

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

**Summary**

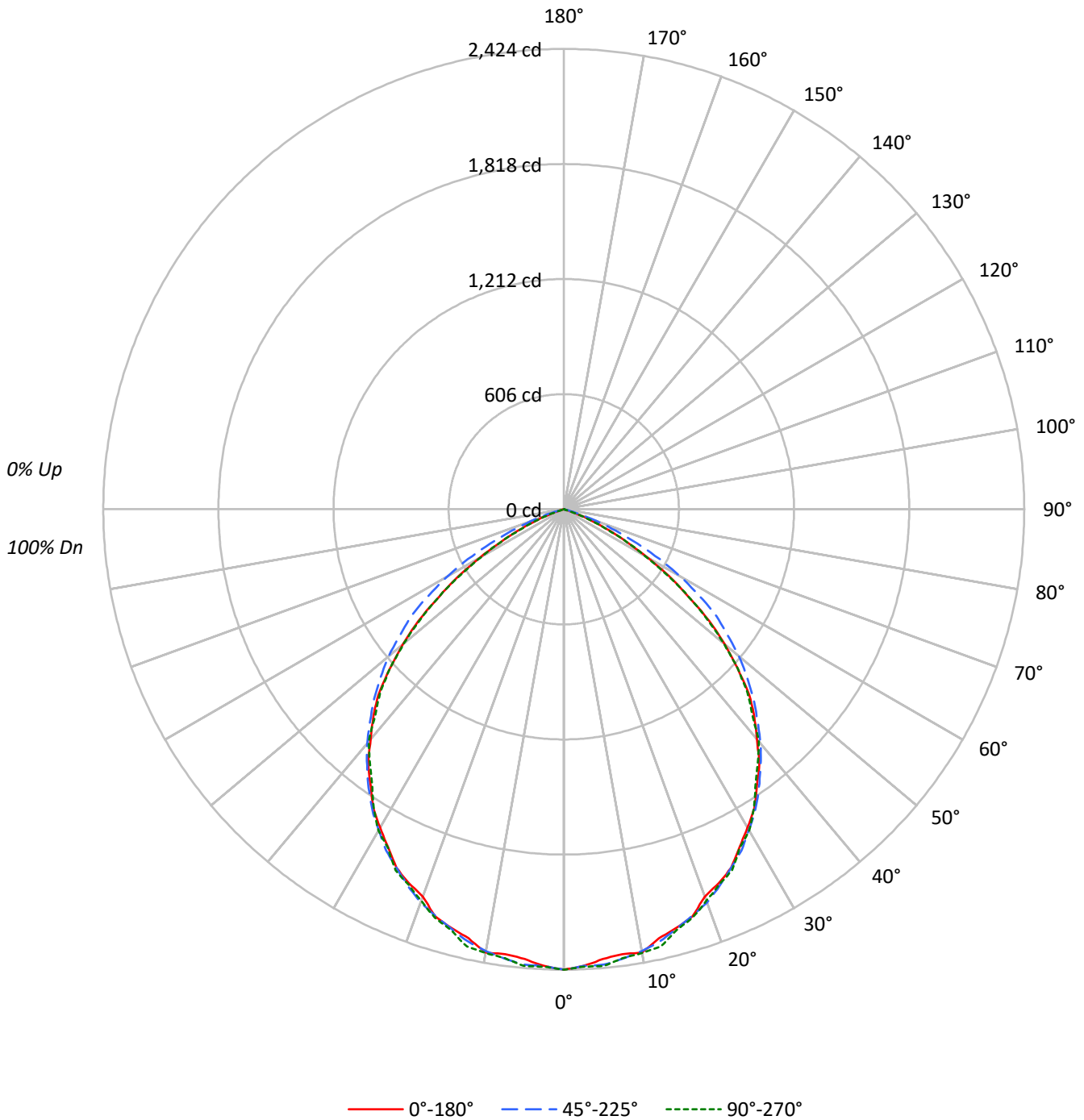
Lumens per Lamp: N/A  
 Luminaire Lumens: 5178.0 lumens  
 Efficiency: N/A  
 Efficacy: 88.7 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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

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### Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C50D010 FEU4C509030 F4LC-DFSSQ-MW

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20			
RC	80				70				50				30				10			
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100	100	100
1	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89	89	89
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77	77	77
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67	67	67
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59	59	59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	52	52	52
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46	46	46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41	41	41
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37	37	37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33	33	33
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	31	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

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**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#  
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**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

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**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)