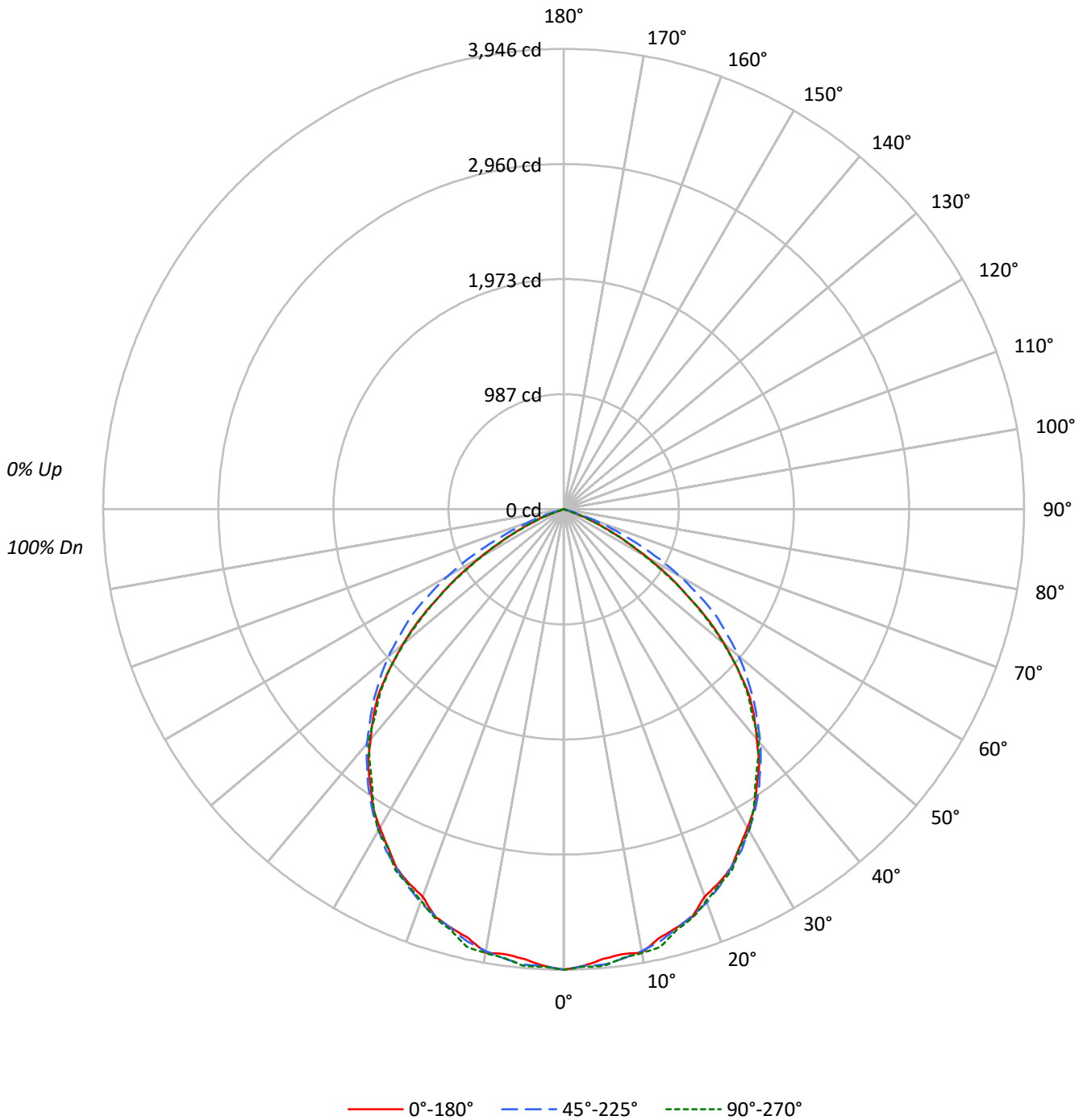
Lumens per Lamp: N/A
 Luminaire Lumens: 8430.0 lumens
 Efficiency: N/A
 Efficacy: 73.7 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 114.4
 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: FLDSQ4C100D010 FEU4C1009050 F4LC-CSSQ-MMS

Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C100D010 FEU4C1009050 F4LC-CSSQ-MMS

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°	380774	380774	380774
5°	374635	379507	380592
10°	377869	376772	378408
15°	371251	371800	372919
20°	362619	368369	366655
25°	361050	361050	363435
30°	350982	353478	354113
35°	340028	343350	337389
40°	324088	330424	327602
45°	306712	313617	303655
50°	270123	293675	268442
55°	218758	268737	219716
60°	160075	222831	156852
65°	97284	158677	94727
70°	37944	85424	36393
75°	4175	23002	4175
80°	3167	3167	3167
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C100D010 FEU4C1009050 F4LC-CSSQ-MMS

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	372.5	4.4
10°-20°	1054.1	12.5
20°-30°	1564.0	18.6
30°-40°	1812.2	21.5
40°-50°	1737.5	20.6
50°-60°	1277.5	15.2
60°-70°	551.8	6.5
70°-80°	59.6	0.7
80°-90°	0.8	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°	2990.6	35.5
0°-40°	4802.8	57.0
0°-60°	7817.9	92.7
0°-90°	8430.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	8430.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3946	3946	3946	3946	3946	
5°	3868	3907	3918	3924	3929	369
15°	3716	3739	3722	3728	3733	1047
25°	3391	3386	3391	3397	3414	1553
35°	2887	2904	2915	2909	2864	1805
45°	2248	2254	2298	2265	2225	1709
55°	1300	1435	1598	1429	1306	1170
65°	426	532	695	527	415	438
75°	11	17	62	11	11	34
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C100D010 FEU4C1009050 F4LC-CSSQ-MMS

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	3946.3	3946.3	3946.3	3946.3	3946.3	3946.3	3946.3	3946.3	3946.3	3946.3	3946.3
2.5°	3918.2	3963.0	3968.8	3940.6	3929.4	3912.7	3951.8	3923.9	3935.1	3923.9	3918.2
5°	3867.9	3918.2	3923.9	3923.9	3912.7	3907.0	3923.9	3918.2	3912.7	3901.5	3918.2
7.5°	3845.5	3873.4	3901.5	3867.9	3884.6	3879.1	3918.2	3901.5	3895.8	3895.8	3884.6
10°	3856.7	3851.0	3873.4	3839.8	3851.0	3839.8	3873.4	3873.4	3862.2	3851.0	3845.5
12.5°	3766.8	3811.6	3811.6	3806.1	3794.9	3778.0	3811.6	3834.3	3800.4	3800.4	3794.9
15°	3716.5	3727.7	3733.2	3733.2	3727.7	3738.9	3755.6	3733.2	3738.9	3710.8	3722.0
17.5°	3660.5	3638.0	3654.7	3643.5	3649.3	3660.5	3682.9	3682.9	3649.3	3643.5	3654.7
20°	3531.5	3598.7	3604.4	3570.8	3576.3	3576.3	3615.6	3582.0	3604.4	3576.3	3587.5
22.5°	3469.7	3514.6	3520.3	3475.4	3503.3	3469.7	3509.1	3458.5	3514.6	3475.4	3492.1
25°	3391.3	3385.8	3402.5	3380.1	3385.8	3385.8	3413.7	3391.3	3408.2	3385.8	3391.3
27.5°	3262.5	3307.3	3301.6	3279.2	3290.4	3284.9	3341.0	3279.2	3312.8	3284.9	3296.1
30°	3150.2	3189.6	3178.3	3155.9	3155.9	3139.0	3200.8	3183.8	3178.3	3178.3	3172.6
32.5°	3038.2	3043.9	3032.7	3038.2	3043.9	3021.5	3071.8	3049.4	3043.9	3049.4	3055.1
35°	2886.7	2886.7	2898.0	2881.3	2903.7	2903.7	2948.5	2920.4	2914.9	2898.0	2914.9
37.5°	2752.3	2735.6	2741.1	2741.1	2752.3	2763.5	2785.9	2774.7	2774.7	2758.0	2769.2
40°	2573.0	2561.8	2578.5	2578.5	2595.4	2595.4	2617.8	2606.6	2623.3	2623.3	2623.3
42.5°	2416.1	2416.1	2404.9	2421.6	2427.3	2421.6	2460.9	2455.2	2460.9	2449.7	2455.2
45°	2247.7	2247.7	2236.5	2231.0	2258.9	2253.5	2298.3	2281.4	2303.8	2292.6	2298.3
47.5°	2017.9	2046.0	2029.1	2046.0	2079.6	2085.3	2113.3	2102.1	2124.5	2107.8	2130.2
50°	1799.5	1799.5	1816.2	1838.6	1872.2	1877.9	1911.5	1933.9	1945.2	1950.6	1956.4
52.5°	1569.6	1563.9	1580.8	1608.7	1636.9	1659.3	1692.9	1726.5	1748.9	1782.5	1765.6
55°	1300.4	1311.6	1328.6	1362.2	1407.0	1434.9	1463.0	1507.9	1547.2	1563.9	1597.5
57.5°	1070.6	1059.4	1070.6	1115.4	1166.0	1188.4	1227.7	1272.5	1328.6	1362.2	1373.4
60°	829.5	835.2	846.4	885.8	924.9	958.5	975.4	1048.2	1098.7	1132.3	1154.7
62.5°	611.1	622.3	633.5	667.1	706.3	734.4	762.3	824.0	868.9	902.5	924.9
65°	426.1	431.6	448.5	465.2	504.5	532.4	554.8	605.4	650.2	678.3	695.0
67.5°	263.5	269.0	280.2	302.8	330.7	353.1	375.5	409.2	448.5	476.4	482.1
70°	134.5	140.2	145.7	162.6	185.0	196.2	212.9	241.1	269.0	291.4	302.8
72.5°	44.8	44.8	50.5	61.7	73.0	84.2	89.7	117.8	140.2	151.4	156.9
75°	11.2	11.2	11.2	11.2	11.2	16.9	16.9	33.6	44.8	56.0	61.7
77.5°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	11.2	11.2
80°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
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: FLDSQ4C100D010 FEU4C1009050 F4LC-CSSQ-MMS

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	3946.3	3946.3	3946.3	3946.3	3946.3	3946.3	3946.3	3946.3	3946.3	3946.3
2.5°	3946.3	3935.1	3929.4	3935.1	3935.1	3929.4	3946.3	3968.8	3996.7	3923.9
5°	3940.6	3929.4	3940.6	3907.0	3923.9	3912.7	3935.1	3929.4	3951.8	3929.4
7.5°	3923.9	3901.5	3907.0	3890.3	3912.7	3884.6	3901.5	3935.1	3912.7	3879.1
10°	3867.9	3856.7	3895.8	3839.8	3828.6	3851.0	3895.8	3862.2	3851.0	3862.2
12.5°	3811.6	3811.6	3828.6	3783.7	3789.2	3800.4	3822.8	3800.4	3811.6	3839.8
15°	3750.1	3738.9	3766.8	3733.2	3727.7	3716.5	3738.9	3738.9	3750.1	3733.2
17.5°	3677.2	3660.5	3660.5	3649.3	3643.5	3671.7	3682.9	3688.4	3694.1	3671.7
20°	3587.5	3582.0	3598.7	3582.0	3587.5	3593.2	3593.2	3582.0	3632.3	3570.8
22.5°	3492.1	3509.1	3486.6	3475.4	3486.6	3497.9	3497.9	3503.3	3492.1	3480.9
25°	3397.0	3408.2	3413.7	3380.1	3397.0	3380.1	3419.4	3424.9	3402.5	3413.7
27.5°	3312.8	3296.1	3290.4	3268.0	3279.2	3273.7	3279.2	3279.2	3312.8	3268.0
30°	3183.8	3167.1	3172.6	3155.9	3161.4	3155.9	3161.4	3161.4	3183.8	3178.3
32.5°	3060.6	3043.9	3049.4	3032.7	3032.7	3038.2	3026.9	3026.9	3043.9	3032.7
35°	2942.8	2903.7	2909.2	2903.7	2909.2	2886.7	2886.7	2881.3	2892.5	2864.3
37.5°	2774.7	2758.0	2752.3	2746.8	2752.3	2741.1	2752.3	2735.6	2752.3	2729.9
40°	2623.3	2612.1	2617.8	2584.2	2584.2	2589.7	2578.5	2573.0	2578.5	2600.9
42.5°	2472.1	2449.7	2438.5	2427.3	2432.8	2416.1	2410.3	2399.1	2410.3	2387.9
45°	2292.6	2292.6	2287.1	2258.9	2264.7	2264.7	2242.2	2219.8	2225.3	2225.3
47.5°	2130.2	2119.0	2113.3	2085.3	2079.6	2074.1	2051.5	2034.8	2034.8	2017.9
50°	1950.6	1939.4	1922.7	1894.6	1883.4	1849.8	1833.1	1810.7	1788.3	1788.3
52.5°	1782.5	1743.2	1720.8	1676.0	1659.3	1642.4	1597.5	1580.8	1563.9	1547.2
55°	1580.8	1547.2	1502.4	1451.8	1429.4	1401.3	1356.5	1322.8	1300.4	1306.1
57.5°	1384.6	1328.6	1283.7	1216.5	1188.4	1171.4	1126.6	1081.8	1059.4	1059.4
60°	1143.5	1098.7	1042.7	980.9	958.5	930.6	874.4	846.4	829.5	812.8
62.5°	913.7	880.1	829.5	751.1	734.4	706.3	667.1	633.5	616.6	616.6
65°	683.8	650.2	605.4	549.4	526.9	504.5	470.9	437.3	420.4	414.9
67.5°	482.1	442.8	403.7	358.8	341.9	330.7	297.1	274.7	263.5	257.8
70°	291.4	269.0	241.1	207.4	190.5	179.3	156.9	140.2	134.5	129.0
72.5°	151.4	134.5	112.1	89.7	78.4	67.2	56.0	44.8	39.3	39.3
75°	56.0	44.8	28.1	16.9	11.2	11.2	11.2	11.2	11.2	11.2
77.5°	11.2	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
80°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
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)