

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: **FLDSQ4C80D010 FEU4C809027 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: FLDSQ4C80D010 FEU4C809027 F4LC-CSSQ-MW
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

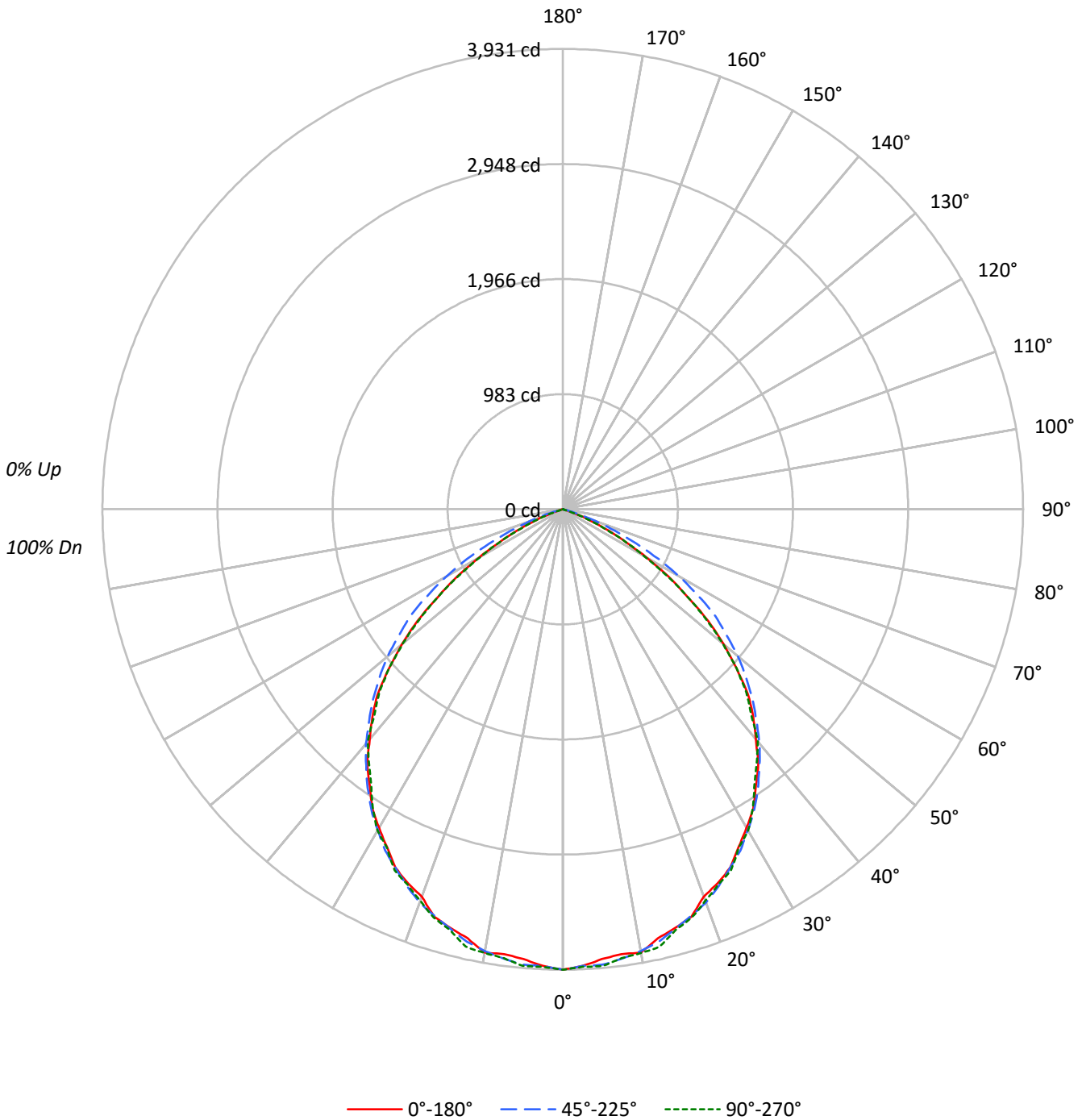
Lumens per Lamp: N/A
 Luminaire Lumens: 8398.0 lumens
 Efficiency: N/A
 Efficacy: 93.8 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 89.5
 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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C80D010 FEU4C809027 F4LC-CSSQ-MW

Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C80D010 FEU4C809027 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	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°	379336	379336	379336
5°	373211	378064	379149
10°	376429	375342	376968
15°	369843	370392	371501
20°	361243	366973	365268
25°	359677	359677	362051
30°	349656	352141	352776
35°	338744	342042	336117
40°	322854	329164	326355
45°	305552	312429	302509
50°	269087	292550	267421
55°	217933	267727	218892
60°	159477	222002	156254
65°	96919	158083	94361
70°	37803	85114	36252
75°	4175	22927	4175
80°	3167	3167	3167
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C80D010 FEU4C809027 F4LC-CSSQ-MW

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	371.1	4.4
10°-20°	1050.1	12.5
20°-30°	1558.1	18.6
30°-40°	1805.4	21.5
40°-50°	1730.9	20.6
50°-60°	1272.7	15.2
60°-70°	549.7	6.5
70°-80°	59.4	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°	2979.2	35.5
0°-40°	4784.6	57.0
0°-60°	7788.2	92.7
0°-90°	8398.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	8398.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3931	3931	3931	3931	3931	
5°	3853	3892	3903	3909	3914	368
15°	3702	3725	3708	3714	3719	1043
25°	3378	3373	3378	3384	3401	1547
35°	2876	2893	2904	2898	2854	1798
45°	2239	2245	2290	2256	2217	1702
55°	1296	1430	1592	1424	1301	1166
65°	424	530	692	525	413	436
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: FLDSQ4C80D010 FEU4C809027 F4LC-CSSQ-MW

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4
2.5°	3903.3	3948.0	3953.7	3925.7	3914.5	3897.9	3936.8	3909.0	3920.2	3909.0	3903.3
5°	3853.2	3903.3	3909.0	3909.0	3897.9	3892.2	3909.0	3903.3	3897.9	3886.7	3903.3
7.5°	3830.9	3858.7	3886.7	3853.2	3869.9	3864.4	3903.3	3886.7	3881.0	3881.0	3869.9
10°	3842.0	3836.4	3858.7	3825.2	3836.4	3825.2	3858.7	3858.7	3847.5	3836.4	3830.9
12.5°	3752.5	3797.2	3797.2	3791.7	3780.5	3763.7	3797.2	3819.7	3786.0	3786.0	3780.5
15°	3702.4	3713.6	3719.0	3719.0	3713.6	3724.7	3741.4	3719.0	3724.7	3696.7	3707.9
17.5°	3646.6	3624.2	3640.9	3629.7	3635.4	3646.6	3668.9	3668.9	3635.4	3629.7	3640.9
20°	3518.1	3585.1	3590.7	3557.3	3562.7	3562.7	3601.9	3568.4	3590.7	3562.7	3573.9
22.5°	3456.6	3501.2	3506.9	3462.2	3490.0	3456.6	3495.7	3445.4	3501.2	3462.2	3478.9
25°	3378.4	3372.9	3389.6	3367.2	3372.9	3372.9	3400.7	3378.4	3395.3	3372.9	3378.4
27.5°	3250.1	3294.8	3289.1	3266.8	3277.9	3272.5	3328.3	3266.8	3300.3	3272.5	3283.6
30°	3138.3	3177.4	3166.3	3144.0	3144.0	3127.1	3188.6	3171.8	3166.3	3166.3	3160.6
32.5°	3026.6	3032.3	3021.1	3026.6	3032.3	3010.0	3060.1	3037.8	3032.3	3037.8	3043.5
35°	2875.8	2875.8	2887.0	2870.3	2892.6	2892.6	2937.3	2909.3	2903.8	2887.0	2903.8
37.5°	2741.8	2725.2	2730.7	2730.7	2741.8	2753.0	2775.3	2764.1	2764.1	2747.5	2758.7
40°	2563.2	2552.0	2568.7	2568.7	2585.5	2585.5	2607.8	2596.7	2613.3	2613.3	2613.3
42.5°	2406.9	2406.9	2395.7	2412.4	2418.1	2412.4	2451.5	2445.9	2451.5	2440.4	2445.9
45°	2239.2	2239.2	2228.0	2222.6	2250.4	2244.9	2289.6	2272.7	2295.0	2283.9	2289.6
47.5°	2010.2	2038.2	2021.4	2038.2	2071.7	2077.4	2105.2	2094.1	2116.4	2099.8	2122.1
50°	1792.6	1792.6	1809.3	1831.6	1865.1	1870.8	1904.3	1926.6	1937.8	1943.2	1948.9
52.5°	1563.7	1558.0	1574.8	1602.6	1630.6	1653.0	1686.5	1720.0	1742.3	1775.8	1758.9
55°	1295.5	1306.7	1323.5	1357.0	1401.7	1429.5	1457.5	1502.1	1541.3	1558.0	1591.5
57.5°	1066.5	1055.4	1066.5	1111.2	1161.5	1183.9	1223.0	1267.7	1323.5	1357.0	1368.2
60°	826.4	832.1	843.2	882.4	921.4	954.9	971.7	1044.2	1094.5	1128.0	1150.4
62.5°	608.8	619.9	631.1	664.6	703.6	731.6	759.4	820.9	865.6	899.1	921.4
65°	424.5	429.9	446.8	463.4	502.6	530.4	552.7	603.1	647.7	675.8	692.4
67.5°	262.5	267.9	279.1	301.7	329.5	351.8	374.1	407.6	446.8	474.6	480.3
70°	134.0	139.7	145.1	162.0	184.3	195.5	212.1	240.1	267.9	290.3	301.7
72.5°	44.7	44.7	50.3	61.5	72.7	83.8	89.3	117.3	139.7	150.8	156.3
75°	11.2	11.2	11.2	11.2	11.2	16.9	16.9	33.5	44.7	55.8	61.5
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: FLDSQ4C80D010 FEU4C809027 F4LC-CSSQ-MW

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4
2.5°	3931.4	3920.2	3914.5	3920.2	3920.2	3914.5	3931.4	3953.7	3981.5	3909.0
5°	3925.7	3914.5	3925.7	3892.2	3909.0	3897.9	3920.2	3914.5	3936.8	3914.5
7.5°	3909.0	3886.7	3892.2	3875.5	3897.9	3869.9	3886.7	3920.2	3897.9	3864.4
10°	3853.2	3842.0	3881.0	3825.2	3814.0	3836.4	3881.0	3847.5	3836.4	3847.5
12.5°	3797.2	3797.2	3814.0	3769.4	3774.8	3786.0	3808.3	3786.0	3797.2	3825.2
15°	3735.9	3724.7	3752.5	3719.0	3713.6	3702.4	3724.7	3724.7	3735.9	3719.0
17.5°	3663.2	3646.6	3646.6	3635.4	3629.7	3657.7	3668.9	3674.4	3680.1	3657.7
20°	3573.9	3568.4	3585.1	3568.4	3573.9	3579.6	3579.6	3568.4	3618.5	3557.3
22.5°	3478.9	3495.7	3473.4	3462.2	3473.4	3484.6	3484.6	3490.0	3478.9	3467.7
25°	3384.1	3395.3	3400.7	3367.2	3384.1	3367.2	3406.4	3411.9	3389.6	3400.7
27.5°	3300.3	3283.6	3277.9	3255.6	3266.8	3261.3	3266.8	3266.8	3300.3	3255.6
30°	3171.8	3155.1	3160.6	3144.0	3149.4	3144.0	3149.4	3149.4	3171.8	3166.3
32.5°	3048.9	3032.3	3037.8	3021.1	3021.1	3026.6	3015.5	3015.5	3032.3	3021.1
35°	2931.6	2892.6	2898.1	2892.6	2898.1	2875.8	2875.8	2870.3	2881.5	2853.5
37.5°	2764.1	2747.5	2741.8	2736.3	2741.8	2730.7	2741.8	2725.2	2741.8	2719.5
40°	2613.3	2602.2	2607.8	2574.4	2574.4	2579.8	2568.7	2563.2	2568.7	2591.0
42.5°	2462.7	2440.4	2429.2	2418.1	2423.5	2406.9	2401.2	2390.0	2401.2	2378.9
45°	2283.9	2283.9	2278.4	2250.4	2256.1	2256.1	2233.7	2211.4	2216.9	2216.9
47.5°	2122.1	2110.9	2105.2	2077.4	2071.7	2066.3	2043.7	2027.1	2027.1	2010.2
50°	1943.2	1932.1	1915.4	1887.4	1876.3	1842.8	1826.1	1803.8	1781.5	1781.5
52.5°	1775.8	1736.6	1714.3	1669.6	1653.0	1636.1	1591.5	1574.8	1558.0	1541.3
55°	1574.8	1541.3	1496.7	1446.3	1424.0	1396.0	1351.3	1317.8	1295.5	1301.2
57.5°	1379.3	1323.5	1278.9	1211.9	1183.9	1167.0	1122.3	1077.7	1055.4	1055.4
60°	1139.2	1094.5	1038.7	977.2	954.9	927.1	871.0	843.2	826.4	809.7
62.5°	910.2	876.7	826.4	748.2	731.6	703.6	664.6	631.1	614.3	614.3
65°	681.2	647.7	603.1	547.3	524.9	502.6	469.1	435.6	418.8	413.3
67.5°	480.3	441.1	402.1	357.5	340.6	329.5	296.0	273.6	262.5	256.8
70°	290.3	267.9	240.1	206.6	189.8	178.6	156.3	139.7	134.0	128.5
72.5°	150.8	134.0	111.6	89.3	78.2	67.0	55.8	44.7	39.2	39.2
75°	55.8	44.7	28.0	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)