

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: **FLDSQ4C50D010 FEU4C509030 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: FLDSQ4C50D010 FEU4C509030 F4LC-CSSQ-MW
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

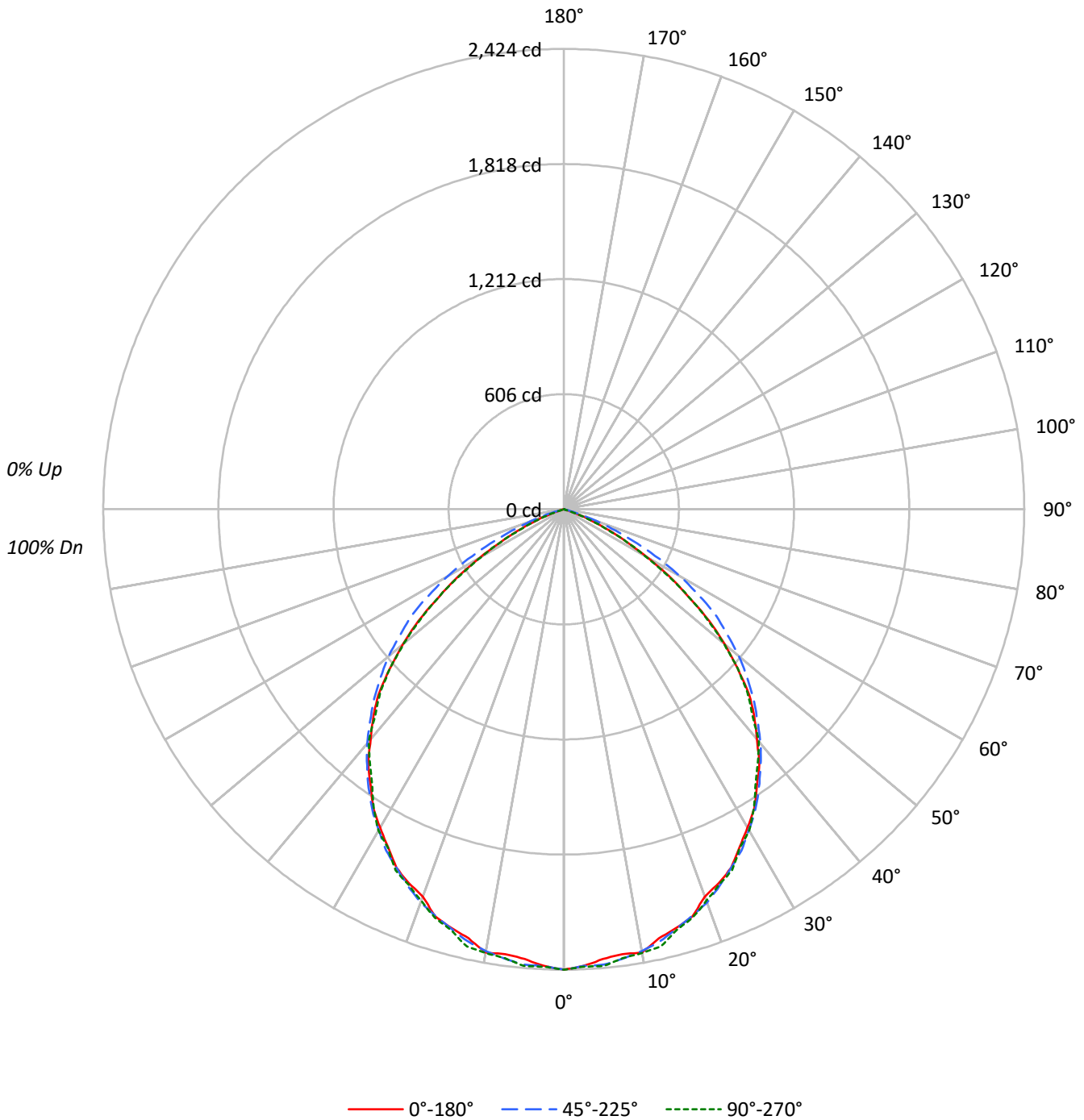
Lumens per Lamp: N/A
 Luminaire Lumens: 5178.0 lumens
 Efficiency: N/A
 Efficacy: 88.7 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 58.4
 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: FLDSQ4C50D010 FEU4C509030 F4LC-CSSQ-MW

Luminous Intensity Polar Plot



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C50D010 FEU4C509030 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°	233889	233889	233889
5°	230114	233107	233775
10°	232099	231423	232432
15°	228035	228375	229064
20°	222736	226269	225211
25°	221764	221764	223233
30°	215590	217116	217517
35°	208856	210893	207242
40°	199063	202955	201217
45°	188391	192635	186522
50°	165917	180387	164881
55°	134377	165077	134966
60°	98322	136879	96354
65°	59749	97466	58174
70°	23303	52473	22343
75°	2572	14129	2572
80°	1945	1945	1945
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C50D010 FEU4C509030 F4LC-CSSQ-MW

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	228.8	4.4
10°-20°	647.4	12.5
20°-30°	960.7	18.6
30°-40°	1113.1	21.5
40°-50°	1067.3	20.6
50°-60°	784.7	15.2
60°-70°	338.9	6.5
70°-80°	36.6	0.7
80°-90°	0.5	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°	1836.9	35.5
0°-40°	2950.1	57.0
0°-60°	4802.0	92.7
0°-90°	5178.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5178.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2424	2424	2424	2424	2424	
5°	2376	2400	2407	2410	2414	227
15°	2283	2297	2286	2290	2293	643
25°	2083	2080	2083	2086	2097	954
35°	1773	1784	1790	1787	1759	1109
45°	1381	1384	1412	1391	1367	1050
55°	799	881	981	878	802	719
65°	262	327	427	324	255	269
75°	7	10	38	7	7	21
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C50D010 FEU4C509030 F4LC-CSSQ-MW

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2424.0	2424.0	2424.0	2424.0	2424.0	2424.0	2424.0	2424.0	2424.0	2424.0	2424.0
2.5°	2406.7	2434.2	2437.7	2420.5	2413.6	2403.3	2427.4	2410.2	2417.1	2410.2	2406.7
5°	2375.8	2406.7	2410.2	2410.2	2403.3	2399.8	2410.2	2406.7	2403.3	2396.4	2406.7
7.5°	2362.0	2379.2	2396.4	2375.8	2386.1	2382.7	2406.7	2396.4	2392.9	2392.9	2386.1
10°	2368.9	2365.4	2379.2	2358.5	2365.4	2358.5	2379.2	2379.2	2372.3	2365.4	2362.0
12.5°	2313.7	2341.2	2341.2	2337.9	2331.0	2320.6	2341.2	2355.1	2334.4	2334.4	2331.0
15°	2282.8	2289.7	2293.1	2293.1	2289.7	2296.6	2306.8	2293.1	2296.6	2279.3	2286.2
17.5°	2248.4	2234.6	2244.9	2238.0	2241.5	2248.4	2262.1	2262.1	2241.5	2238.0	2244.9
20°	2169.2	2210.5	2214.0	2193.3	2196.7	2196.7	2220.8	2200.2	2214.0	2196.7	2203.6
22.5°	2131.2	2158.8	2162.3	2134.7	2151.9	2131.2	2155.4	2124.3	2158.8	2134.7	2145.0
25°	2083.0	2079.7	2089.9	2076.2	2079.7	2079.7	2096.8	2083.0	2093.4	2079.7	2083.0
27.5°	2003.9	2031.5	2028.0	2014.2	2021.1	2017.7	2052.1	2014.2	2034.9	2017.7	2024.6
30°	1935.0	1959.1	1952.3	1938.5	1938.5	1928.1	1966.0	1955.6	1952.3	1952.3	1948.7
32.5°	1866.1	1869.6	1862.8	1866.1	1869.6	1855.9	1886.8	1873.0	1869.6	1873.0	1876.5
35°	1773.1	1773.1	1780.0	1769.8	1783.5	1783.5	1811.1	1793.8	1790.4	1780.0	1790.4
37.5°	1690.5	1680.3	1683.7	1683.7	1690.5	1697.4	1711.2	1704.3	1704.3	1694.0	1700.9
40°	1580.4	1573.5	1583.8	1583.8	1594.2	1594.2	1607.9	1601.1	1611.3	1611.3	1611.3
42.5°	1484.0	1484.0	1477.1	1487.4	1490.9	1487.4	1511.6	1508.1	1511.6	1504.7	1508.1
45°	1380.6	1380.6	1373.8	1370.4	1387.5	1384.1	1411.7	1401.3	1415.1	1408.2	1411.7
47.5°	1239.5	1256.7	1246.3	1256.7	1277.4	1280.9	1298.0	1291.2	1304.9	1294.7	1308.4
50°	1105.3	1105.3	1115.6	1129.3	1150.0	1153.5	1174.1	1187.9	1194.8	1198.2	1201.7
52.5°	964.1	960.6	971.0	988.1	1005.4	1019.2	1039.8	1060.5	1074.3	1094.9	1084.5
55°	798.8	805.7	816.0	836.7	864.2	881.4	898.7	926.2	950.3	960.6	981.3
57.5°	657.6	650.7	657.6	685.1	716.2	729.9	754.1	781.6	816.0	836.7	843.6
60°	509.5	513.0	519.9	544.1	568.1	588.8	599.1	643.8	674.9	695.5	709.3
62.5°	375.4	382.2	389.1	409.8	433.8	451.1	468.2	506.1	533.7	554.3	568.1
65°	261.7	265.1	275.5	285.7	309.9	327.0	340.8	371.9	399.4	416.7	426.9
67.5°	161.8	165.2	172.1	186.0	203.1	216.9	230.7	251.3	275.5	292.6	296.1
70°	82.6	86.1	89.5	99.9	113.6	120.5	130.8	148.1	165.2	179.0	186.0
72.5°	27.5	27.5	31.0	37.9	44.8	51.7	55.1	72.3	86.1	93.0	96.4
75°	6.9	6.9	6.9	6.9	6.9	10.4	10.4	20.7	27.5	34.4	37.9
77.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.9	6.9
80°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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: FLDSQ4C50D010 FEU4C509030 F4LC-CSSQ-MW

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	2424.0	2424.0	2424.0	2424.0	2424.0	2424.0	2424.0	2424.0	2424.0	2424.0
2.5°	2424.0	2417.1	2413.6	2417.1	2417.1	2413.6	2424.0	2437.7	2454.9	2410.2
5°	2420.5	2413.6	2420.5	2399.8	2410.2	2403.3	2417.1	2413.6	2427.4	2413.6
7.5°	2410.2	2396.4	2399.8	2389.6	2403.3	2386.1	2396.4	2417.1	2403.3	2382.7
10°	2375.8	2368.9	2392.9	2358.5	2351.6	2365.4	2392.9	2372.3	2365.4	2372.3
12.5°	2341.2	2341.2	2351.6	2324.1	2327.5	2334.4	2348.1	2334.4	2341.2	2358.5
15°	2303.5	2296.6	2313.7	2293.1	2289.7	2282.8	2296.6	2296.6	2303.5	2293.1
17.5°	2258.6	2248.4	2248.4	2241.5	2238.0	2255.3	2262.1	2265.5	2269.0	2255.3
20°	2203.6	2200.2	2210.5	2200.2	2203.6	2207.1	2207.1	2200.2	2231.1	2193.3
22.5°	2145.0	2155.4	2141.6	2134.7	2141.6	2148.5	2148.5	2151.9	2145.0	2138.1
25°	2086.5	2093.4	2096.8	2076.2	2086.5	2076.2	2100.3	2103.7	2089.9	2096.8
27.5°	2034.9	2024.6	2021.1	2007.3	2014.2	2010.8	2014.2	2014.2	2034.9	2007.3
30°	1955.6	1945.4	1948.7	1938.5	1941.9	1938.5	1941.9	1941.9	1955.6	1952.3
32.5°	1879.9	1869.6	1873.0	1862.8	1862.8	1866.1	1859.3	1859.3	1869.6	1862.8
35°	1807.6	1783.5	1786.9	1783.5	1786.9	1773.1	1773.1	1769.8	1776.7	1759.4
37.5°	1704.3	1694.0	1690.5	1687.2	1690.5	1683.7	1690.5	1680.3	1690.5	1676.8
40°	1611.3	1604.4	1607.9	1587.3	1587.3	1590.7	1583.8	1580.4	1583.8	1597.5
42.5°	1518.4	1504.7	1497.8	1490.9	1494.3	1484.0	1480.5	1473.6	1480.5	1466.8
45°	1408.2	1408.2	1404.8	1387.5	1391.0	1391.0	1377.3	1363.5	1366.9	1366.9
47.5°	1308.4	1301.5	1298.0	1280.9	1277.4	1274.0	1260.1	1249.9	1249.9	1239.5
50°	1198.2	1191.3	1181.0	1163.7	1156.9	1136.2	1125.9	1112.2	1098.4	1098.4
52.5°	1094.9	1070.7	1057.0	1029.4	1019.2	1008.8	981.3	971.0	960.6	950.3
55°	971.0	950.3	922.8	891.8	878.0	860.7	833.2	812.5	798.8	802.3
57.5°	850.5	816.0	788.5	747.2	729.9	719.5	692.0	664.5	650.7	650.7
60°	702.4	674.9	640.4	602.5	588.8	571.6	537.1	519.9	509.5	499.3
62.5°	561.2	540.6	509.5	461.3	451.1	433.8	409.8	389.1	378.7	378.7
65°	420.0	399.4	371.9	337.4	323.7	309.9	289.2	268.6	258.2	254.8
67.5°	296.1	272.0	247.9	220.4	210.0	203.1	182.5	168.7	161.8	158.3
70°	179.0	165.2	148.1	127.4	117.0	110.1	96.4	86.1	82.6	79.2
72.5°	93.0	82.6	68.8	55.1	48.2	41.3	34.4	27.5	24.2	24.2
75°	34.4	27.5	17.3	10.4	6.9	6.9	6.9	6.9	6.9	6.9
77.5°	6.9	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
80°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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)